DESIGN-BUILD AGREEMENT

MILLS MEMORIAL REDEVELOPMENT PROJECT

NORTHERN HEALTH AUTHORITY

- AND -

PCL CONSTRUCTORS WESTCOAST INC.

CONFIDENTIAL

DESIGN-BUILD AGREEMENT

MAY 31, 2021

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DESIGN-BUILD AGREEMENT

THIS AGREEMENT (the "**Agreement**") is made as of May 31, 2021 (the "**Effective Date**"),

BETWEEN:

NORTHERN HEALTH AUTHORITY

(the "**Authority**")

AND:

PCL CONSTRUCTORS WESTCOAST INC.

(the "**Design-Builder**")

WHEREAS:

A. The Authority has selected the Design-Builder to perform all Work for the Project referred to as the "Mills Memorial Redevelopment Project", as further described in this Agreement; and

B. The parties wish to enter into this Agreement to set out their respective rights and obligations.

NOW THEREFORE, in consideration of the premises and the mutual obligations contained in this Agreement, the parties agree as follows:

PART A – DEFINITIONS AND INTERPRETATION

SECTION 1
DEFINITIONS AND INTERPRETATION

1.1 Whenever used in this Agreement, the following terms have the following meanings:

"**Agreement**" means this agreement, including the documents referred to in Section 1.2;

"**Apprenticeship Policy**" has the meaning set out in Schedule 10 - Apprenticeship Policy;

"**Approved Energy Modeller**" has the meaning set out in Section 1.1 of Schedule 9 – Energy and Carbon Guarantees;

"**Architect**" means a professional architect registered and in good standing under the *Architects Act* (British Columbia);

"**Authority**" has the meaning set out on the first page of this Agreement;

"**Authority's Consultant**" means Thinkspace Architecture Planning Interior Design unless replaced in accordance with Section 5.5;

"**Authority's Representative**" has the meaning set out in Section 5.1;

"**BC Hydro**" means British Columbia Hydro and Power Authority;

"**Bonds**" has the meaning set out in Section 60.1;

"**Building**" means the new Mills Memorial Hospital;

"**Building Energy Modeling Professional (BEMP)**" has the meaning set out in Section 1.1 of Schedule 9 – Energy and Carbon Guarantees;

"**Business Day**" means a day other than a Saturday, Sunday or statutory holiday in British Columbia;

"**Carbon Emissions**" has the meaning set out in Section 1.1 of Schedule 9 – Energy and Carbon Guarantees;

"**Carbon Guarantee**" has the meaning set out in Section 1.1 of Schedule 9 – Energy and Carbon Guarantees;

"**Carbon Holdback**" has the meaning set out in Section 43.1(e);

"**Carbon Target**" has the meaning set out in Section 1.1 of Schedule 9 – Energy and Carbon Guarantees;

"**Change**" means a change in the Work, including any addition, deletion, alteration, revision or substitution;

"**Change Directive**" means a written instruction referenced as a "Change Directive" executed by the Authority and directing the Design-Builder to proceed with a Change;

"**Change Order**" means a written document referenced as a "Change Order" executed by the Authority and the Design-Builder and setting out a Change and the value or method of valuation of a Change and any adjustments to the Contract Price and Contract Time;

"**Commissioning Plan**" has the meaning set out in Section 33.1;

"**Confidential Information**" means information of a party that the party has designated as confidential at the time of disclosure and which is supplied, or to which access is granted, to or on behalf of the other party (whether before or after the Effective Date), either in writing, or in any other form, directly or indirectly pursuant to discussions with the other party and includes all analyses, compilations, studies and other documents whether prepared by or on behalf of a party which contain or otherwise reflect or are derived from such designated information;

"**Construction**" means all things, other than Design, necessary to complete the Work;

"**Contaminants**" means any materials, substances or hazardous wastes, the storage, manufacture, disposal, treatment, generation, use, transport, remediation or release into the environment of which is now or hereafter prohibited, controlled or regulated under *the Environmental Management Act* (British Columbia) and regulations;

"**Contract Price**" means the price set out in Section 2.1;

"**Contract Time**" means:

(a) in respect of the Building, the time within which the Design-Builder will achieve Substantial Completion of the Building and the Substantial Completion of the Seven Sisters Facility as set out in Section 3.1; and

(b) in respect of the Work which remains after Substantial Completion of the Building and Substantial Completion of the Seven Sisters Facility, the time within which the Design-Builder will achieve Substantial Completion of the Project as set out in Section 3.1;

"**Cooling Degree Days**" has the meaning set out in Section 1.1 of Schedule 9 – Energy and Carbon Guarantees;

"**COVID-19 Change in Law**" means a change to applicable Laws and Standards which imposes, modifies or removes measures to minimize or mitigate the spread of, and human health effects from, the novel coronavirus COVID-19;

"**COVID-19 Event**" means an event, other than a COVID-19 Change in Law, arising after the Financial Submission Date and caused by the COVID-19 Pandemic;

"**COVID-19 Pandemic**" means the novel coronavirus COVID-19 pandemic declared March 11, 2020 by the World Health Organization until such time as the World Health Organization designates or declares the COVID-19 post-pandemic phase;

"**Credit Provider**" has the meaning set out in Section 12.2;

"**Design**" means the design for the Project;

"**Design-Builder**" has the meaning set out on the first page of this Agreement;

"**Design-Builder's Consultant**" means HDR Architecture Associates, Inc. as the principal Architect and coordinating professional and any other architectural or engineering firm or person, including any Architect or Professional Engineer, engaged by the Design-Builder to prepare the Drawings and Specifications, or to otherwise consult to the Design-Builder on the Project;

"**Design-Builder's Representative**" has the meaning set out in Section 5.2;

"**Disclosed Data**" means any information, data and documents (including in PLS-CADD or any other electronic format) made available or issued to the Design-Builder or any Subcontractor or other person on behalf of the Design-Builder or any Subcontractor in connection with the Project by or on behalf of the Authority, including any information relating to the Land or the requirements of any governmental authority, whether before or after the Effective Date but excluding the Environmental Reports;

"**Dispute**" means any disagreement, failure to agree or other dispute between the Authority and the Design-Builder arising out of or in connection with this Agreement, including in respect of the interpretation, breach, performance, validity or termination of this Agreement, whether in the law of contract or any other area of law;

"**Drawings**" means all drawings for the Project that are prepared by or for the Design-Builder and submitted to the Authority under the Review Procedure and that the Design-Builder is entitled to proceed with under the Review Procedure;

"**Effective Date**" has the meaning set out on the first page of this Agreement;

"**End Date**" means the date described in Section 4.1;

"**Energy**" has the meaning set out in Section 1.1 of Schedule 9 – Energy and Carbon Guarantees;

"**Energy Consumption**" has the meaning set out in Section 1.1 of Schedule 9 – Energy and Carbon Guarantees;

"**Energy Dashboard**" has the meaning set out in Section 1.1 of Schedule 9 – Energy and Carbon Guarantees;

"**Energy Holdback**" has the meaning set out in Section 43.1(d);

"**Energy Model**" has the meaning set out in Section 1.1 of Schedule 9 – Energy and Carbon Guarantees;

"**Energy Modeller**" has the meaning set out in Section 1.1 of Schedule 9 – Energy and Carbon Guarantees;

"**Energy Target**" has the meaning set out in Section 1.1 of Schedule 9 – Energy and Carbon Guarantees;

"**Environmental Credit**" has the meaning set out in Section 1.1 of Schedule 9 – Energy and Carbon Guarantees;

"**Environmental Reports**" has the meaning set out in Section 30.1(a);

"**Epidemic**" means an epidemic or pandemic of infectious disease of humans, including one that is either declared by the World Health Organization or that is a "regional event" as defined in the Public Health Act (British Columbia) for which the Provincial Health Officer gives notice under Section 52 of that Act, but excluding the COVID-19 Pandemic;

"**Epidemic Change in Law**" means a change to applicable Laws and Standards which in respect of an Epidemic imposes, modifies or removes measures to minimize or mitigate the spread of, and human health effects from, relevant infectious disease;

"**Epidemic Event**" means an event, other than an Epidemic Change in Law, arising after the Financial Submission Date and caused by an Epidemic;

"**Existing Mills Memorial Hospital**" means the existing Mills Memorial Hospital;

"**Existing Seven Sisters**" means the existing Seven Sisters mental health residential facility;

"**Existing Sleeping Beauty**" means the existing Sleeping Beauty Clinic;

"**Existing Buildings**" means the Existing Mills Memorial Hospital, the Existing Seven Sisters and the Existing Sleeping Beauty;

"**Existing Buildings Contamination Work**" has the meaning set out in Section 46.10;

"**Facility**" means the buildings, related structures, utility connections, landscaping and other improvements to be constructed by the Design-Builder pursuant to this Agreement;

"**Financial Submission Date**" means February 1, 2021;

"**FIPPA**" means the *Freedom of Information and Protection of Privacy Act* (British Columbia);

"**Force Majeure**" means COVID-19 Events, Epidemic Events, labour disputes, strikes, lock-outs, fire, unusual delay by common carriers or unavoidable casualties or, without limiting any of the foregoing, by a cause beyond the Design-Builder's reasonable control, but excludes:

(a) any event that is the result of breach of this Agreement or Law;

(b) economic hardship or lack of financing;

(c) equipment failure;

(d) unavailability of personnel, labour or Subcontractors, unless and to the extent caused by a COVID-19 Event or an Epidemic Event;

(e) unavailability of materials, unless and to the extent caused by a COVID-19 Event or an Epidemic Event;

(f) labour disputes, strikes or lock-outs of the personnel of the Design-Builder or the Subcontractors;

(g) delays resulting from adverse weather conditions; and

(h) unsuitable or unanticipated Site conditions, including subsurface conditions;

"**GST**" means the goods and services tax imposed pursuant to Section IX of the *Excise Tax Act* (Canada);

"**Health and Safety Plan**" has the meaning set out in Section 31.5;

"**Identified Site Contaminants**" has the meaning set out in Section 30.1;

"**Indemnified Parties**" has the meaning set out in Section 58.1;

"**Independent Energy Consultant**" has the meaning set out in Section 1.1 of Schedule 9 – Energy and Carbon Guarantees;

"**Insurance Conditions**" means the terms and conditions set out in Schedule 4 – Insurance Conditions;

"**Key Individuals**" means the persons identified in Schedule 6 – Key Individuals;

"**Land**" means the lands legally described as PID: 029-707-536 Parcel A (being a consolidation of Lots A and B, see CA4814728) District Lot 360 Range 5 Coast District Plan 6736 except Plan EPP53067;

"**Laws**" means the common law and any and all laws, statutes, enactments, by-laws, regulations, rules, orders, directives, policies, permits, licences, codes and rulings of any government, and any ministries, agencies, board, commission or tribunal of any government;

"**LD Holdback**" has the meaning set out in Section 43.1;

"**LEED Certifier**" means the Canada Green Building Council or other organization authorized by the Canada Green Building Council to administer and award LEED Gold Certification;

"**LEED Gold Certification**" means the award of a LEED Gold certification from the LEED Certifier under the LEED Rating System;

"**LEED Rating System**" means LEED v4 for Building Design and Construction (BD + C); Healthcare;

"**Lien Holdback**" means the 10% holdback required under the *Builders Lien Act* (British Columbia);

"**Other Contractor**" means any person employed by or having a separate contract directly or indirectly with the Authority for work related to the Project, other than the Work;

"**Performance Holdbacks**" has the meaning set out in Section 43.1;

"**Professional Engineer**" means a professional engineer registered and in good standing under the *Professional Governance Act* (British Columbia);

"**Project**" means the design, construction, testing and commissioning of the Facility and all other works in accordance with this Agreement;

"**Project Binder**" has the meaning set out in Section 45.1;

"**Project Credits**" means any incentive, income, credit, rebate, right, benefit or advantage provided by a governmental authority or industry group relating to energy, design, materials or environmental matters, including means of production of energy, input sources, use of products or materials, efficiencies, type and level of emissions, and compliance with any energy or environmental laws, regulations, rules or orders;

"**Project Management Plan**" means the management plan that (i) sets out a high level workplan to describe the manner in which the Design-Builder will manage the Project, including to address related matters such as traffic management and communications, and (ii) is prepared by or for the Design-Builder and submitted to the Authority;

"**Proposal Extracts**" means Schedule 8 – Proposal Extracts;

"**PST**" means the tax under the *Provincial Sales Tax Act* (British Columbia) and any regulation thereunder, including any transition provisions;

"**Quality Management Plan**" means the plan for quality management including quality control and quality assurance with respect to the Work, a draft of which is included in the Proposal Extracts, together with such changes to the plan that are prepared by the Design-Builder and submitted to the Authority under the Review Procedure and that the Design-Builder is entitled to proceed with under the Review Procedure;

"**Record Drawings**" means the as-built Drawings and Specifications that record the completed Facility;

"**Review Procedure**" means Schedule 2 – Review Procedure;

"**Schedule of Values**" means the schedule to be provided by the Design-Builder pursuant to Section 40.4 and reviewed by the Authority under the Review Procedure that allocates the Contract Price set out in Schedule 7 – Schedule of Prices over the course of the Project and that is the basis for monthly payments by the Authority for Work properly performed pursuant to this Agreement;

"**Seven Sisters Facility**" means the Seven Sisters Facility that will replace the Existing Seven Sisters Facility;

"**Site**" means the place where the Construction is to be performed on the Land as indicated on the Site Plan, together with, as indicated from time to time, other such areas that the Design-Builder may be permitted to access for purposes of Construction in accordance with a Work Plan pursuant to Section 25.2;

"**Site Occupation Date**" means the date that is the third Business Day after the Effective Date unless otherwise agreed by the Authority and the Design-Builder;

"**Site Plan**" means the plan of the Site attached as Schedule 11 to this Agreement;

"**Site Reports**" means the Preliminary Results of Geotechnical Investigation, Mills Memorial Hospital Redevelopment, Terrace, B.C., prepared by GeoNorth Engineering Ltd., dated November 13, 2018;

"**Specifications**" means all construction and other specifications for the Project prepared by or for the Design-Builder and submitted to the Authority under the Review Procedure and that the Design-Builder is entitled to proceed with under the Review Procedure;

"**Standards**" means any and all Laws, professional standards and specifications applicable to the Work, or to work such as the Project, as they are in force from time to time in the latest current version thereof;

"**Statement of Requirements**" means Schedule 1 – Statement of Requirements;

"**Subcontract**" means a contract with a Subcontractor;

"**Subcontractor**" means a person or entity, including the Design-Builder's Consultant, having a contract with the Design-Builder or with a subcontractor of any tier to perform a part or parts of the Work or to supply products or materials for the Work;

"**Submittal**" means any and all items, documents and anything else required or specified by this Agreement and any and all subsequent revisions, amendments and changes thereto, in respect of the Design and the Construction to be submitted to, reviewed, accepted or otherwise processed or considered by the Authority;

"**Submittal Schedule**" has the meaning set out in Section 1.1 of Schedule 2 – Review Procedure;

"**Substantial Completion**" means "Substantial Completion of the Project", unless "Substantial Completion" is expressly indicated to refer only to the Building or the Seven Sisters Facility;

"**Substantial Completion Certificate**" means the certificate issued to the Design-Builder by the Authority's Consultant upon the achievement of Substantial Completion of the Building, Substantial Completion of the Seven Sisters Facility or Substantial Completion of the Project, as described in this Agreement;

"**Substantial Completion Date**" means the date that Substantial Completion of the Building, Substantial Completion of the Seven Sisters Facility or Substantial Completion of the Project has been achieved by the Design-Builder, as set out in the Substantial Completion Certificate;

"**Substantial Completion of the Building**" has the meaning set out in Section 44.2;

"**Substantial Completion of the Seven Sisters Facility**" has the meaning set out in Section 44.3;

"**Substantial Completion of the Project**" has the meaning set out in Section 44.4;

"**Target Building Substantial Completion Date**" has the meaning set out in Section 3.1;

"**Target Project Substantial Completion Date**" has the meaning set out in Section 3.1;

"**Target Seven Sisters Facility Substantial Completion Date**" has the meaning set out in Section 3.1;

"**Term**" means the period commencing on the Effective Date and ending on the End Date;

"**Test Period**" has the meaning set out in Section 1.1 of Schedule 9 – Energy and Carbon Guarantees;

"**Time Schedule**" means the general schedule for timing of the Work as set out in the Proposal Extracts and as updated pursuant to Section 7;

"**Total Completion**" has the meaning set out in Section 44.13;

"**Total Completion Certificate**" means the certificate issued to the Design-Builder by the Authority's Consultant upon the achievement of Total Completion;

"**Total Completion Date**" means the date that Total Completion has been achieved, as set out in the Total Completion Certificate, the deadline for which is set out in Section 3.3 below;

"**User Consultation Group**" has the meaning set out in Section 4 of Schedule 2 – Review Procedure;

"**Warranty Holdback**" has the meaning set out in Section 43.1;

"**Warranty Period**" means the applicable period defined in Section 38.1 during which the Design-Builder is required to repair any deficiencies or defects that arise in the Work;

"**Weather Data**" has the meaning set out in Section 1.1 of Schedule 9 – Energy and Carbon Guarantees;

"**Work**" means everything to be undertaken by the Design-Builder under this Agreement;

"**Work Plan**" has the meaning set out in Section 25.2; and

"**Workers' Compensation Board**" or "**WorkSafe BC**" means the board constituted pursuant to the *Workers Compensation Act* (British Columbia).

1.2 This Agreement includes the following schedules and all sub-schedules, appendices and attachments to those schedules:

(a) Schedule 1 – Statement of Requirements;

(b) Schedule 2 – Review Procedure;

(c) Schedule 3 – Management Systems and Plans;

(d) Schedule 4 – Insurance Conditions;

(e) Schedule 5 – Communication Roles;

(f) Schedule 6 – Key Individuals;

(g) Schedule 7 – Schedule of Prices;

(h) Schedule 8 – Proposal Extracts;

(i) Schedule 9 – Energy and Carbon Guarantees;

(j) Schedule 10 – Apprenticeship Policy; and

(k) Schedule 11 – Site Plan.

1.3 This Agreement will be interpreted according to the following provisions, except to the extent the context or the express provisions of this Agreement otherwise require:

(a) no rule of law will apply that would construe this Agreement or any part of it against the party who (or whose counsel) drafted, prepared or put forward the Agreement or any part of it;

(b) the table of contents, headings and sub-headings, marginal notes and references to them in this Agreement are for convenience of reference only, do not constitute a part of this Agreement and will not be taken into consideration in the interpretation or construction of, or affect the meaning of, this Agreement;

(c) neither the organization of the Statement of Requirements, the Proposal Extracts or any other documents included in this Agreement into divisions, sections and parts, or the arrangement of drawings or specifications included in this Agreement will control the Design-Builder in dividing the Work among Subcontractors or in establishing the Work to be performed by a trade;

(d) each reference to a Section or Schedule is a reference to a Section of or Schedule to this Agreement;

(e) a Schedule includes all of the sub-schedules, appendices and other attachments attached to that Schedule;

(f) each reference to an agreement, document, standard, principle or other instrument includes (subject to all relevant approvals and any other provisions of this Agreement expressly concerning such agreement, document, standard, principle or other instrument) a reference to that agreement, document, standard, principle or instrument as amended, supplemented, substituted, novated or assigned;

(g) each reference to a statute or statutory provision (including any subordinate legislation) includes any statute or statutory provision which amends, extends, consolidates or replaces the statute or statutory provision or which has been amended, extended, consolidated or replaced by the statute or statutory provision and includes any orders, regulations, by-laws, ordinances, orders, codes of practice, instruments or other subordinate legislation made under the relevant statute;

(h) each reference to time of day is a reference to Pacific Standard Time or Pacific Daylight Saving Time, as the case may be;

(i) words, including "they", "them" and "their", which may import the plural include the singular and vice versa;

(j) words which may import gender are interpreted as gender neutral;

(k) each reference to a public organization is deemed to include a reference to any successor(s) to such public organization or any organization or entity or organizations or entities which has or have taken over the functions or responsibilities of such public organization;

(l) unless the context otherwise requires, each reference to "parties" means the parties to this Agreement and each reference to a "party" means any one of the parties to this Agreement, provided however that a reference to a third party does not mean a party to this Agreement;

(m) all monetary amounts are expressed in Canadian Dollars;

(n) whenever this Agreement obliges a party (the "**Payor**") to pay any amount to the other party (the "**Payee**") in respect of any costs, expenses, fees, charges, liabilities, losses, claims or other sums incurred by the Payee:

(i) such obligation will be construed as applying only to so much of such sums as have been properly incurred on an arm's length commercial basis or, where not incurred on an arm's length commercial basis (including when the payment is made to an affiliate of the Payee), so much of them as are proper and reasonable; and

(ii) the Payee will, when requested by the Payor, provide supporting evidence of such costs, expenses, fees, charges, liabilities, losses, claims or other sums;

(o) the Authority will not be imputed with knowledge of any fact, matter or thing unless that fact, matter or thing is within the actual knowledge of any of those of its employees or agents (including the Authority's Representative) who have responsibilities in connection with the conduct of the Work;

(p) without limiting the extent of its actual knowledge, the Design-Builder will for all purposes of this Agreement be deemed to have such knowledge in respect of the Work as is held (or ought reasonably to be held) by all persons involved in carrying out the Work including the Design-Builder and the Subcontractors (including the Design-Builder's Consultant) and the officers, agents, employees or workers of any of them;

(q) each requirement for a thing or action to be "in accordance with" or "in compliance with" any standard, code or specification or other requirement or stipulation means that such thing or action is to exceed or at least equal that standard, code, specification or other requirement or stipulation;

(r) the words "include", "includes" and "including" are to be construed as meaning "include without limitation", "includes without limitation" and "including without limitation", respectively;

(s) the terms "will", "shall" and "must" are synonymous;

(t) the Statement of Requirements includes provisions written in the imperative, and all such provisions will be construed as obligations of the Design-Builder;

(u) when a party has "discretion", it means that party has the sole, absolute and unfettered discretion, with no requirement to act reasonably or provide reasons unless specifically required under the provisions of this Agreement;

(v) any consent contemplated to be given under this Agreement must be in writing;

(w) general words are not given a restrictive meaning:

(i) if they are introduced by the word "other", by reason of the fact that they are preceded by words indicating a particular class of act, matter or thing; or

(ii) by reason of the fact that they are followed by particular examples intended to be embraced by those general words;

(x) words or abbreviations which have well-known technical or trade meanings are used in accordance with those meanings;

(y) the expression "all reasonable efforts" and expressions of like import, when used in connection with an obligation of either of the parties, means taking in good faith and with due diligence all commercially reasonable steps to achieve the objective and to perform the obligation, including doing all that can reasonably be done in the circumstances taking into account each party's obligations hereunder to mitigate delays and additional costs to the other party, and in any event taking no less steps and efforts than those that would be taken by a commercially reasonable and prudent person in comparable circumstances but where the whole of the benefit of the obligation and where all the results of taking such steps and efforts accrued solely to that person's own benefit, provided that the foregoing will not require the Authority to:

(i) take any action which is contrary to the public interest, as determined by the Authority in its discretion; or

(ii) undertake any mitigation measure that might be available arising out of its status as a public body that would not normally be available to a private commercial party;

(z) the expressions "by the Design-Builder" and "by or through the Design-Builder" and expressions of like import are synonymous and mean by the Design-Builder or by anyone employed by or through the Design-Builder, including the Design-Builder and all Subcontractors and their respective officers, agents, employees and workers;

(aa) all accounting and financial terms used herein are, unless otherwise indicated, to be interpreted and applied in accordance with GAAP, consistently applied;

(bb) if the time for doing an act falls or expires on a day that is not a Business Day, the time for doing such act will be extended to the next Business Day;

(cc) each provision of this Agreement will be valid and enforceable to the fullest extent permitted by law. If any provision of this Agreement is held to be invalid, unenforceable or illegal to any extent, such provision may be severed and such invalidity, unenforceability or illegality will not prejudice or affect the validity, enforceability and legality of the remaining provisions of this Agreement. If any such provision of this Agreement is held to

be invalid, unenforceable or illegal, the parties will promptly endeavour in good faith to negotiate new provisions to eliminate such invalidity, unenforceability or illegality and to restore this Agreement as nearly as possible to its original intent and effect; and

(dd) each release, waiver of liability and indemnity in this Agreement expressed to be given in favour of a person is and will be interpreted as having been given in favour of and may be enforced by that person and, in the case of the Authority, by the Indemnified Parties.

1.4 All documents forming this Agreement are complementary, and what is required by any one will be as binding as if required by all.

1.5 If there is a conflict within the documents forming this Agreement:

(a) the provisions establishing the higher quality, manner or method of performing the Work, using the more stringent standards, will prevail, with the intent that the provisions which produce the higher quality with the higher levels of safety, reliability, durability, performance and service will prevail;

(b) the order of priority of documents from highest to lowest will be:

(i) the part of this Agreement from the first page to the page with the signatures of the persons executing this Agreement;

(ii) the schedules (including appendices, sub-schedules and attachments to the schedules), except Schedule 8 – Proposal Extracts, in the order in which they are listed in Section 1.2;

(iii) Schedule 8 - Proposal Extracts;

(c) specifications will govern over drawings;

(d) drawings of a larger scale will govern over those of a smaller scale of the same date;

(e) dimensions shown in drawings will govern over dimensions scaled from drawings; and

(f) later dated documents will govern over earlier dated documents of the same type.

PART B – PRICE, TIME AND TERM

SECTION 2
CONTRACT PRICE

2.1 The Authority will pay the Contract Price of $511,489,907 plus applicable GST to the Design-Builder for performance of the Work.

2.2 The Contract Price is the entire compensation to the Design-Builder for performance of the Work excluding $26,971,273 plus applicable GST certified for the Work completed as Design Early Works (as defined in the DEWA) under the DEWA up to the Effective Date.

2.3 The Contract Price is subject to adjustments as provided in this Agreement.

2.4 The Authority will pay the Contract Price to the Design-Builder as provided in this Agreement.

SECTION 3
CONTRACT TIME

3.1 The Design-Builder will commence the Work within 7 days after the Effective Date and will thereafter diligently perform the Work in accordance with this Agreement and achieve Substantial Completion of the Building on or before September 19, 2024 (the "**Target Building Substantial Completion Date**"), Substantial Completion of the Seven Sisters Facility on or before September 19, 2024 (the "**Target Seven Sisters Facility Substantial Completion Date**"), Substantial Completion of the Project on or before July 8, 2026 (the "**Target Project Substantial Completion Date**") and Total Completion on the date which shall be established by the Authority at the time any deficiency lists, as setout under Section 45.2(c), are finalized, which date shall not exceed 90 days following the Substantial Completion Date.

3.2 The Design-Builder will perform the Work in compliance with the Time Schedule, as may be modified in accordance with the terms of this Agreement.

3.3 Delay Liquidated Damages

(a) If the Design-Builder fails to achieve Substantial Completion of the Building on or before the Target Building Substantial Completion Date and the Authority has not extended the Target Building Substantial Completion Date in the Time Schedule in accordance with this Agreement, the Design-Builder will pay to the Authority by way of liquidated damages and not as a penalty the sum of per day for each and every day after the Target Building Substantial Completion Date that Substantial Completion of the Building is not achieved (or if the Authority has extended the Target Building Substantial Completion Date in the Time Schedule in accordance with this Agreement, such other date established for the Target Building Substantial Completion Date).

(b) If the Design-Builder fails to achieve Substantial Completion of the Seven Sisters Facility on or before the Target Seven Sisters Facility Substantial Completion Date and the Authority has not extended the Target Seven Sisters Facility Substantial Completion Date in the Time Schedule in accordance with this Agreement, the Design-Builder will pay to the Authority by way of liquidated damages and not as a penalty the sum of per day for each and every day after the Target Seven Sisters Facility Substantial Completion Date that Substantial Completion of the Seven Sisters Facility is not achieved (or if the Authority has extended the Target Seven Sisters Facility Substantial Completion Date in the Time Schedule in accordance with this Agreement, such other date established for the Target Seven Sisters Facility Substantial Completion Date).

(c) If the Design-Builder fails to achieve Substantial Completion of the Project on or before the Target Project Substantial Completion Date and the Authority has not extended the Target Project Substantial Completion Date in the Time Schedule in accordance with this Agreement, the Design-Builder will pay to the Authority by way of liquidated damages and not as a penalty the sum of per day for each and every day after the Target Project Substantial Completion Date that Substantial Completion of the Project is not achieved (or if the Authority has extended the Target Project Substantial Completion Date in the Time Schedule in accordance with this Agreement, such other date established for the Target Project Substantial Completion Date).

(d) The maximum aggregate amount of such liquidated damages will be of the Contract Price. If this Agreement is terminated, the reference in this Section 3.3 to the "Contract Price" will be deemed only for purposes of this Section 3.3 to be the amount to which the Design-Builder would have been entitled if the Design-Builder had properly performed and completed the Work and this Agreement had not been terminated. The liquidated damages will be the Authority's sole claim for damages against the Design-Builder for failure to achieve Substantial Completion of the Building by the Target Building Substantial Completion Date, for failure to achieve Substantial Completion of the Seven Sisters Facility by the Target Seven Sisters Facility Substantial Completion Date or for failure to achieve Substantial Completion of the Project by the Target Project Substantial Completion Date. The liquidated damages will not relieve the Design-Builder from its obligation to complete the Work or from any other duties, obligations or responsibilities of the Design-Builder under this Agreement, and will not limit the Authority's rights to terminate this Agreement for default of the Design-Builder under this Agreement.

3.4 The Authority and the Design-Builder agree that the amounts in Section 3.3 represent genuine pre-estimates of the damages and expenses that the Authority is likely to incur for such failure to meet the Target Building Substantial Completion Date or the Target Project Substantial Completion Date, as applicable, and both parties expressly agree that such amount is not a penalty. The Authority may, in its discretion, either deduct the daily sums in respect of liquidated damages from the Performance Holdbacks or any amounts payable to the Design-Builder under this Agreement or may require payment thereof by the Design-Builder on demand.

SECTION 4
TERM

4.1 With the exception of provisions that are expressly stated to survive the expiry of the Term, this Agreement is effective for the period commencing on the Effective Date and ending on the date (the "**End Date**") that (i) this Agreement is terminated in accordance with its terms or (ii) all of the following conditions are fulfilled:

(a) the Design-Builder and the Authority have performed all obligations required under this Agreement;

(b) the Total Completion Certificate has been issued in accordance with Section 44.14; and

(c) the Design-Builder has fulfilled all of its obligations pursuant to Section 38.

4.2 The Authority and the Design-Builder acknowledge and agree that:

(a) the Authority and the Design-Builder entered into an agreement titled "Design Early Works Agreement" dated as of June 26, 2020 (for purposes of this Section 4.2 defined as the "**DEWA**") and that the DEWA was terminated effective as of the Effective Date;

(b) the Authority and the Design-Builder entered into an assignment of contracts in connection with the DEWA dated as of June 26, 2020 (the "**Assignment of Contracts**") and that the Assignment of Contracts is terminated effective as of the Effective Date and the Assigned Property referred to therein is re-assigned to the Design-Builder; and

(c) all Design Early Works (as defined in the DEWA) undertaken under the DEWA in advance of the Effective Date are deemed to have been undertaken by the Design-Builder pursuant

to this Agreement (except for the provision of insurance under the DEWA) and the Design-Builder accepts and assumes full risk, responsibility and liability for the Design Early Works.

SECTION 5
REPRESENTATIVES, AUTHORITY'S CONSULTANT AND KEY INDIVIDUALS

5.1 Within 7 days after the Effective Date, the Authority will give written notice to the Design-Builder designating its representative for the purposes of this Agreement (the "**Authority's Representative**"). The Authority will give written notice to the Design-Builder of any change of the Authority's Representative. The Authority or the Authority Representative may by written notice delegate any or all of the functions of the Authority's Representative to any other person, including for a specified period of time in the absence of the Authority's Representative.

5.2 The representative of the Design-Builder for the purposes of this Agreement (the "**Design-Builder's Representative**") will be the person designated as such in Schedule 6 – Key Individuals, unless otherwise agreed by the Authority. The Design-Builder's Representative may by written notice delegate any or all of the functions of the Design-Builder's Representative to any other person, including for a specified period of time in the absence of the Design-Builder's Representative.

5.3 The Design-Builder's Representative will represent the Design-Builder at the Site and written instructions given to the Design-Builder's Representative by the Authority will be deemed to have been given to the Design-Builder.

5.4 The Authority will engage the Authority's Consultant to provide, without limitation, the following services, duties and responsibilities:

(a) determining of amounts owing to the Design-Builder based on the Authority's Consultant's observations and evaluations of the Design-Builder's applications for payment;

(b) issuing of certificates of payment;

(c) interpreting, in the first instance, of the requirements of this Agreement and the making of findings as to the performance hereunder by both the Authority and the Design-Builder without showing partiality to either the Authority or the Design-Builder, and in no event incurring liability for the result of such interpretations or findings rendered in good faith in such capacity;

(d) interpreting and finding, in the first instance, of Disputes;

(e) assisting the Authority with advisory team services, including assisting with review of the Design;

(f) rejecting Work which does not conform to the requirements of this Agreement;

(g) testing and inspection of the Construction by the Authority's Consultant, whether or not such Construction has been fabricated, installed, or completed;

(h) determining the dates of substantial performance under the *Builders Lien Act* (British Columbia), Substantial Completion of the Building, Substantial Completion of the Seven

Sisters Facility, Substantial Completion of the Project and Total Completion and the issuing of certificates for same;

(i) verification of the Design-Builder's applications for release of the Performance Holdbacks;

(j) reviewing any defects or deficiencies in the Work at Substantial Completion of the Building, Substantial Completion of the Seven Sisters Facility and Substantial Completion of the Project and during the Warranty Period and the issuance of appropriate instructions for the correction of same; and

(k) such other work that may be required by the Authority from time to time and that is acceptable to the Authority's Consultant.

The Authority reserves the right, on notice from the Authority to the Design-Builder, to perform or appoint an alternate advisor or consultant to perform, the services, duties and responsibilities identified in paragraphs (a) and (b) above (including determining amounts owing, evaluating applications for payment and issuing certificates of payment), and similar or ancillary services, duties and responsibilities, and upon any such notice the applicable provisions of this Agreement will be deemed to refer to the Authority or such alternate advisor or consultant in place of the Authority's Consultant.

5.5 If the Authority's Consultant's engagement is terminated, the Authority will engage a new Authority's Consultant to provide the Authority's Consultant's services. The Authority will notify the Design-Builder in writing before appointing a new Authority's Consultant and the Authority will not appoint any person to be the new Authority's Consultant to whom the Design-Builder may reasonably object.

5.6 Attached as Schedule 6 - Key Individuals is a list of Key Individuals that the Design-Builder will utilize in undertaking the Design and Construction as described in that Schedule. Unless agreed by the Authority, no individual will hold more than one position set out in Schedule 6 - Key Individuals.

5.7 With respect to each of the Key Individuals:

(a) The Design-Builder will use all reasonable efforts to retain the Key Individuals to perform the duties described in Schedule 6 - Key Individuals; and

(b) if for any reason a Key Individual resigns or is otherwise unavailable to perform the duties described in Schedule 6 - Key Individuals then the Design-Builder will use all reasonable efforts to retain a replacement with similar expertise and experience to the unavailable Key Individual satisfactory to the Authority acting reasonably, and the Design-Builder will not replace such Key Individual without the Authority's consent, acting reasonably.

5.8 Within 10 days of the Design-Builder having knowledge that a Key Individual is or will be unavailable, the Design-Builder will:

(a) notify the Authority; and

(b) immediately commence the process to retain a replacement prior to the unavailability of such Key Individual or promptly thereafter and will replace the Key Individual no later than 20 Business Days after the unavailability of such Key Individual.

5.9 If either the Authority or the Design-Builder reasonably considers that a replacement cannot reasonably be retained within such 20 Business Days, the Design-Builder will deliver to the Authority a reasonable program (set out, if appropriate, in stages) for retaining the replacement. The program will specify in reasonable detail the manner in, and the latest date, by which the replacement will be retained.

5.10 The Authority will have 10 Business Days from receipt of the program within which to notify the Design-Builder that the Authority, acting reasonably, does not accept the program, failing which the Authority will be deemed to have accepted the program. If the Authority notifies the Design-Builder that it does not accept the program as being reasonable, the parties will use all reasonable efforts within the following five Business Days to agree to any necessary amendments to the program put forward. In the absence of an agreement within such five Business Days, the question of whether the program (as it may have been amended by agreement) will result in the retainer of a replacement in a reasonable manner and within a reasonable time period (and, if not, what would be a reasonable program) may be referred by either party for resolution in accordance with Part K - Dispute Resolution.

5.11 The Design-Builder acknowledges that if any of the Key Individuals are not available and are not replaced as required by this Agreement, the Authority will not be obtaining the Design and Construction at the quality and level assumed to be included in the payments to be made to the Design-Builder hereunder and that in addition the Authority may incur costs and expenses.

5.12 If either (i) the position of any Key Individual remains unfilled for more than 20 Business Days after the applicable individual Key Individual ceased to hold the position or ceased to perform the functions of that position, or (ii) the Authority has accepted a program under Section 5.10 and the Design-Builder at any time fails to comply with any part of the program:

(a) the Design-Builder will pay the Authority's reasonable internal administrative and personnel costs and all reasonable out-of-pocket costs related to any measures the Authority considers are reasonably incurred in relation to the position being unfilled, including the costs to ensure that Design-Builder meets its requirements for Design and Construction and for the Authority to review and consider any replacement under this Section 5; and

(b) the Authority at its election may deem the position of the Key Individual to be a Change (other than the requirements to comply with this Section 5) and for the period of time that the Key Individual position has remained unfilled the Authority will be credited with the amount of the cost (wages, benefits, fees and other costs) that would have been incurred by the Design-Builder and Subcontractors in respect of the Key Individual plus a markup as set out in Section 49.2(b).

PART C – THE WORK

SECTION 6
GENERAL

6.1 The Design-Builder will perform the Work in accordance with the requirements of this Agreement, including Schedule 1 – Statement of Requirements.

6.2 The Design-Builder will perform and provide all professional design services, construction administration and construction work and all labour, services, products, materials, tools, water,

heat, light, power, transportation, equipment, machinery and other facilities and services and everything else necessary for the performance of the Work.

SECTION 7
TIME SCHEDULE

7.1 The Design-Builder will submit for review by the Authority, by no later than 14 days after the Effective Date and, in any event, before the Authority is required to make the first payment, a Time Schedule consistent with the form of Time Schedule included in the Proposal Extracts.

7.2 The Design-Builder will ensure that the Time Schedule will be consistent with and meet the Target Building Substantial Completion Date, the Target Seven Sisters Facility Substantial Completion Date, the Target Project Substantial Completion Date and the date required for Total Completion and all other applicable requirements of this Agreement including Schedule 1 - Statement of Requirements.

7.3 The Design-Builder will submit for review by the Authority an updated Time Schedule at intervals of 1 month, reflecting progress to date and including a comparison to the previously submitted Time Schedule, the reasons for any changes from the previous Time Schedule and a forecast to achieving Substantial Completion of the Building, Substantial Completion of the Seven Sisters Facility, Substantial Completion of the Project and Total Completion.

7.4 If at any time the actual progress of the Work does not materially conform with the Time Schedule, the Design-Builder will:

(a) submit to the Authority a report identifying the reasons for such non-conformity; and

(b) submit to the Authority a revised Time Schedule that meets all applicable requirements of this Agreement and provides for the Work to be pursued diligently to Substantial Completion of the Building, Substantial Completion of the Seven Sisters Facility, Substantial Completion of the Project and Total Completion.

SECTION 8
CONTROL AND SUPERVISION OF THE WORK

8.1 The Design-Builder will effectively direct and supervise the Work using its best skill and attention. The Design-Builder will be solely liable and responsible for:

(a) all design and all construction means, methods, techniques, sequences and procedures with respect to the Work; and

(b) coordinating all parts of the Work under this Agreement and for coordinating the Work with work of Subcontractors and, in accordance with Section 22.2, with work of Other Contractors,

in accordance with generally accepted management and supervisory practices in British Columbia.

8.2 The Design-Builder will have the sole responsibility for the design, erection, operation, maintenance and removal of temporary structures and other temporary facilities and the design and execution of construction methods required in their use. The Design-Builder will engage and pay for Professional Engineers and Architects to perform these functions where required by Law, and

in all cases where such temporary facilities and their method of construction are of such a nature that the education, training and qualifications of the Architect or Professional Engineer are required to produce safe and satisfactory results.

8.3 The Design-Builder will execute the Work in a continuous and diligent manner, and perform all its obligations in conformance with this Agreement, including the Project Management Plan and the Time Schedule.

8.4 Unless otherwise stated in this Agreement, the Design-Builder will perform the Work at the times, in the order of procedure and in the manner and method that the Design-Builder considers appropriate provided such Work is in conformance with this Agreement, including the Project Management Plan, Phasing Plan, Work Plan, Site Plan and the Time Schedule.

8.5 The Design-Builder will employ a competent construction manager, and necessary assistants, at the Site at all times during the progress of the Work.

8.6 The Design-Builder will employ or cause the Subcontractors to employ a sufficient number of sufficiently skilled workers to perform the Construction in compliance with this Agreement.

8.7 The Design-Builder will at all times maintain good order and discipline among its employees engaged on the Work.

8.8 Before commencing the Work, the Design-Builder will:

(a) purchase and deliver the Bonds as set out in Section 60 to the Authority; and

(b) file with the Authority certificates of all insurance policies and necessary endorsements to comply with the Insurance Conditions.

8.9 The Design-Builder will not perform any Construction on the Site prior to the Site Occupation Date and will not commence any Construction until the Design-Builder has submitted a Design for that portion of the Work to be constructed that is in conformance with this Agreement, submitted to the Authority under the Review Procedure and that the Design-Builder is entitled to proceed with under the Review Procedure.

8.10 If agreed to in writing by the Authority, the Design-Builder may perform necessary limited investigative and preparatory activities on the Site prior to the Site Occupation Date.

8.11 The Design-Builder will comply with the provisions of Schedule 10 - Apprenticeship Policy.

SECTION 9
QUALITY MANAGEMENT

9.1 The Design-Builder is solely responsible for the quality of the Work and will diligently implement its Quality Management Plan.

9.2 The Design-Builder will establish, implement and submit for the review by the Authority, by no later than 30 days after the Effective Date, a Quality Management Plan consistent with the form of Quality Management Plan included in the Proposal Extracts and the requirements of this Section 9. The Design-Builder will perform the Work in accordance with, and meet the requirements of, the Quality Management Plan.

9.3 The Quality Management Plan will:

(a) meet all applicable requirements of this Agreement;

(b) outline the procedures to be implemented to ensure robust and thorough quality control and quality assurance by the Design-Builder and its Subcontractors;

(c) clearly indicate the processes, testing, certification and auditing that will be performed to verify all parts of the Work comply with this Agreement;

(d) clearly indicate the timing of the elements of the Quality Management Plan and the documentation to demonstrate compliance that will be obtained by the Design-Builder and its Subcontractors and provided to the Authority;

(e) include all processes, testing, certification, auditing and documentation reasonably required by the Authority's Consultant; and

(f) ensure that the Work will meet the requirements of this Agreement.

9.4 The Design-Builder will not commence any Construction until:

(a) the quality control and quality assurance procedures applicable to that part of the Work have been developed and included in the Quality Management Plan and the Design-Builder is entitled to proceed with the Quality Management Plan in accordance with the Review Procedure; and

(b) such quality control and quality assurance procedures are fully implemented by the Design-Builder.

9.5 The Authority may at any time audit the Quality Management Plan and its implementation and may, at the Authority's expense, carry out independent quality control testing at any time.

9.6 Nothing in this Section 9 and no review, audit, inspection, acceptance, comment, approval, action or inaction by the Authority, the Authority's Representative, the Authority's Consultant or any person on behalf of the Authority or by or on behalf of any governmental authority will derogate from or relieve the Design-Builder from its obligations under this Agreement including sole responsibility for the quality of the Work, the Quality Management Plan and implementation of the Quality Management Plan.

9.7 The Authority, the Authority's Representative, the Authority's Consultant and other persons designated by the Authority will, subject to the terms of this Agreement relating to health and safety, have access to the Work at all times at the Site and wherever the Work is in preparation or progress and the Design-Builder will provide reasonable facilities for such access.

9.8 If any of the Work requires tests, inspections or approvals by this Agreement, or by the written instructions of the Authority or the Authority's Consultant, or by applicable Laws, the Design-Builder will give the Authority reasonable notice of when such Work is ready for review and inspection. The Design-Builder will arrange for and will give the Authority reasonable notice of the date and time of inspections by any governmental authorities.

9.9 The Design-Builder will furnish promptly to the Authority, on request, a copy of certificates and inspection reports relating to the Work.

9.10 If the Design-Builder covers, or permits to be covered, Work that has been designated for tests, inspections or approvals before such tests, inspections or approvals are made, given or completed, the Design-Builder will, if so directed, uncover such Work, have the inspections or tests satisfactorily completed, and make good the covering work at the Design-Builder's expense.

9.11 Subject to Section 9.10, the Authority may order any portion or portions of the Construction to be examined to confirm that such Construction is in accordance with the requirements of this Agreement. If the Construction is not in accordance with the requirements of this Agreement, the Design-Builder will correct the Construction and pay the cost of examination and correction. If the Construction is in accordance with the requirements of this Agreement, the Authority will pay all costs incurred by the Design-Builder as a result of such examination and the restoration of the Construction.

9.12 If the results of any testing or other aspect of the Quality Management Plan or implementation of the Quality Management Plan disclose that any part of the Work is incomplete or defective in any way, the Design-Builder will immediately complete that part of the Work or correct the defect at its own expense.

9.13 If the Authority's Consultant or other representatives of the Authority makes more than one review of any aspect of the Work as a result of such Work being incomplete or defective or reviews more than one test, inspection or approval in respect of any aspect of the Work as a result of such Work being incomplete or defective, the Design-Builder will bear the costs and expenses of the Authority, the Authority's consultant and other representative.

9.14 Prior to Total Completion, the Design-Builder will deliver to the Authority all tests and results taken and generated by the implementation of the Quality Management Plan.

9.15 The Design-Builder will permit access to the Site and to the Design and the Construction to persons designated by the Authority including persons representing other governmental authorities.

SECTION 10
LEED GOLD CERTIFICATION

10.1 The Design-Builder will obtain LEED Gold Certification of the Facility in accordance with the following:

(a) The Design-Builder acknowledges that the Authority has registered the Facility with the LEED Certifier for purposes of LEED Gold Certification under the LEED Rating System and for the pilot alternative compliance path for the Optimize Energy Performance credit (Alternative Energy Performance Metric).

(b) The Design-Builder will use the LEED Certifier's split review certification process.

(c) If at any time after the Effective Date the requirements to achieve LEED Gold Certification under the LEED Rating System change and the Design-Builder is required to comply with such change in order to achieve LEED Gold Certification for the Facility, then the Design-Builder will forthwith notify the Authority of such change and such change will be a Change.

(d) The Design-Builder will achieve all necessary prerequisites, credits and points under the LEED Rating System required to achieve the LEED Gold Certification and may in its discretion determine which of the credits and points to pursue.

(e) The Design-Builder will not include any prerequisites, points or credits which require any action by or on behalf of the Authority without the Authority's prior written consent. If the Authority consents to the inclusion of prerequisites, points or credits which require any action by the Authority, the Authority will take reasonable steps, consistent with the nature of the Facility and the Authority's operations and maintenance, to cooperate with the Design-Builder in respect of its achievement of such prerequisites, points and credits; provided however that such cooperation will not require the Authority to obtain such prerequisites, points or credits or to incur any liability, cost or expense.

(f) Upon payment of amounts, if any, owing under this Section 10 the Design-Builder will have no further obligations in respect of obtaining LEED Gold Certification, except to provide the Authority with such information and administrative assistance as the Authority may reasonably require in relation to obtaining LEED Gold Certification, and for greater certainty the failure to obtain LEED Gold Certification will not be a default by the Design-Builder under this Agreement.

(g) If for any reason the Design-Builder fails to obtain LEED Gold Certification for the Facility within 36 months of the Substantial Completion Date then the Design-Builder will, upon written demand from the Authority, and in addition to any other payment owing under this Section 10.1 immediately pay to the Authority $1,000,000.

(h) The Authority and the Design-Builder expressly agree that the amounts payable from the Design-Builder in this Section 10.1 are liquidated damages that represent a genuine pre-estimate of the damages and expenses that the Authority is likely to incur for such failure to achieve the LEED credits/points referred to in this Section 10.1 and LEED Gold Certification and both parties expressly agree that such amounts are not a penalty.

10.2 As a condition of Substantial Completion, the Design-Builder will deliver to the Authority:

(a) a LEED project checklist, generally in accordance with the LEED Certifier's requirements, together with a written confirmation that, in the Design-Builder's judgment:

(i) the LEED credits/points required by Section 10.1 will be achieved for the Facility; and

(ii) LEED Gold Certification will be achieved for the Facility; and

(b) a written opinion from a LEED accredited professional supporting the confirmation described in Section 10.2(a) above.

SECTION 11
ENERGY AND CARBON

11.1 The parties will comply with the provisions of Schedule 9 – Energy and Carbon Guarantees.

11.2 The Design-Builder acknowledges that BC Hydro will provide to the Authority a rebate or other Project Credits in respect of energy modelling of the Facility, and the Design-Builder will assist the Authority in obtaining such rebate and any other Project Credits, including:

(a) registering the Facility with all applicable BC Hydro programs;

(b) engaging a consultant acceptable to BC Hydro;

(c) submitting the Design and conducting any baseline testing, if necessary;

(d) conducting all energy modelling that may be required by BC Hydro or the Authority;

(e) engaging with BC Hydro during the development of design to create a BC Hydro energy compliance checklist;

(f) completing the Work in accordance with the BC Hydro energy compliance checklist;

(g) facilitating any BC Hydro inspection or review of Construction and construction materials; and

(h) any other steps necessary to obtaining BC Hydro rebates and other Project Credits.

11.3 As a condition of Substantial Completion, the Design-Builder will deliver to the Authority:

(a) a BC Hydro energy modelling compliance checklist together with a written confirmation that:

(i) the Project has been designed and constructed to maximize available BC Hydro rebates and other Project Credits; and

(ii) all steps have been performed, including providing all required documentation and information to the Authority and BC Hydro, to obtain BC Hydro rebates and other Project Credits (other than those steps that may only be performed by the Authority).

The Authority acknowledges that BC Hydro rebates and other Project Credits may be received after Substantial Completion.

11.4 This Section 11 will not limit any requirements of the Statement of Requirements for energy modelling for any purpose.

SECTION 12
PROJECT CREDITS

12.1 The Authority will be entitled to any and all Project Credits related to the Work, the Facility and its operation.

12.2 The Design-Builder will, on behalf of the Authority, apply to BC Hydro (subject to Section 11, the LEED Certifier, and any other applicable incentive programs ("**Credit Provider**") and take all reasonable steps to obtain for the Authority the maximum benefits (funding, rebates, incentives and cost savings) offered by each Credit Provider under such program(s).

12.3 Without limitation, the Design-Builder will:

(a) meet with Credit Providers at an early stage of the design of the Project;

(b) carry out any required studies and modelling;

(c) collaborate with each Credit Provider to identify potential improvements to the Facility design and methods of performing the Work that may achieve greater Project Credits; and

(d) use all commercially reasonable efforts to maximize available Project Credits through the design and construction of the Facility (to the extent possible while maintaining consistency with the Statement of Requirements).

SECTION 13
PRE-CONSTRUCTION SURVEY

13.1 The Design-Builder will:

(a) prior to the start of any Construction, conduct a pre-Construction survey of existing structures, buildings, roadways, services, infrastructure and adjacent properties, in a form and detail satisfactory to the Authority, acting reasonably, which will without limitation include field observations and photographs of existing conditions, with spot elevations by a British Columbia Land Surveyor (BCLS) registered surveyor at locations that will be accessible throughout and following Construction for ongoing settlement monitoring, and deliver a copy of the pre-Construction survey report to the Authority; and

(b) re-survey the spot elevations at regular intervals throughout Construction and at 6 months following Substantial Completion of the Project to determine ongoing long-term settlement effects, and deliver monitoring surveys to the Authority in a form and detail satisfactory to the Authority, acting reasonably.

13.2 The Design-Builder will protect the Work, the Site and property adjacent to the Site from settlement, will be responsible for all settlement caused by the Work by the Design-Builder and the Subcontractors and the Facility from and after the Effective Date and will make good all damage to the Work, the Site and property adjacent to the Site at its own expense or pay all costs incurred by the Authority or others in making good such damage. Nothing in this Section 13.2 limits the responsibility of the Design-Builder to take into account in the Design and Construction possible post-Warranty Period settlement and to take measures to minimize such settlement.

SECTION 14
EQUIPMENT AND FURNISHINGS

14.1 Without limiting the requirements of the Statement of Requirements in respect of equipment and furnishings, the Design-Builder will complete the Design and Construction to integrate and accommodate all equipment and furnishings in the Facility as identified in the Statement of Requirements, including all required electrical and plumbing connections, structural support, seismic restraints and space for efficient access, all to the tolerances and specifications as may be specified and required by the manufacturers or vendors of the equipment (which may be of a higher standard than specified in this Agreement). The Design-Builder will include equipment and furnishings identified in the Statement of Requirements as part of the development of Design under this Agreement.

SECTION 15
REVIEW PROCEDURE

15.1 The Review Procedure will apply to all Submittals and the parties will comply with the requirements of that Schedule.

SECTION 16
GENERAL DESIGN REQUIREMENTS

16.1 The Design-Builder is responsible for the means, methods, techniques, sequences and procedures necessary to properly complete the Design in conformance with this Agreement, including the Project Management Plan and the Time Schedule.

16.2 The Design-Builder will:

(a) ensure that the Work, including the Design, is fully compliant with all requirements of this Agreement (including the Statement of Requirements) and all applicable Laws; and

(b) perform and complete the Design and the Work so as to provide the completed Project that is fit for the intended uses as described in the Statement of Requirements.

16.3 The Design-Builder will:

(a) cause all portions and aspects of the Drawings and Specifications to be prepared under the direction of, and to be sealed under the professional seal of, the Design-Builder's Consultant;

(b) cause the Design-Builder's Consultant to confirm to the Authority, under professional seal (if applicable), that in the opinion of the Design-Builder's Consultant:

(i) the Drawings and Specifications implement and otherwise conform to the Statement of Requirements;

(ii) the Drawings and Specifications implement and otherwise conform to the Proposal Extracts;

(iii) the Drawings and Specifications have been prepared in accordance with, and substantially comply with, all Standards; and

(iv) the Design-Builder's Consultant has carried out the general reviews of the progress of the Construction, to the extent necessary, in order to determine to the Design-Builder's Consultant's satisfaction that the Construction is performed in general conformity with the requirements of the Agreement (including the Statement of Requirements), the Drawings and Specifications, Standards and applicable Laws; and

(c) provide the Authority and all applicable governmental authorities with all letters of professional assurance as required pursuant to applicable Laws.

16.4 The Design-Builder will not construct any part of the Work that is not based on the most recent Drawings and Specifications or that does not meet the Statement of Requirements and other

requirements of this Agreement. To the extent that the Drawings and Specifications conflict with, modify or deviate from the Statement of Requirements and other requirements of this Agreement, the Design-Builder will revise the Drawings and Specifications and submit them to the Authority under the Review Procedure.

16.5 The Design-Builder will make, or cause the Design-Builder's Consultant to make, any revisions to the Drawings or Specifications as are necessary from time to time due to Changes and, for clarity, the Design-Builder will comply with Section 16.3 with respect to any such revisions.

16.6 Nothing in this Section 16, or otherwise in or under this Agreement, makes the Authority, the Authority's Representative, the Authority's Consultant or any other person on behalf of the Authority responsible for the Design of the Project, including compliance of the Drawings and Specifications with the Statement of Requirements and all Standards, and the Design-Builder will, notwithstanding any review or acceptance under the Review Procedure or this Section 16 or other act of the Authority, the Authority's Representative, the Authority's Consultant or any other person on behalf of the Authority, remain solely liable and responsible for compliance of the Drawings and Specifications with the Statement of Requirements and all Standards.

16.7 Without limiting any of the obligations of the Design-Builder under this Agreement, the duties and responsibilities of the Design-Builder with respect to the Design include:

(a) review of the documents, reports, drawings, Statement of Requirements and other information provided by the Authority and reporting promptly to the Authority any error, inconsistency or omission the Design-Builder may discover;

(b) preparation of a Design that meets the Statement of Requirements, all Standards, all applicable Laws and all terms of this Agreement;

(c) the coordination required to integrate all parts of the Design in the Work;

(d) preparation of all reports, documents, information, schemes and presentation materials as required by this Agreement;

(e) inspecting the progress of the Construction in order to determine that the Work is in compliance with the requirements of the Design, Specifications, all Standards and all terms of this Agreement;

(f) liaising with the Authority and local authorities having jurisdiction as required during the Design and Construction and providing copies of all correspondence with such local authorities to the Authority; and

(g) providing all required assurances to local authorities having jurisdiction respecting substantial conformance of the Design with all Standards and as may be required for the issuance of or compliance with any permits, licences or approvals.

16.8 The Design-Builder will ensure that the Design-Builder's Consultant and all other Architects, Professional Engineers and other professionals performing professional services related to the Design and engaged directly or indirectly by the Design-Builder fulfill their duties and responsibilities to the standard of diligence, skill and care that such persons would customarily provide in accordance with their professional and legal obligations in similar circumstances and in the same general geographic location as the Site. Any failure by any of the Design-Builder's

Consultants or other Architects, Professional Engineers or professionals performing professional services in relation to the Design will not relieve the Design-Builder of any responsibility for ensuring that the Work is carried out in conformance with this Agreement including the Statement of Requirements, the Design and all Standards.

16.9 If the Design-Builder's Consultant's engagement is terminated, the Design-Builder will engage a new Design-Builder's Consultant to provide the Design. The Design-Builder will notify the Authority in writing before appointing or re-appointing the Design-Builder's Consultant, and the Design-Builder will not appoint any Design-Builder's Consultant to whom the Authority may reasonably object.

SECTION 17
DESIGN PROCESS

17.1 *Intentionally deleted.*

SECTION 18
OWNERSHIP OF DOCUMENTS

18.1 The Design-Builder acknowledges and agrees that this Agreement contains intellectual property that is protected by copyright and that this intellectual property is intended to be used solely for the purposes of the Project. The Design-Builder will obtain prior written permission and will require the Design-Builder's Consultant and any other Subcontractors to obtain prior written permission for any other use.

18.2 Copyright for the Design and Drawings belongs to the Design-Builder, the Design-Builder's Consultant or other consultants who prepared them.

18.3 Plans, sketches, Drawings, graphic representations and Specifications, including computer generated designs, when prepared by the Design-Builder's Consultant or other consultants are instruments of their service and will remain their property whether the construction for which they are made is executed or not.

18.4 Submission or distribution of the Design-Builder's Consultants' or other consultants' plans, sketches, Drawings, graphic representations and Specifications to meet official regulatory requirements or for other purposes in connection with the Work is not to be construed as publication in derogation of their reserved rights.

18.5 The Authority may retain copies, including reproducible copies, of all plans, sketches, Drawings, graphic representations and Specifications and other material including the Record Drawings. The Design-Builder hereby grants to the Authority a non-exclusive, royalty-free, fully paid, world-wide, perpetual and irrevocable licence to use the Design and any and all such material for any purpose related to the use and ownership of the Facility and the Land (including any renovations, additions or alterations to the Facility), for completion of any Work in the event of termination of this Agreement and for reference purposes in connection with other operations, projects and facilities of the Authority. Such licence may be sublicensed, assigned, at the discretion of the Authority, to any third party who has or may acquire an interest or obligation related to the Facility, including for any facilities maintenance, life cycle repair/replacement or other services to the Authority or others in relation to the Facility. The Design-Builder at the Authority's request, and prior to any payment after such request is made, will deliver to the Authority a consent and acknowledgement signed by the Design-Builder's Consultant confirming such licence.

18.6 Models and renderings furnished by the Design-Builder are the property of the Authority.

SECTION 19
ERRORS IN DESIGN

19.1 The Design-Builder is responsible for the Design, including all errors, omissions or deficiencies in the Design.

19.2 The Design-Builder will give written notice to the Authority immediately upon becoming aware of any error, omission or deficiency in the Design.

19.3 The Design-Builder will remedy at its own cost any error, omission or deficiency identified in the Design, including any resulting error, omission or deficiency in the Design that results in defects or deficiencies in any part of the Construction that has been commenced or completed. The Design-Builder will ensure that such remediation will conform to the requirements of this Agreement.

SECTION 20
LABOUR AND PRODUCTS

20.1 Unless otherwise expressly provided in this Agreement, the Design-Builder will provide and pay for all labour, products, materials, tools, equipment, machinery, water, heat, light, power, transportation and all other facilities, things and services (including services for Design) necessary for the performance of the Work in accordance with this Agreement.

20.2 All products, materials, equipment and machinery provided will be new unless otherwise expressly specified in this Agreement.

SECTION 21
SUBCONTRACTS

21.1 The Design-Builder will preserve and protect the rights of the Authority under this Agreement with respect to any Work to be performed by a Subcontractor, so that the subcontracting does not prejudice the Authority's rights under this Agreement.

21.2 The Design-Builder will be responsible to the Authority for the performance of all Subcontractors and will require the Subcontractors to perform their work in accordance with the terms and conditions of this Agreement.

21.3 The Design-Builder will be as fully responsible to the Authority for acts and omissions of Subcontractors and of persons directly or indirectly employed by them as for the acts and omissions of persons directly employed by the Design-Builder.

21.4 Nothing contained in this Agreement will create any contractual relationship between the Authority and any Subcontractors or their officers, agents, employees or workers.

21.5 The Design-Builder will require every Subcontractor to observe the terms of this Agreement so far as they apply to that portion of the Work to be performed directly or indirectly by that Subcontractor. The Design-Builder will require that the terms of this Agreement that are applicable to the portion of the Work to be performed by a Subcontractor will form part of that Subcontract.

21.6 The Design-Builder will require that every Subcontract for designers and Subcontractors require such designers and Subcontractors, where requested by either the Authority or the Design-Builder, to attend any Dispute resolution process including discussions, negotiations, mediation or arbitration between the Design-Builder and the Authority; provide frank, candid and timely disclosure of relevant information and documentation; and, bona fide negotiations to resolve such Disputes.

SECTION 22
OTHER CONTRACTORS

22.1 The Authority reserves the right to enter into separate contracts with Other Contractors in relation to the Project or to perform work itself. The Design-Builder will cooperate with and coordinate the Work with all concurrent construction activities by the Authority or Other Contractors on the Site or adjacent to the Site.

22.2 The Design-Builder will:

(a) coordinate the Work with that of Other Contractors and connect the Work with the work of Other Contractors as applicable; and

(b) ensure that performance of the Work is carried out in accordance with the Time Schedule so that Other Contractors are not delayed in their work.

22.3 The Design-Builder will promptly report to the Authority any apparent deficiencies in Other Contractors' work that could affect the Work as soon as they come to the Design-Builder's attention, and will confirm such report in writing promptly.

22.4 Where a Change is required as a result of the coordination and connection of the work of Other Contractors or the Authority with the Work, the Changes will only be made as provided in Section 47.

22.5 The Authority will require Other Contractors to coordinate and schedule their construction activities at the Site in accordance with the reasonable instructions of the Design-Builder acting as prime contractor that are applicable to health and construction safety at the Site and that are in accordance with the *Workers Compensation Act* (British Columbia).

22.6 The Design-Builder acknowledges that other persons working at the Site may be union or non-union and that the Authority wishes to ensure that labour peace is maintained. The Design-Builder will comply with all requirements of the Authority in respect of labour relations and the Design-Builder will take all reasonable precautions to avoid labour disruptions caused by, or contributed to by the Design-Builder, its Subcontractors or any persons performing the Work. The Design-Builder will bear the sole cost and expense of preventing, avoiding or removing any matter or events giving rise to such a labour disruption.

22.7 The Authority will assure, where possible, that Other Contractors are bound to equivalent terms as those found in this Section 22.

22.8 Claims, disputes, and other matters in question between the Design-Builder and Other Contractors will be dealt with as provided in Section 63 provided the Other Contractors have reciprocal obligations. The Design-Builder will be deemed to have consented to arbitration of any dispute

with any Other Contractor whose contract with the Authority contains a similar requirement to Section 63.

SECTION 23
ACCESS TO AND USE OF SITE

23.1 Subject to the Site Plan, Project Management Plan and Work Plan and any limitations in this Agreement, the Authority will provide reasonable Site access and grants to the Design-Builder a licence to enter and be upon the Site from the Site Occupation Date until Substantial Completion of the Project, to perform the Work that is required to be performed on the Site.

23.2 After Substantial Completion of the Building and Substantial Completion of the Seven Sisters Facility, the Authority will provide access to the Building, Seven Sisters Facility, as applicable, and the Site as reasonably required for completion of the Work and rectification of deficiencies including warranty deficiencies in respect of the Building, taking into account the Authority's use and occupancy of the Building and the Site.

23.3 After Substantial Completion of the Project, the Design-Builder will:

(a) coordinate with the Authority to ensure timely completion of the Work and rectification of deficiencies including warranty deficiencies;

(b) comply with the Authority's requirements as set out in Section 32 with respect to dust, noise and vibration;

(c) minimize disruption to the Authority's use and occupancy of the Facility and will comply with all directions of the Authority with respect to timing, security and access for the rectification of deficiencies including warranty deficiencies; and

(d) comply with the security requirements of the Authority.

23.4 The Design-Builder will:

(a) limit its activities to the areas within the Site which are identified in the Site Plan, Project Management Plan and Work Plan as required to perform the particular aspect of Work, unless the Design-Builder obtains permission to occupy or use other lands;

(b) not access any areas of the Site or adjacent properties, including airspace, which it is not permitted to access under the Site Plan, Project Management Plan or Work Plan, without the prior written permission of the Authority; and

(c) obtain any construction easements and permits that may be required for construction of the Project. When requested to do so by the Design-Builder, the Authority may at its discretion provide reasonable assistance to the Design-Builder in obtaining such construction easements and permits required for the construction of the Project but, in no circumstance will the Authority be required to incur any costs or make any payments.

23.5 The Design-Builder will:

(a) not remove or disturb trees or other vegetation for purposes of the Work, including for the purpose of providing a lay down area unless expressly permitted to do so under this

Agreement or approved by the Authority in writing and in accordance with any applicable Laws and the Statement of Requirements. The Design-Builder will obtain any required tree cutting permits; and

(b) rehabilitate all construction lay down areas to a standard not less than that observed for pre-existing conditions before Site Occupation Date and recorded in the pre-condition survey as described in Section 13.1.

23.6 Except as expressly indicated on the Site Plan, the Design-Builder acknowledges that no parking is available at the Site and agrees that the Design-Builder, the Subcontractors and their respective workers will not park on public streets within a 1 km radius of the Site. The Design-Builder will use reasonable efforts to provide temporary parking or other alternate transportation solutions for workers.

SECTION 24
PHASED CONSTRUCTION

24.1 The Design-Builder will carry out the Construction in accordance with the Project Management Plan which will include, among other things:

(a) all Site preparation;

(b) Construction of the Facility, including the requirements and timing for construction and commissioning (including all systems and equipment);

(c) demolition;

(d) Site landscaping;

(e) parking, access and traffic flows, including maintaining adequate vehicle, delivery and pedestrian access; and

(f) compliance with all requirements of this Agreement,

and the Design-Builder will submit the Project Management Plan to the Authority within 30 days after the Effective Date and will not proceed until the Project Management Plan has received the notation "Reviewed" under Schedule 2 - Review Procedure. If the Design-Builder proposes revisions to the Project Management Plan, the Design-Builder will submit the proposed revised Project Management Plan to the Authority and will not proceed with revised Project Management Plan until it has received the notation "Reviewed" under Schedule 2 - Review Procedure.

24.2 The Design-Builder will:

(a) comply with the reviewed Project Management Plan;

(b) construct the Facility within the area of the Site indicated in the Site Plan;

(c) install at least a six foot high fence around the perimeter of the area in which it is performing the Work and such hoarding and lighting as may be required by the Authority including any hoarding required to protect the public and separate the area of the Work from the other portions of the Site and the phasing requirements;

(d) provide video surveillance on all sides of the Site;

(e) perform all Construction activities within the areas of the Site provided in the Site Plan and Project Management Plan, except as approved by the Authority for any work required in other areas of the Site;

(f) perform all Construction activities without blocking or disrupting vehicle, delivery or pedestrian access, except as may be permitted pursuant to the Project Management Plan;

(g) cause the Design-Builder's personnel, Construction workers, Subcontractors and suppliers to enter or exit the Site only at the access routes indicated on the Site Plan and Project Management Plan, unless otherwise approved by the Authority;

(h) not use any explosives without the Authority's consent;

(i) take reasonable steps to ensure that Construction workers or suppliers do not smoke or otherwise consume any tobacco, e-cigarettes or cannabis products on any portion of the Site;

(j) provide a 24-hour hotline (and post the phone number in a prominent location on the Site) for:

(i) Authority staff to notify the Design-Builder of any Construction related emergencies; and

(ii) neighbours and passers-by to contact the Design-Builder,

and the Design-Builder will respond to any phone calls made on the hotline within 1 hour of receipt;

(k) provide the neighbourhood committee with the name and contact information of a representative to direct their concerns;

(l) provide a community liaison officer (who may be the same individual as the representative referred to in Section 24.2(k)) to provide a single point of contact regarding construction and development issues;

(m) before commencing the Construction, prepare and implement in co-operation with the Authority a construction fire safety plan for the Project, which plan will describe emergency access routes to and from the Facility and the Site during an emergency.

24.3 If the Design-Builder performs any Construction outside of the area designated at the Site, the Design-Builder will comply with all policies and other requirements of the Authority.

SECTION 25
INTEGRATION

25.1 The Existing Mills Memorial Hospital must remain fully operational until the Building is fully operational.

25.2 Without limiting the other requirements of this Agreement, the Design-Builder will:

(a) adhere to all Authority policies and procedures relating to the operations of and access to the Existing Mills Memorial Hospital established from time to time;

(b) prior to performing any Work in or around the Site that is not indicated in the Site Plan or Project Management Plan or proceeding with any proposed shutdown of any services, deliver to the Authority and obtain the Authority's approval of a work plan (the "**Work Plan**") clearly identifying:

(i) the activity that may interfere with the operation of the Existing Mills Memorial Hospital, including a description of the nature, timing and extent of interference;

(ii) the steps the Design-Builder intends to take to minimize the extent of such interference;

(iii) the temporary measures that the Authority will be required to take to accommodate the interference;

(iv) any specific reporting relationships between the Design-Builder and the staff desirable or required to coordinate the interference; and

(v) any expansion of the area of the Site for the purpose of performing the Work indicated in the Work Plan,

unless the Authority, at its discretion, notifies the Design-Builder in writing that a Work Plan will not be required for particular work or a particular shutdown.

25.3 Prior to delivering a Work Plan, the Design-Builder will consult with the Authority and, upon reasonable request, the Authority will make appropriate staff available for such consultation to determine the Work Plan that minimizes interference to the Existing Mills Memorial Hospital. The Design-Builder will not proceed with any work that causes any interference with the Existing Mills Memorial Hospital or any proposed shutdown of services without:

(a) the Authority's prior written approval of a Work Plan under this Section 25, such approval not to be unreasonably withheld or delayed; or

(b) advance written notice from the Authority confirming that a Work Plan is not required.

SECTION 26
SIGNAGE

26.1 The Design-Builder may erect signage at the Site during Construction to identify the Design-Builder and Subcontractors provided such signage and its location(s) is acceptable to the Authority, acting reasonably. The Design-Builder will also erect the Authority's signage as required by the Authority.

SECTION 27
USE OF SITE

27.1 The Design-Builder will confine its construction machinery and equipment, tools, storage of materials and products, and the operations of workers to limits indicated in the Site Plan, Project Management Plan or Work Plan or by or under all applicable Laws, and will not unreasonably encumber the Site or other activities on the Site.

27.2 The Design-Builder will comply with the Authority's policies, procedures and instructions, including regarding parking, safety, harassment, fires, smoking, signs and advertisements.

27.3 The Design-Builder will not load or permit to be loaded any part of the Construction with a weight or force that endangers the safety of the Project.

27.4 The Design-Builder will ensure that the Work does not adversely impact the ongoing operations of the Authority, or any person on behalf of the Authority, near or adjacent to the Site, including the operation of the Existing Mills Memorial Hospital.

27.5 The Design-Builder will confirm the location of all utilities and ensure that all of its labour force, employees, Subcontractors and any other workers at the Site:

(a) are made aware of the location of all utilities in connection with the Project and the importance of avoiding damage to those underground utilities;

(b) observe any instructions in connection with those utilities issued by the Authority on behalf of any applicable utility owners; and

(c) protect all such utilities.

SECTION 28
CONDITIONS AT SITE/DISCLOSED DATA

28.1 The Design-Builder acknowledges and agrees that:

(a) it has received and reviewed a copy of all Site Reports;

(b) it has had the opportunity to undertake examinations and investigations of the Site in order to satisfy itself as to Site conditions, excluding in relation to Contaminants, and the impact they could have on any or all of the Work (including Design and Construction), Contract Time and Contract Price;

(c) only objective geotechnical data provided in the Site Reports can be relied upon for accuracy (subject to any qualifications or conditions set out in such information or this Agreement) but such data cannot be relied upon for sufficiency, relevancy or interpretation;

(d) neither the Authority, the Authority's Representative, the Authority's Consultant nor any other person on behalf of the Authority is in any way responsible or liable for the completeness, interpretation or accuracy of the Site Reports (except accuracy of objective geotechnical data identified in Section 28.1(b)) or for any variation between Site conditions actually encountered by the Design-Builder and those set out in the Site Reports; and

(e) subject to Sections 28.3, Section 29 and Section 30, the Design-Builder is not entitled to any adjustment in the Contract Time or Contract Price, or to any other remuneration, compensation or damages whatsoever, in any way connected with Site conditions.

28.2 It is the Design-Builder's responsibility to have conducted its own analysis and review of the Project and, before the execution of this Agreement, to have taken all steps it considers necessary to satisfy itself as to the accuracy, completeness and applicability of any Disclosed Data upon which it places reliance and to assess all risks related to the Project except with respect to Contaminants. Except with respect to the accuracy of objective geotechnical data identified in Section 28.1(b) and excluding Contaminants, the Design-Builder will not be entitled to and will not make (and will ensure that no Subcontractor makes) any claim against the Authority or any Indemnified Party, whether in contract, tort or otherwise including any claim in damages for extensions of time or for additional payments under this Agreement on the grounds:

(a) of any misunderstanding or misapprehension in respect of the Disclosed Data;

(b) that the Disclosed Data was incorrect or insufficient; or

(c) that incorrect or insufficient information relating to the Disclosed Data was given to it by any person other than the Authority,

nor will the Design-Builder be relieved from any obligation imposed on or undertaken by it under this Agreement on any such ground.

28.3 The Design-Builder, in order to design the Facility, is responsible for obtaining sufficiently accurate, complete and applicable geotechnical information necessary to properly design a foundation and structure of the Facility that is appropriate for the soils conditions. This may require supplementing the Disclosed Data. Accordingly, the Design-Builder is not entitled to any adjustment in the Contract Time or Contract Price, or to any other remuneration, compensation or damages whatsoever, in any way connected with Site conditions (other than in respect of Contaminants as provided in Section 30), including the matters described in Section 28.2 if it has failed to obtain sufficient geotechnical information necessary to prepare a Design that reasonably anticipates the soils conditions actually encountered.

28.4 If the Design-Builder is delayed in performing the Work as a result of inaccuracy in the objective geotechnical data provided in the Site Reports, the Design-Builder's entitlement to an extension of the Contract Time and reimbursement of costs will be determined in accordance with Section 51. If the Design-Builder is not delayed in performing the Work but incurs additional costs as a result of inaccuracy in the objective geotechnical data provided in the Site Reports, adjustment in the Contract Price will be agreed upon or determined in accordance with Section 48 (Valuation and Certification of Changes).

SECTION 29
ARCHAEOLOGICAL ITEMS

29.1 Upon discovery at the Site of any fossils, remains, coins, articles of value or antiquity, including all heritage objects (as defined in the *Heritage Conservation Act* (British Columbia)), the Design-Builder will:

(a) immediately notify the Authority;

(b) take all steps not to disturb the item and, if necessary, stop Construction to the extent required if performing the Construction would endanger the object or prevent or impede its excavation;

(c) take all necessary steps to preserve the item in the same position and condition in which it was found; and

(d) comply with all Laws and regulations and all requirements of governmental authorities with respect to such discovery including pursuant to the *Heritage Conservation Act* (British Columbia).

29.2 If the Design-Builder is delayed in performing the Work taking steps required under Section 29.1, the Design-Builder's entitlement to an extension of the Contract Time and reimbursement of costs will be determined in accordance with Section 51. If the Design-Builder is not delayed in performing the Work but incurs additional costs as a result of taking steps required under Section 29.1, adjustment in the Contract Price will be agreed upon or determined in accordance with Section 48 (Valuation and Certification of Changes).

SECTION 30
CONTAMINANTS AND ENVIRONMENTAL MANAGEMENT

30.1 The Design-Builder acknowledges and agrees:

(a) it has received and reviewed a copy of the Stage 1 Preliminary Site Investigation, Mills Memorial Hospital, Terrace, BC, prepared by Associated Environmental Consultants Inc., dated September 2018 and the Stage 2 Preliminary Site Investigation, Mills Memorial Hospital, 4720 Haugland Avenue, Terrace, BC, prepared by Associated Environmental Consultants Inc., dated October 2020 (together, the "**Environmental Reports**") that identify Contaminants at the Site (the "**Identified Site Contaminants**"); and

(b) neither the Authority nor the Authority's Representative nor any other person on behalf of the Authority is in any way responsible or liable for the completeness, interpretation or accuracy of the Environmental Reports.

The Authority acknowledges and agrees that the Design-Builder is not responsible for any investigations of Contaminants suggested or recommended in the Environmental Reports or for remediation of any Identified Site Contaminants or any other Contaminants (except for Contaminants brought onto or adjacent to the Site by the Design-Builder). If such Identified Contaminants or other Contaminants are discovered, the Authority may require PCL by Change Order or Change Directive to modify the scope of Work to include removal or remediation of Contaminants.

30.2 If the Design-Builder, after commencing the Work:

(a) encounters Contaminants (including Identified Site Contaminants); or

(b) has reason to believe in the existence of any Contaminants in addition to the Identified Site Contaminants,

on, in or under the Site, the Design-Builder will at once take all reasonable steps, including suspension of the Work, as necessary to ensure that no person or property suffers injury,

sickness, death, damage or destruction as a result of exposure to, or the presence of, any Contaminant, and the Design-Builder will immediately report such Contaminant to the relevant governmental authorities and to the Authority.

30.3 If the Design-Builder is delayed in performing the Work due to the Identified Site Contaminants or the discovery of other Contaminants by taking steps required under Section 30.2, the Design-Builder's entitlement to an extension of the Contract Time and reimbursement of costs will be determined in accordance with Section 51. If the Design-Builder is not delayed in performing the Work but incurs additional costs due to the Identified Site Contaminants or the discovery of such other Contaminants the adjustment in the Contract Price will be agreed upon or determined in accordance with Section 48 (Valuation and Certification of Changes). The Design-Builder is not entitled to an extension of the Contract Time or reimbursement of costs in relation to Contaminants brought onto or adjacent to the Site by the Design-Builder.

SECTION 31
SITE SAFETY

31.1 The Design-Builder agrees to be the "prime contractor" for the purposes of all applicable occupational health and safety Laws, including the *Workers Compensation Act* (British Columbia), and the Design-Builder is responsible for filing any documents necessary to comply with the *Workers Compensation Act* (British Columbia), including a notice of project. The Design-Builder will comply with all requirements of the *Workers Compensation Act* (British Columbia) and any other occupational health and safety Laws, applicable to the Project, the Work or to the Site. The Authority will comply, and will cause Other Contractors to comply, with occupational health and safety requirements established by the Design-Builder to fulfil the Design-Builder's obligations as "prime contractor".

31.2 Prior to commencing the Work and as a condition of receiving payment on Substantial Completion of the Building, Substantial Completion of the Seven Sisters Facility, Substantial Completion of the Project and on Total Completion, the Design-Builder will provide the Authority with satisfactory written evidence of compliance by the Design-Builder with all requirements under the *Workers Compensation Act* (British Columbia), including payments of assessments due under it to the Workers' Compensation Board. Without limiting the foregoing, the Authority may at any time require the Design-Builder to provide evidence of compliance with all requirements under the *Workers Compensation Act* (British Columbia), or payment of assessments due under it to the Workers' Compensation Board, or both.

31.3 When required to do so by the Authority, the Design-Builder will provide the Authority with evidence of its compliance and compliance of any or all of its Subcontractors under Section 31.2.

31.4 Following the Site Occupation Date, the Design-Builder will coordinate health and safety for the Site for all activities performed by its workers as well as those of Subcontractors, utilities, inspectors, the Authority, Other Contractors and any others performing any activities at the Site.

31.5 The Design-Builder will establish, implement and provide for the review by the Authority, by no later than 30 days after the Effective Date, a plan (the "**Health and Safety Plan**") that meets all applicable requirements of this Agreement with respect to health and safety at the Site and that addresses the safety of the Authority, patients and others who may be on the Site or property in the vicinity of the Site. The Design-Builder will provide safety fencing and hoarding as necessary to limit access to the Site in accordance with the Health and Safety Plan.

31.6 The Design-Builder will ensure that its Health and Safety Plan is consistent with, and accommodates any requirements of, the Authority's policies regarding safety and that it specifically addresses the safety of the Authority, patients, visitors and others who may be on the Site or on property in the vicinity of the Site.

31.7 The Design-Builder will maintain and comply with the Health and Safety Plan in all material respects during execution of the Work.

31.8 Prior to any person accessing the Site pursuant to this Agreement, the Design-Builder will provide health and safety orientation and information to such person in accordance with its Health and Safety Plan.

SECTION 32
DUST, NOISE AND VIBRATION

32.1 The Design-Builder will carry out its Construction to minimize dust, noise, vibration, noxious odours and fumes.

32.2 Without limiting Section 32.1, the Design-Builder will discuss with the Authority any expected vibration from the Construction activities, will plan operations to minimize disruption to the Authority's activities, and will carry out its Construction activities, so that dust, noise, vibration, noxious odours and fumes do not unreasonably and adversely affect the Authority's activities or use of properties in the vicinity of the Site.

SECTION 33
TESTING AND COMMISSIONING

33.1 The Design-Builder will prepare and deliver to the Authority, not less than 180 days before the Target Building Substantial Completion Date, for review under the Review Procedure, a detailed testing and commissioning plan (the "**Commissioning Plan**") that is consistent with the requirements for testing and commissioning of the Facility identified in the Statement of Requirements and that sets out the commissioning activities the Design-Builder intends to carry out to satisfy this Section 33 and to achieve Substantial Completion of the Building, Substantial Completion of the Seven Sisters Facility and Substantial Completion of the Project, including:

(a) a description of the specific equipment and systems to be tested and commissioned and the associated commissioning requirements, including those to be completed before each of Substantial Completion of the Building, Substantial Completion of the Seven Sisters Facility and Substantial Completion of the Project and testing and commissioning activities that are dependent on seasonal or system loading limitations that may require activities to be completed after Substantial Completion of the Building, Substantial Completion of the Seven Sisters Facility or Substantial Completion of the Project;

(b) a schedule, related to the Time Schedule, showing the timing of all testing and commissioning activities; and

(c) supporting documentation, including as appropriate:

(i) design calculations and/or assumptions; and

(ii) manufacturer's specifications.

33.2 The Design-Builder will retain a qualified independent commissioning agent (acceptable to the Authority, acting reasonably), to test and commission equipment and systems in the Facility to demonstrate to the Authority that the Facility equipment and systems, including all major systems, are proven through testing and commissioning to be able to operate for their intended purposes and that the Authority may occupy the Facility for their intended use as described in the Statement of Requirements. The commissioning agent will prepare a written report to confirm the foregoing and confirm completion of all commissioning activities with the exception of testing and commissioning activities deferred until after Substantial Completion of the Building, Substantial Completion of the Seven Sisters Facility or Substantial Completion of the Project due to seasonal or system loading limitations before, as applicable, Substantial Completion of the Building, Substantial Completion of the Seven Sisters Facility or Substantial Completion of the Project. Deferred testing and commissioning due to seasonal or operational loading limitations will include, among other things: (i) electrical spare capacity demonstrated for the Emergency Power System, Centralize UPS and the electrical distribution system, no later than twelve (12) months after Substantial Completion; (ii) mechanical full stress conditions verified as seasonal weather permits, no later than nine (9) months after Substantial Completion; and upon completion of deferred testing and commissioning the results will be summarize within an updated commissioning report issued no later than one (1) month after completion of deferred testing and commissioning. Testing and commissioning will include, among other things, the following:

(a) a complete and successful demonstration in real time under full stress conditions or simulated stress conditions for equipment and systems that require or are provided with redundancy or spare capacity;

(b) end to end testing and commissioning of key equipment and systems, except where testing and commissioning activities are deferred by seasonal or system loading limitations, including but not limited to all equipment, communication systems (wireless communications, intercom, overhead paging, telephones) and door controls; and

(c) clinical validation or proper functioning of all equipment and systems and all points of integration between such equipment and systems.

SECTION 34
DOCUMENTS AT THE SITE

34.1 The Design-Builder will keep at least 1 copy of the following documents at the Site in good order and available to the Authority:

(a) a copy of this Agreement;

(b) a copy of all development, building, electrical and plumbing permits and inspection reports;

(c) up to date and current Drawings and Specifications, including any shop drawings prepared or obtained in respect of the Work;

(d) the Project Management Plan;

(e) the Time Schedule;

(f) the Quality Management Plan;

(g) the Work Plan; and

(h) the Health and Safety Plan.

SECTION 35
CLEANUP AND FINAL CLEANING OF WORK

35.1 The Design-Builder will maintain the Work in a tidy condition and free from the accumulation of waste products and debris, other than that caused by the Authority, Other Contractors or their employees.

35.2 The Design-Builder will promptly remove all surplus products, tools, construction machinery and equipment, and any waste and debris.

35.3 The Design-Builder will leave the Building and Seven Sisters Facility, as applicable, clean and suitable for occupancy and use by the Authority by the Substantial Completion Date of the Building and the Substantial Completion Date of the Seven Sisters Facility.

35.4 The Design-Builder will leave the remainder of the Facility and the Site clean and suitable for occupancy and use by the Authority by the Substantial Completion Date of the Project in accordance with the Authority's standards of cleanliness.

35.5 In connection with any Work performed in the Building, the Seven Sisters Facility or in the remainder of the Facility after the respective Substantial Completion Dates, the Design-Builder will at all times leave the Work and Site clean and suitable for occupancy and use by the Authority but is not required to remove waste caused by the Authority.

SECTION 36
REMEDIAL WORK

36.1 The Design-Builder will do all remedial work that may be required to make the several parts of the Work comply with the Statement of Requirements.

36.2 The Design-Builder will coordinate the Time Schedule for the Work to ensure that the requirement under Section 36.1 is kept to a minimum.

36.3 Remedial work will be performed by specialists familiar with the materials affected and will be performed in a manner to neither damage nor endanger any Work.

SECTION 37
REJECTED WORK

37.1 Defective Work, whether the result of poor design, poor work, use of defective equipment or materials, or damage through carelessness, default or other acts of the Design-Builder or any Subcontractor, and whether incorporated in the Work or not, which has been rejected by the Authority as failing to conform to any of the Statement of Requirements, the Design or the Standards, will be removed promptly by the Design-Builder and replaced and re-executed promptly and properly at the Design-Builder's expense.

37.2 If the Design-Builder does not remove such defective Work within the time fixed by written notice by the Authority, the Authority may remove them and store any materials at the expense of the Design-Builder.

37.3 Other Contractor's work destroyed or damaged by such removals or replacements will be made good by the Design-Builder promptly at the Design-Builder's expense.

SECTION 38
WARRANTY

38.1 The Design-Builder will promptly correct, at its own expense, any Work that is not in accordance with this Agreement and any defects or deficiencies in the Work that appear during the period of:

(a) for the Building, 24 months after the Substantial Completion Date of the Building, and an additional 12 months for the following equipment and/or systems:

(i) mechanical system: air handling units, exhaust equipment, hot water boilers, chillers, cooling tower, circulating pumps, the building management system, sanitary & storm sump pumps;

(ii) electrical system: the electrical uninterrupted power supply, emergency generators, switch gear, transformers, and lighting control;

(b) for the Seven Sisters Facility, 24 months after the Substantial Completion Date of the Seven Sisters Facility; and

(c) for the Facility (excluding the Building and the Seven Sisters Facility), 24 months following the Substantial Completion Date of the Project

(the "**Warranty Period**").

38.2 The Design-Builder will correct defects or deficiencies at times and in a manner which causes as little inconvenience to the occupants of the Facility and the Authority's operations on and adjacent to the Site as is reasonably possible.

38.3 The Authority may carry out, or have others carry out, rectification work at the Design-Builder's cost if:

(a) the Authority gives notice to the Design-Builder of a defect or deficiency and the Design-Builder does not correct the defect or deficiency within a reasonable time, not to exceed 14 days, unless the nature of the defect or deficiency is such that it cannot be corrected within such time and the Authority, acting reasonably, agrees to an extension of such time; or

(b) the nature of the defect or deficiency is such that it creates a risk to the health or safety of any occupant or user of the Facility, or risk of damage to the Facility, the environment or any property and the Authority gives notice to the Design-Builder within a reasonable time after the commencement or completion of the rectification work.

38.4 If the Authority carries out or has others carry out the rectification work pursuant to Section 38.3 the Design-Builder remains responsible for the Work (including the rectification work).

38.5 The Design-Builder will provide to the Authority extended warranties from Subcontractors where required by the Proposal Extracts or other provisions of this Agreement and any other extended warranties provided by Subcontractors.

38.6 The Design-Builder will correct, at its own cost, or pay the Authority for any damage resulting from the defects or deficiencies and the corrections required under Section 38.1.

38.7 Issuance of the Substantial Completion Certificate and the Total Completion Certificate, and final payment to the Design-Builder, do not relieve the Design-Builder from its responsibility under this Section 38.

SECTION 39
TITLE AND RISK

39.1 Title to the Work will vest only in the Authority. Without prejudice to any of the rights of the Authority under this Agreement, title to the Work or any part of the Work will vest in the Authority at the earliest of:

(a) the time that the Work or part of it is at the Site;

(b) the time that the Authority has paid for the Work or part of the Work; and

(c) the time of installation or construction of the Work or part of the Work.

39.2 The Work will remain under the care, custody and control of the Design-Builder and at the risk of the Design-Builder until, in respect of the Building and the Seven Sisters Facility, Substantial Completion of the Building and Substantial Completion of the Seven Sisters Facility or until such earlier date determined by the Authority, and notified in writing to the Design-Builder, for occupancy and use by the Authority. All other Work will be under the care, custody and control of the Design-Builder until Substantial Completion of the Project is achieved, unless otherwise agreed in writing by the Authority. The Design-Builder will exercise all reasonable care to avoid loss of, or damage to, the Work.

39.3 The Design-Builder represents and warrants that title to the Work and any part of the Work will pass to the Authority free and clear of all liens, charges and encumbrances.

PART D – PAYMENT AND COMPLETION

SECTION 40
APPLICATIONS FOR PAYMENT

40.1 The Design-Builder will make applications for payment in accordance with this Section 40.

40.2 Applications for payment will be:

(a) submitted to the Authority's Consultant;

(b) dated the last day of the monthly period;

(c) for the value, proportionate to the amount of the Contract Price, of Work performed and material delivered to the Site to and at the date of submission; and

(d) submitted no more than once per month during the performance of the Work.

40.3 Pending determination of the final result of any Change, the undisputed value of the Work performed as a result of a Change is eligible to be included with payment applications.

40.4 The Design-Builder will submit to the Authority's Consultant for review, at least 14 days before the first application for payment, a Schedule of Values of the various parts of the Work, aggregating to the total amount of the Contract Price and divided so as to facilitate evaluation of applications for payment. The Schedule of Values will be consistent with the information set out in the breakdown of the Contract Price set out in Schedule 7 – Schedule of Prices and made out in such form and supported by such evidence as to its correctness as the Authority's Consultant may reasonably require. The Authority's Consultant will provide comments to the Design-Builder on the Schedule of Values, the Design-Builder will revise the Schedule of Values to address the comments, and so on, until such time as the Authority's Consultant is satisfied with the Schedule of Values. The Schedule of Values will be used as the basis for all applications for payment, unless it is found at any time to be in error, in which case it will be corrected in accordance with the Authority's Consultant's directions. If the Schedule of Values is not finalized prior to an application for payment, the Authority's Consultant may consider the applications for payment on the basis of the Schedule of Values under review and the Authority's Consultant's comments on such Schedule of Values or such other basis as determined by the Authority's Consultant.

40.5 When making applications for payment, the Design-Builder will submit a statement based upon the Schedule of Values. Claims for material and equipment delivered to the Site but not yet incorporated into the Work will be supported by such evidence as the Authority's Consultant may reasonably require to establish the value and their delivery.

40.6 Subject to any further information that may be required by the Authority, the application for payment will include:

(a) the amount applied for in the application;

(b) the value of Work performed and material and equipment delivered to the Site;

(c) payment amounts in respect of any Changes to which the Design-Builder is entitled under this Agreement, including under Section 40.3;

(d) any adjustments to the Contract Price under this Agreement;

(e) the balance of the Contract Price to complete the Work;

(f) the amount of Lien Holdback;

(g) the amount of Performance Holdbacks;

(h) the amount of any withholding or amount to be released under Section 40.8;

(i) certification by the Design-Builder that the Project Binder includes documentation current to within at least 30 days prior to the application, including all inspection reports;

(j) a statutory declaration of an officer or senior management employee of the Design-Builder stating that all accounts for labour, subcontracts, materials, construction machinery and

equipment and other indebtedness which may have been incurred by the Design-Builder in performing the Work and for which the Authority might in any way be held responsible have been paid in full, except for amounts properly retained as a holdback or as an identified amount in dispute; and

(k) a clearance letter from the Workers' Compensation Board indicating that all current assessments due from the Design-Builder and all Subcontractors with subcontracts larger than $50,000 in value have been paid.

40.7 Applications for release of the Lien Holdback will be made under Section 42 (Lien Holdback) and applications for any payment at Substantial Completion of the Building, Substantial Completion of the Seven Sisters Facility, Substantial Completion of the Project or Total Completion will be made under Section 44 (Substantial Completion and Total Completion).

40.8 It is a condition of payment that the following, and all documentation, certification and requirements of the following, are complete and up to date as of the date of each application for payment:

(a) Health and Safety Plan;

(b) Project Management Plan;

(c) Time Schedule;

(d) Quality Management Plan;

(e) Project Binder updated as described in Section 45.3;

(f) issued for construction Drawings and Specifications, commencing with the first application for payment 180 days prior to the Target Building Substantial Completion Date; and

(g) Commissioning Plan commencing with the first application for payment 180 days prior to the Target Building Substantial Completion Date.

The Design-Builder will not be required to re-submit documentation previously provided. The Design-Builder will identify any changes to previously submitted documentation and at the Authority's request submit revised documentation.

The Authority acknowledges that the requirement in Section 40.8(f) for issued for construction Drawings and Specifications does not require the Design-Builder to provide such Drawings and Specifications prior to the date such Drawings and Specifications are required to perform the Work and in accordance with the other provisions of this Agreement.

If any of the foregoing listed items, including the required certification, documentation and certification for each listed item, is not complete and up to date, then the Authority may for each listed item that is not complete and up to date withhold from payment the amount of 3% of the total application for payment. This withholding will apply to each month for which such item or items is not complete and up to date. The applicable withholding will be released with the next monthly payment when such item is completed and up to date. In addition, in relation to the Quality Management Plan if the Authority's Consultant considers that the Design-Builder has not demonstrated that the Work to which the Quality Management Plan relates was satisfactorily

performed then the Authority's Consultant may in accordance with Section 40.10 reduce the payment by the amount of such unsatisfactory Work and by the cost of the required processes, testing, certification, auditing and documentation required to ensure compliance with the Quality Management Plan.

40.9 Notwithstanding the actual progress, the following will apply:

(a) payment of the cost of the Bonds and cost of insurance will be made to the Design-Builder upon presentation of all bonding and insurance documentation required by this Agreement and upon presentation of satisfactory proof of payment of related fees or premiums; and

(b) payment for mobilization identified in the Schedule of Values will be a maximum of 1% of the Contract Price and payment will be made in two parts: 25% when the Design-Builder occupies the Site, and 75% when the Design-Builder has established a fully functional site office, construction equipment is on the Site and construction has commenced.

40.10 The Authority's Consultant, will, within 10 Business Days of receipt of the Design-Builder's application for payment, either:

(a) accept the amount set out in the application for payment; or

(b) adjust the amount of any payment to reflect the Authority's estimate of Work satisfactorily performed as of the date of the application for payment.

If the Authority's Consultant amends the application for payment, the Authority's Consultant will promptly notify the Design-Builder in writing and give reasons for the amendment.

40.11 Provided the Design-Builder is not in material default of any provision in this Agreement, the Authority will pay the Design-Builder within 10 Business Days of the Authority's Consultant approving or adjusting the Design-Builder's application for payment in accordance with Section 40.10 and the Schedule of Values .

40.12 Whenever any sum of money is recoverable from or payable by the Design-Builder pursuant to this Agreement or is an amount for which the Authority may be liable on account of a default by the Design-Builder, the Authority may deduct or set off such sum from, or may reduce, any amounts then due or that may thereafter become due to the Design-Builder under this Agreement. Without limiting the generality of the foregoing, the Authority may set-off any amounts for liquidated damages set out in this Agreement.

SECTION 41
TAXES AND DUTIES

41.1 The Contract Price is inclusive of all applicable customs duties and taxes (including PST), other than GST, in effect at the Effective Date.

41.2 The Design-Builder will remit all tariffs, customs duties and taxes to the applicable governmental authority as and when required by the relevant Law and will without limiting Section 58 (Indemnification), indemnify and hold the Indemnified Parties harmless from and against any tariffs, customs duties and taxes that the Design-Builder fails to remit as and when due, and from and against any costs and penalties and interest that may be levied against the Indemnified Parties.

41.3 Any increase or decrease in costs to the Design-Builder due to changes in taxes, tariffs or duties that are in effect at the Effective Date of this Agreement will increase or decrease the Contract Price accordingly.

41.4 Where an exemption or refund of taxes, tariffs, customs duties or excise taxes is applicable to this Agreement by way of the Design-Builder filing claims for, or cooperating fully with the Authority and the proper authorities in seeking to obtain such exemption or refund, the Design-Builder will make such applications and provide such cooperation.

41.5 Refunds that are properly due to the Authority and have been recovered by the Design-Builder will be promptly refunded to the Authority.

SECTION 42
LIEN HOLDBACK

42.1 The Authority will retain and release the Lien Holdback in accordance with the provisions of the *Builders Lien Act* (British Columbia).

42.2 For purposes of the *Builders Lien Act* (British Columbia), the Authority's Consultant will be the payment certifier for this Agreement.

42.3 For purposes of progressive release of portions of the Lien Holdback in respect of Subcontracts, the Authority's Consultant will be the payment certifier under the *Builders Lien Act* (British Columbia).

42.4 The Design-Builder will make application to the Authority's Consultant for certification under the *Builders Lien Act* (British Columbia). As a condition of making any application and as a condition of any certification, the Design-Builder will provide the Authority's Consultant with all information required by the Authority's Consultant.

42.5 Without limiting Section 58, the Design-Builder will, at its sole risk and expense, do everything necessary, including through the institution, prosecution or defence of legal proceedings, to promptly discharge from title to the Site any claims of builder's lien, builder's liens or certificates of pending litigation by any Subcontractor or other person claiming under or through the Design-Builder or Subcontractor. If the Authority becomes aware that any such claim of builder's lien, builder's liens or certificate of pending litigation is threatened or has been registered against title to the Site, the Authority may, withhold out of the Lien Holdback or any other monies payable to the Design-Builder such amounts as the Authority reasonably considers necessary in order to secure the discharge of such claim of builder's lien, builder's liens or certificate of pending litigation. The Authority will cooperate with the Design-Builder in securing the discharge of any of the foregoing, subject to such arrangements being made as the Authority reasonably considers necessary before any such additional holdback monies are paid to any person or into court. This Section 42.5 will not apply to a claim of builder's lien, builder's liens or certificates of pending litigation that arise due to the improper non-payment by the Authority.

SECTION 43
PERFORMANCE HOLDBACKS

43.1 In addition to the Lien Holdback and any amount retained under this Agreement (including for deficiencies under Section 44.6), the Authority will retain:

(a) a holdback of of the Contract Price (the "**LD Holdback**") if at any time after the date that is 12 months before the earlier of the Target Building Substantial Completion Date or the Target Seven Sisters Facility Substantial Completion Date (or if the Authority has extended the Time Schedule in accordance with this Agreement, such other date established for the Target Building Substantial Completion Date or the Target Seven Sisters Facility Substantial Completion Date, as applicable), the Authority's Consultant determines that the Substantial Completion Date of the Building, the Substantial Completion Date of the Seven Sisters Facility or the Substantial Completion Date of the Project is not reasonably likely to occur on or before the Target Building Substantial Completion Date, the Target Seven Sisters Facility Substantial Completion Date or the Target Project Substantial Completion Date, as applicable (or if the Authority has extended the Time Schedule in accordance with this Agreement, such other date established for the Target Building Substantial Completion Date, the Target Seven Sisters Facility Substantial Completion Date or Target Project Substantial Completion Date, as applicable);

(b) a holdback of (the "**LEED Holdback**");

(c) a holdback of (the "**Warranty Holdback**");

(d) a holdback of (the "**Energy Holdback**"); and

(e) a holdback of (the "**Carbon Holdback**")

(collectively, the "**Performance Holdbacks**").

43.2 The Performance Holdbacks will be calculated as a percentage of the Contract Price and that percentage will be withheld from all payments, subject to Section 43.1(a), due by the Authority. The percentage applicable to payments will be adjusted as required from time to time if the Contract Price is adjusted.

43.3 The Authority will release the LD Holdback, less liquidated damages payable by the Design-Builder under Section 3.3 upon the achievement of Substantial Completion of the Project.

43.4 The Authority will release the LEED Holdback, less liquidated damages payable by the Design-Builder under Section 10, upon the achievement of the points, credits or LEED Gold Certification, as applicable.

43.5 The Authority will release the Warranty Holdback, less deductions for amounts owing to the Authority, upon the completion of the Warranty Period and satisfaction of all obligations of the Design-Builder under Section 38.

43.6 The Authority will release the Energy Holdback and Carbon Holdback, less liquidated damages payable by the Design/Builder under Schedule 9 – Energy and Carbon Guarantees, upon the determination of the amount, if any, of liquidated damages payable by the Design-Builder under Schedule 9 – Energy and Carbon Guarantees.

43.7 The Authority may apply the Performance Holdbacks against any amount owing by the Design-Builder to the Authority either prior to the applicable Substantial Completion Date or during the Warranty Period. If any amount is applied against the Performance Holdbacks, the Design-Builder will at the Authority's option, acting reasonably, either pay such amount to the Authority to replenish the Performance Holdbacks then required to be withheld, or the Authority may withhold such amount from the next payment or payments due to the Design-Builder.

43.8 The Design-Builder will apply for payment of the applicable Performance Holdback and payment will be made in accordance with Section 40.

43.9 The Performance Holdbacks are not held in trust for the Design-Builder, property of the Design-Builder, earned by the Design-Builder or due and payable by the Authority until the conditions for release of the Performance Holdbacks are satisfied.

43.10 The Design-Builder as an alternative to the retention of the Performance Holdbacks may propose to the Authority to provide either a clean irrevocable standby letter of credit from a financial institution in Canada in a form acceptable to the Authority, or another form of performance security acceptable to the Authority. If the Authority accepts the proposal, the Authority will upon receipt of the performance security release the Performance Holdbacks to the Design-Builder.

SECTION 44
SUBSTANTIAL COMPLETION AND TOTAL COMPLETION

44.1 The Design-Builder may make application to the Authority for a Substantial Completion Certificate at any time after it believes it has achieved Substantial Completion of the Building, Substantial Completion of Seven Sisters Facility or Substantial Completion of the Project, as described in this Section 44 and has provided to the Authority's Consultant the items as required in Section 44.2(b) Section 44.3(b) and Section 44.4(b).

44.2 "Substantial Completion of the Building" means that all of the following have been achieved:

(a) the Authority's Consultant has certified that, in respect of the Building, substantial performance of the Work under the *Builders Lien Act* (British Columbia) has been achieved or would have been achieved if this Agreement had been solely for the Building;

(b) the Building is ready for use by the Authority or is being used by the Authority for the purpose intended, and the following items have been submitted to the Authority or completed by the Design-Builder:

(i) equipment, mechanical and other Building systems (including medical gas systems) are in place, commissioned, except where testing and commissioning activities are deferred by seasonal or system loading limitations, received required certifications, and are proven through testing and commissioning to be able to operate for their intended purposes;

(ii) a complete Project Binder, provided that:

(A) the commissioning reports may be preliminary; and

(B) the inspections, certificates, guarantees and warranties, and certifications may exclude only the items of Work that remain to be completed;

(iii) up to date and current Drawings and Specifications;

(iv) maintenance and operating tools, replacement parts or products for the Building as specified in the Statement of Requirements;

(v) a clearance letter from the Workers' Compensation Board indicating that all current assessments due from the Design-Builder and all Subcontractors have been paid;

(vi) a statement reconciling all Change Orders and claims under this Agreement with respect to the Work to the date of the application for Substantial Completion of the Building;

(vii) all approvals necessary for the Building from local authorities having jurisdiction;

(viii) an occupancy permit for the Building as required from local authorities having jurisdiction;

(ix) a statutory declaration of an officer or senior management employee of the Design-Builder stating that all accounts for labour, subcontracts, materials, construction machinery and equipment and other indebtedness which may have been incurred by the Design-Builder in performing the Work and for which the Authority might in any way be held responsible have been paid in full, except for amounts properly retained as a holdback or as an identified amount in dispute;

(x) all training for the Building's personnel required by the Statement of Requirements;

(xi) the LEED Project Checklist and written opinion as required by and in accordance with Section 10.2;

(xii) the BC Hydro energy modelling compliance checklist, as required by and in accordance with Section 11.3;

(xiii) the requirements of Section 35 (Cleanup and Final Cleaning of Work) have been fulfilled to the extent required by the Substantial Completion of the Building; and

(xiv) any other conditions specified in this Agreement with respect to achieving Substantial Completion of the Building;

(c) a comprehensive deficiency list, including an estimated value for each item, has been submitted to the Authority's Consultant by the Design-Builder which will be supplemented by the Authority's Consultant, acting reasonably; and

(d) a schedule for completion of all remaining Work has been submitted to the Authority's Consultant by the Design-Builder and agreed to by the Authority's Consultant, acting reasonably.

44.3 "Substantial Completion of Seven Sisters Facility" means that all of the following have been achieved:

(a) the Authority's Consultant has certified that, in respect of the Seven Sisters Facility, substantial performance of the Work under the *Builders Lien Act* (British Columbia) has been achieved or would have been achieved if this Agreement had been solely for the Seven Sisters Facility;

(b) the Seven Sister Facility is ready for use by the Authority or is being used by the Authority for the purpose intended, and the following items have been submitted to the Authority or completed by the Design-Builder:

(i) equipment, mechanical and other Seven Sisters Facility systems (including medical gas systems) are in place, commissioned, except where testing and commissioning activities are deferred by seasonal or system loading limitations, received required certifications, and are proven through testing and commissioning to be able to operate for their intended purposes;

(ii) a complete Project Binder, provided that:

(A) the commissioning reports may be preliminary; and

(B) the inspections, certificates, guarantees and warranties, and certifications may exclude only the items of Work that remain to be completed;

(iii) up to date and current Drawings and Specifications;

(iv) maintenance and operating tools, replacement parts or products for the Seven Sisters Facility as specified in the Statement of Requirements;

(v) a clearance letter from the Workers' Compensation Board indicating that all current assessments due from the Design-Builder and all Subcontractors have been paid;

(vi) a statement reconciling all Change Orders and claims under this Agreement with respect to the Work to the date of the application for Substantial Completion of Seven Sisters Facility;

(vii) all approvals necessary for the Seven Sisters Facility from local authorities having jurisdiction;

(viii) an occupancy permit for the Seven Sisters Facility as required from local authorities having jurisdiction;

(ix) a statutory declaration of an officer or senior management employee of the Design-Builder stating that all accounts for labour, subcontracts, materials, construction machinery and equipment and other indebtedness which may have been incurred by the Design-Builder in performing the Work and for which the Authority might in any way be held responsible have been paid in full, except for amounts properly retained as a holdback or as an identified amount in dispute;

(x) all training for the Seven Sisters Facility 's personnel required by the Statement of Requirements;

(xi) the requirements of Section 35 (Cleanup and Final Cleaning of Work) have been fulfilled to the extent required by the Substantial Completion of Seven Sisters Facility; and

(xii) any other conditions specified in this Agreement with respect to achieving Substantial Completion of Seven Sisters Facility;

(c) a comprehensive deficiency list, including an estimated value for each item, has been submitted to the Authority's Consultant by the Design-Builder which will be supplemented by the Authority's Consultant, acting reasonably; and

(d) a schedule for completion of all remaining Work has been submitted to the Authority's Consultant by the Design-Builder and agreed to by the Authority's Consultant, acting reasonably.

44.4 "Substantial Completion of the Project" means that, in addition to all of the requirements for Substantial Completion of the Building as described in Section 44.2 and Substantial Completion of the Seven Sisters Facility as described in Section 44.3, all of the following have been achieved:

(a) the Authority's Consultant has certified that substantial performance of the Work under the *Builders Lien Act* (British Columbia) has been achieved;

(b) the remainder of the Facility and the Site is ready for use by the Authority or is being used by the Authority for the purpose intended, and the following items have been submitted to the Authority or completed by the Design-Builder:

(i) a clearance letter from the Workers' Compensation Board indicating that all current assessments due from the Design-Builder and all Subcontractors have been paid;

(ii) a statement reconciling all Change Orders and claims under this Agreement with respect to the Work to the date of the application for Substantial Completion of the Project;

(iii) all approvals necessary for the Project from local authorities having jurisdiction;

(iv) an occupancy permit for the Facility, if required in addition to the occupancy permit for the Building and the Seven Sisters Facility, as required from local authorities having jurisdiction;

(v) a statutory declaration of an officer or senior management employee of the Design-Builder stating that all accounts for labour, subcontracts, materials, construction machinery and equipment and other indebtedness which may have been incurred by the Design-Builder in performing the Work and for which the Authority might in any way be held responsible have been paid in full, except for amounts properly retained as a holdback or as an identified amount in dispute;

(vi) all training required by the Statement of Requirements;

(vii) the requirements of Section 35 (Cleanup and Final Cleaning of Work) have been fulfilled to the extent required by the Substantial Completion of the Project; and

(viii) any other conditions specified in this Agreement with respect to achieving Substantial Completion of the Project;

(c) a comprehensive deficiency list, including an estimated value for each item, has been submitted to the Authority's Consultant by the Design-Builder which will be supplemented by the Authority's Consultant acting reasonably; and

(d) a schedule for completion of all remaining Work has been submitted to the Authority's Consultant by the Design-Builder and agreed to by the Authority's Consultant, acting reasonably.

44.5 The Authority's Consultant with input from the Design-Builder's Consultant will, not later than 10 days after the receipt of an application from the Design-Builder for the Substantial Completion Certificate, review and assess the Work to verify that the application and the Work conform to the requirements set out in Section 44.2, 44.3, 44.4, as the case may be. The Authority's Consultant will, not later than 7 days after the review, notify the Design-Builder of approval, or the reasons for disapproval, of the application. In the event of disapproval, the Design-Builder will rectify all matters that prevent the issuance of the Substantial Completion Certificate and the Authority's Consultant will within 7 days after notice from the Design-Builder of rectification, approve or disapprove of the application, and so on, until such time as the Authority's Consultant determines that Substantial Completion of the Building, Substantial Completion of the Seven Sisters Facility or Substantial Completion of the Project has been achieved. When the Authority's Consultant determines that Substantial Completion of the Building, Substantial Completion of the Seven Sisters Facility or Substantial Completion of the Project has been achieved, the Authority's Consultant will issue the Substantial Completion Certificate. Following the issuance of the Substantial Completion Certificate, the Authority's Consultant, with input from the Design-Builder, will establish a reasonable date for work still to be satisfactorily performed or replaced as specified in the list of deficiencies and for Total Completion. The Design-Builder will be responsible for all costs of any additional reviews by the Authority's Consultant after the first review that are necessary under this Section, where such additional reviews reveal that previously identified deficiencies or non-conformances to the requirements set out in Section 44.2, 44.3 or 44.4, as the case may be, have not been corrected or completed in a manner satisfactory to the Authority's Consultant. Such costs will be deducted from any monies then due to the Design-Builder.

44.6 The Authority may retain out of the amount due and owing to the Design-Builder upon each of Substantial Completion of the Building, Substantial Completion of the Seven Sisters Facility and Substantial Completion of the Project:

(a) any sums required by law to satisfy any liens against the Work;

(b) an amount determined by the Authority's Consultant to be equal to 2 times the estimated value of the Work as determined by the Authority's Consultant that is still to be satisfactorily performed or rectified or replaced to address the issues specified in the list of deficiencies for achievement of Substantial Completion of the Building, Substantial Completion of the Seven Sisters Facility or Substantial Completion of the Project, as applicable; and

(c) any amount withheld pursuant to Section 42.5.

44.7 No payment will be made to the Design-Builder from the applicable amounts withheld under Section 44.6(b) until the completion or rectification or replacement of all the deficiencies and incomplete work specified in the deficiency list.

44.8 The Design-Builder will perform the work specified in the list of deficiencies at times and in a manner which causes as little inconvenience to the occupants of the Building or remainder of the Facility, as applicable, and the Authority's operations on and adjacent to the Site as is reasonably possible.

44.9 The Authority may carry out, or have others carry out, the work specified in the list of deficiencies at the Design-Builder's cost if:

(a) the Design-Builder does not complete the work by the date established by the Authority's Consultant in Section 44.5 and if the Authority gives notice to the Design-Builder and the Design-Builder does not complete, correct or replace the defect, deficiency or incomplete work within a reasonable time, not to exceed 14 days, unless the nature of the defect, deficiency or incomplete work is such that it cannot be completed or corrected within such time and the Authority, acting reasonably, agrees to an extension of such time; or

(b) the nature of the work is such that it creates a risk to the health or safety of any occupant or user of the Facility, or risk of damage to the Facility, the environment or any property and the Authority gives notice to the Design-Builder within a reasonable time after the commencement or completion of the rectification work.

44.10 If the Authority carries out or has others carry out the work pursuant to Section 44.9 the Design-Builder remains responsible for the work.

44.11 The Design-Builder will correct, at its own cost, or pay the Authority for any damage resulting from the work specified in the list of deficiencies.

44.12 The Design-Builder may make application to the Authority for the Total Completion Certificate at any time it believes it has achieved Total Completion as described in Section 44.13 and has provided to the Authority's Consultant the items as required in Section 44.13(d).

44.13 "Total Completion" means that all of the following have been achieved:

(a) the entire Work has been performed to the requirements of this Agreement other than:

(i) work required to be performed under Section 38; and

(ii) achievement of the LEED credits/points and LEED Gold Certification from the LEED Certifier under Section 10;

(b) all deficiencies specified in the deficiency list(s) have been rectified or completed to the Authority's satisfaction;

(c) the requirements of Section 35 have been fulfilled; and

(d) the following items have been submitted by the Design-Builder and are acceptable to the Authority:

(i) all Submittals, including certified Record Drawings in accordance with Section 45 (Project Binder and Record Drawings)

(ii) the final Project Binder, including everything specified in Section 45.2;

(iii) a statutory declaration of an officer or senior management employee of the Design-Builder stating that all accounts for labour, subcontracts, materials, construction machinery and equipment and other indebtedness which may have been incurred by the Design-Builder in performing the Work and for which the Authority might in any way be held responsible have been paid in full, except for amounts properly retained as a holdback or as an identified amount in dispute, dated at least 45 days after the date of substantial performance under the *Builders Lien Act* (British Columbia);

(iv) a written statement of the Design-Builder that all claims for payment for Work done under this Agreement including claims and Change Orders have been presented to the Authority;

(v) a clearance letter from the Workers' Compensation Board indicating that all current assessments due from the Design-Builder and all Subcontractors have been paid; and

(vi) certification, acceptable to the Authority, that all taxes, employment assistance payments, Canada Pension Plan contributions, duties, royalties and all other monies required to be paid by law or statute have been paid in full.

44.14 Upon receipt by the Authority of the Design-Builder's application for the Total Completion Certificate:

(a) The Authority's Consultant will, subject to the conditions contained in Section 44.13, and not later than 10 days after the receipt of an application from the Design-Builder for the Total Completion Certificate, review and assess the Work to verify that the application and the Work conform to the requirements set out in Section 44.13.

(b) The Authority's Consultant will, and not later than 7 days after the review contemplated in Section 44.14(a), notify the Design-Builder of approval, or the reasons for disapproval, of the application. In the event of a disapproval, the Design-Builder will rectify all matters that prevent the issuance of the Total Completion Certificate and the Authority's Consultant will within 7 days after notice from the Design-Builder of rectification, review and assess the Work and approve or disapprove of the application, and so on, until such time as the Authority's Consultant determines that Total Completion has been achieved.

(c) The Design-Builder will be responsible for all costs of additional reviews required for by Section 44.14(b), such costs to be deducted from the monies due to the Design-Builder, where any additional review undertaken by the Authority's Consultant pursuant to this Section reveals that previously identified deficiencies have not been corrected in a manner satisfactory to the Authority's Consultant.

When the Authority's Consultant determines that Total Completion has been achieved, the Authority's Consultant will issue the Total Completion Certificate and certify for payment the monies due to the Design-Builder under this Agreement, less any amount still retained for the Lien Holdback or the Performance Holdbacks, amounts withheld under Section 42.5 or any amount set-off in accordance with this Agreement. The date of Total Completion will be as stated in the Total Completion Certificate.

44.15 No payment made by the Authority under this Agreement, or partial or entire use or occupancy of the Work by the Authority, will constitute an acceptance of Work not in accordance with the requirements of this Agreement.

44.16 By issuing any certificate, the Authority and the Authority's Consultant do not guarantee, or otherwise become liable or responsible in any way for, the correctness or completeness of the Work, including the Design, and no certificate makes the Authority or Authority's Consultant in any way responsible or liable for adequacy of the Design or for the Work, all of which remain the responsibility of the Design-Builder.

44.17 As of the date of Total Completion, the Design-Builder expressly waives and releases the Authority from all claims against the Authority, including those that might arise from the negligence or breach of this Agreement by the Authority, except those made in writing prior to the Design-Builder's application for payment upon Total Completion and still unsettled and those arising in connection with the obligations of either party to be performed after Total Completion.

44.18 In the event of conflict between the provisions of this Section 44 and any other Section of this Agreement, the provisions of this Section 44 govern.

44.19 Without limiting any other withholding or set-off under this Agreement, the Authority may deduct from any payment to the Design-Builder under this Agreement the amount paid by the Authority to put the Design-Builder into compliance with the Insurance Conditions if the Design-Builder has defaulted in complying with the Insurance Conditions.

SECTION 45
PROJECT BINDER AND RECORD DRAWINGS

45.1 The Design-Builder will prepare and provide to the Authority a set of documentation that is bound in one or more binders (the "**Project Binder**").

45.2 The Project Binder will include the following:

(a) commissioning reports satisfactory to the Authority;

(b) all inspections, certifications, guarantees and warranties;

(c) maintenance manuals and operating instructions;

(d) certification by all testing, cleaning or inspection authorities or associations;

(e) confirmation of the Design-Builder's Consultant in accordance with Section 16.3(b);

(f) copies of all warranties and guarantees from Subcontractors; and

(g) all other documentation that is reasonably required by the Authority or by any party on behalf of the Authority to operate and maintain the Facility.

45.3 The Project Binder will be updated on a monthly basis with all documentation to Work completed up to the date is updated. The Design-Builder will provide and update 3 paper copies of the Project Binder and 3 flashdrives each containing a copy of the Project Binder, unless directed to use a different format by the Authority, acting reasonably.

45.4 Within 60 days after achieving each of Substantial Completion of the Building, Substantial Completion of the Seven Sisters Facility and Substantial Completion of the Project, the Design-Builder will provide to the Authority the following in respect of completed Work:

(a) 2 complete sets of paper print Record Drawings, signed and sealed by the Design-Builder's Consultant, showing the as-built Work and identified in bold letters with the words "CERTIFIED AS-BUILT"; and

(b) 1 complete copy of the Record Drawings on a flashdrive in both CAD and Adobe PDF format acceptable to the Authority, acting reasonably.

SECTION 46
CASH ALLOWANCES

46.1 This Section 46 applies only if cash allowances are stated in this Agreement.

46.2 The Contract Price includes cash allowances, if any, stated in this Agreement. The allowances will be expended, if at all, only as the Authority authorizes. The scope of work or costs included in such cash allowances will be as described in this Agreement.

46.3 Cash allowances cover the net cost to the Design-Builder of services (including design services), materials, products, construction machinery and equipment, freight, unloading, handling, storage, installation and other expenditures authorized by the Authority that are incurred in performing the work stipulated under the cash allowances but do not include GST payable by the Authority to the Design-Builder.

46.4 The Contract Price, and not the cash allowances, includes the Design-Builder's overhead and profit in connection with such cash allowances.

46.5 Where the actual costs expended by the Design-Builder for work under a cash allowance exceed the amount of the cash allowance, the Design-Builder will be compensated for any excess incurred and substantiated plus an amount for overhead and profit as set out in Section 49.2(b). Where the actual costs expended by the Design-Builder for work under a cash allowance is less than the amount of the cash allowance, the Authority will be credited for the unexpended portion of the cash allowance, but not for the Design-Builder's overhead and profit on such amount. Multiple cash allowances will not be combined for the purpose of calculating the foregoing.

46.6 The Contract Price will be adjusted to provide for any difference between the amount of each cash allowance and the actual cost of the work under that cash allowance.

46.7 The value of the Work performed under a cash allowance is eligible to be included in the monthly applications for payment.

46.8 The Design-Builder and the Authority will jointly prepare a schedule that shows when the Authority, through the Authority's Consultant, must authorize the ordering of items called for under cash allowances to avoid delaying the progress of the Work.

46.9 The Contract Price includes a cash allowance for off-site utility upgrades. The Design-Builder will, subject to authorization of the Authority, design and construct the off-site utility upgrades in accordance with the City of Terrace requirements. The Design-Builder will be responsible for all required negotiations and consultations with the City of Terrace in relation to such off-site utility upgrades.

46.10 The Contract Price includes a cash allowance for the remediation of all Contaminants in the Existing Buildings, which includes all management, removal, abatement, containment and disposal of all Contaminants encountered in the Existing Buildings (the "**Existing Buildings Contamination Work**"). Where the actual costs expended by the Design-Builder for work under such cash allowance exceed the amount of such allowance, in addition to the compensation referred to in Section 46.5 the Design-Builder will be entitled to an extension of time relating to the Existing Buildings Contamination Work in excess of such cash allowance. The Design-Builder's entitlement to such extension of the Contract Time will be determined in accordance with Section 51.

PART E - CHANGES

SECTION 47
CHANGES

47.1 The Authority, without invalidating this Agreement, may require Changes, with the Contract Price and Contract Time adjusted in accordance with Section 48. The Authority may issue any Change Order or Change Directive, which can include a stop Work order or resume Work order, to the Design-Builder's Representative or to any other person authorized by the Design-Builder to receive a Change Order.

47.2 No Change will be made without a Change Order or Change Directive from the Authority.

47.3 The Design-Builder will not be entitled to a Change Order or Change Directive, or to any adjustments to the Contract Price or the Contract Time, for any Change for which the Design-Builder has not, prior to commencing the performance of a Change, obtained from the Authority a Change Order or Change Directive except where expressly allowed in this Agreement at Sections 29.2 and 30.2.

47.4 The Authority may, at any time, require the Design-Builder to assess the impact of a proposed Change on the Contract Price and the Contract Time and the Design-Builder will provide the Authority with such assessment within 10 days after the Authority's request or such other time as may be agreed by the Authority, acting reasonably.

SECTION 48
VALUATION AND CERTIFICATION OF CHANGES

48.1 The value of any Change will be determined by one or more of the following methods:

(a) by estimate and acceptance of a lump sum; or

(b) by unit prices or fee rates agreed upon (and which may include a maximum upset price).

48.2 The following process will be followed for Changes:

(a) where a Change is proposed or required by the Authority, the Design-Builder will promptly, and in any case within 10 days after the Change is proposed or required by the Authority, present to the Authority its claims for any adjustment to the Contract Price or the Contract Time that arise from the Change;

(b) where the Design-Builder claims a Change in Contract Price, the Design-Builder will provide a full breakdown of labour, material and other cost information;

(c) where the Authority and Design-Builder agree to the Change, including adjustments in the Contract Price and Contract Time, or to the method to be used to determine the adjustments, such Change will be effective when recorded in a Change Order; and

(d) the value of the Work performed as the result of a Change Order will be included in payment applications.

48.3 In the case of Changes to be paid for under Section 48.2(c), the form of presentation of costs and methods of measurement will be agreed to by the Authority and the Design-Builder before proceeding with the Change. The Design-Builder will keep accurate records of quantities or costs as agreed upon and will present an account of the costs of the Change, together with vouchers where applicable, at least once each month during performance of the Change, and will present a final account upon completion of the Change.

48.4 If the methods of valuation, measurement and value of any Change or any adjustment to the Contract Time cannot be promptly agreed upon, and in any case within 10 days after the proposed Change, and the Change is required by the Authority in writing to be proceeded with, then the Change will be performed by the Design-Builder and the value of the Change and adjustment to the Contract Time will be determined in accordance with the Dispute resolution process described in Section 63 by determining the cost of the Change in accordance with Section 49 (other than Sections 49.1 and 49.4) and by determining the adjustment of the Contract Time as a reasonable time taking into account the critical path.

48.5 It is intended in all matters involving Changes that both the Authority and the Design-Builder will act promptly and in accordance with the times set out in this Section 48.

SECTION 49
DETERMINATION OF COST

49.1 Subject to Section 49.2 whenever it is necessary for the purposes of this Agreement to determine the cost of a Change, the cost will be the amount agreed upon by the Design-Builder and the Authority within a reasonable time after the issue arises in any given instance.

49.2 If the Design-Builder and the Authority cannot agree as to the cost of the Change as contemplated in Section 49.1, the sole cost to which the Design-Builder will be entitled for the Change will be equal to the aggregate of:

(a) all reasonable and proper amounts actually expended by or legally payable by the Design-Builder in respect of the labour, equipment or material (supported by invoices, purchase orders, timesheets and other customary industry documentation) that are directly attributable to the subject matter of the Change and that are within one of the classes of expenditures described in Section 49.3; plus

(b) to cover other costs, including overhead and profit, the following applicable markup on the amounts charged pursuant to Section 49.2(a).

(i) 5%, when the expenditure is a payment to a Subcontractor pursuant to Section 49.3(a); or

(ii) 10% when the Design-Builder performed the Change.

49.3 Classes of incremental expenditure that are allowable for the Work associated with the Change (all without additional markups except as otherwise noted in Section 49) for the purposes of Section 49.2 are:

(a) payments to Subcontractors, including a maximum aggregate markup of 10% on the direct labour, equipment and material costs of the Subcontractors who directly perform the Work;

(b) wages, salaries and reasonable and traveling expenses of employees of the Design-Builder while they are actually and properly engaged on the Work, other than wages, salaries, bonuses, reasonable living and travelling expenses of personnel of the Design-Builder generally employed at the head office, or at a general office, of the Design-Builder unless such personnel is engaged at the site of the Work, with the approval of the Authority;

(c) payments for materials necessary for and incorporated in the Work or necessary for and consumed in the performance of the Work;

(d) payment for equipment necessary for and incorporated in the Work;

(e) payments for tools, other than tools customarily provided by tradespersons, necessary for and used in the performance of the Work;

(f) payments for preparation, inspection, delivery, installation, commissioning and removal of equipment and materials necessary for the performance of the Work;

(g) assessments payable under any statutory scheme relating to workers compensation, unemployment insurance or holidays with pay;

(h) payments for renting equipment (but not tools) and allowances for equipment (but not tools) owned by the Design-Builder, necessary for the performance of the Work, provided that such payments or allowances are reasonable or have been agreed to by the Design-Builder and the Authority; and

(i) other payments, made with the prior approval of the Authority, that are necessary for the performance of the Work, as determined by the Authority.

49.4 If the Design-Builder and the Authority cannot agree as to the cost of labour, equipment or material as contemplated in Section 49.1, and the Authority considers that a Change or series of related Changes may exceed $100,000, the Authority may require the Design-Builder to, and the Design-Builder will, obtain a minimum of 3 competitive quotations or tenders for all or any part of such Change or Changes as directed by the Authority.

49.5 The applicable markup set out in this Section 49 will apply to any credit to the Authority for reductions in the costs relating to a Change. Where both increases and reductions in costs relate to a Change, the applicable markup will apply to the net increase or reduction in costs.

SECTION 50
CHANGE DIRECTIVE

50.1 The Authority may issue a Change Directive to the Design-Builder directing the Design-Builder to proceed with a Change. The Design-Builder will proceed with the Change and the valuation and adjustments to the Contract Price and the Contract Time will be made as soon as reasonably possible after the implementation of the Change in the same manner as a Change for which a Change Order would be issued under this Agreement.

50.2 The Authority may issue Change Directives at any time, including prior to commencing the process for a Change Order or if there is a Dispute in relation to a Change or Change Order (including a Dispute as to whether there is a Change).

PART F - DELAYS

SECTION 51
DELAYS

51.1 If the Design-Builder is delayed in performing the Work as a direct result of a failure of the Authority to provide access to the Site, or a material breach by the Authority of the terms of this Agreement or by an order issued by any court or public authority having jurisdiction (providing such order was not issued as the result of any act or fault of the Design-Builder or a Subcontractor), or the events referred to in Sections 28.4, 29.2, 30.2 or 46.10, then:

(a) the Contract Time will be extended for such reasonable time, taking into account the critical path as agreed by the Authority and the Design-Builder, acting reasonably, and the Design-Builder will, other than for the delay under Section 46.10, be reimbursed for any costs directly incurred by it as the result of such delay, determined in accordance with Section 49; or

(b) if the Authority determines that the Target Building Substantial Completion Date, Target Seven Sisters Facility Substantial Completion Date or Target Project Substantial Completion Date can still be met and requests in writing that the Design-Builder accelerate the Work, the Design-Builder will accelerate its efforts to meet the Target Building Substantial Completion Date or Target Project Substantial Completion Date as directed by the Authority. The Design-Builder will be reimbursed for all reasonable and direct costs plus the markup set out in Section 49.2(b) incurred by it as a result of undertaking such acceleration efforts.

51.2 If the Design-Builder is delayed in performing the Work by an event of Force Majeure then:

(a) the Contract Time will be extended for such reasonable time taking into account the critical path, as agreed by the Authority, and the Design-Builder acting reasonably; or

(b) if the Authority determines that the Target Building Substantial Completion Date, Target Seven Sisters Facility Substantial Completion Date or Target Project Substantial Completion Date can still be met and requests in writing that the Design-Builder accelerate the Work, the Design-Builder will accelerate its efforts to meet the Target Building Substantial Completion Date and Target Project Substantial Completion Date as directed by the Authority. The Design-Builder will be reimbursed for all reasonable and direct costs plus the markup set out in Section 49.2(b) incurred by it as a result of undertaking such acceleration efforts.

Except as provided in Section 51.2(b) for acceleration of the Work required by the Authority, the Design-Builder will not be entitled to any costs incurred in relation to the Force Majeure or delays arising from the Force Majeure.

51.3 If the Design-Builder is delayed in the performance of the Work for any reason other than that for which an extension of time is permitted under this Section 51 or if the Design-Builder does not perform the Work substantially in accordance with the Time Schedule to meet the Target Building Substantial Completion Date, Target Seven Sisters Facility Substantial Completion Date and Target Project Substantial Completion Date, the Design-Builder will at its cost accelerate the Work to meet the Target Building Substantial Completion Date and Target Project Substantial Completion Date.

51.4 The Design-Builder is not entitled to any extension of time or any reimbursement of costs for delay under this Section 51 unless written notice is given to the Authority not later than 7 days after the date that the Design-Builder becomes aware of the event causing the delay. In the case of a continuing cause of delay only one notice is necessary. The notice will include the reason for the delay, the justification under this Agreement for the claim and an estimated value for the claim including all impacts of the delay and all steps taken or reasonably available to mitigate the delay and impact. The Design-Builder will provide a full, detailed, and organized account of the delay and amount claimed, including any supporting information or documentation, as required by the Authority or Authority's Consultant, before any delays or impacts will be considered. The information and documentation must be presented promptly to the Authority, and in any event, no later than 30 days or such later date as the parties may agree, after the date on which the Design-Builder delivered notice, and in the event of a continuing delay such information and documentation must be updated every 30 days. No such account or update will be deemed to extend the time for delivery of notice, or revive a claim that has been waived. The Design-Builder waives any claim for extension of Contract Time or adjustment to the Contract Price, or any other compensation, expenses, loss or damages incurred as the result of a delay unless the Design-Builder provides such notice of the delay within the time period specified and provides the account of the delay and amount claimed and all required updates within the time periods specified.

51.5 In the case of any delay under Section 51.1 or Section 51.2 the Design-Builder will use all reasonable efforts to mitigate the costs and impacts of the delay including removing the cause of the delay as promptly as practicable such that the Time Schedule is maintained and that acceleration efforts, if requested by the Authority, are minimized.

PART G – SUSPENSION AND TERMINATION

SECTION 52
NON-DEFAULT SUSPENSION/TERMINATION

52.1 Notwithstanding that the Design-Builder may not be in default of the terms of this Agreement, if conditions arise which in the Authority's reasonable opinion make it necessary, the Authority may suspend performance of the Work or terminate this Agreement by giving 5 days' written notice to that effect to the Design-Builder and the suspension or termination is effective in the manner specified in the notice.

52.2 Without limiting Section 52.1, the Authority may, if it determines that there is an emergency, by notice to the Design-Builder, do either or both of the following:

(a) suspend the Work whenever in its opinion such suspension may be necessary to ensure the safety or life of others or of the Work or neighbouring property; or

(b) make Changes, and order, assess and award the cost of such Changes that are extra to the Contract Price in accordance with Section 48 and Section 49 as determined to be necessary.

52.3 The Authority will within 2 Business Days after a Change under Section 52.2(b) confirm in writing any Change instructions and if a Change has been performed by order of the Authority, the Design-Builder retains its right to claim the value of such Change.

52.4 The Design-Builder upon receiving notice of suspension or termination from the Authority will immediately suspend all operations except those, which, in the Design-Builder's reasonable opinion, are necessary to ensure the safety of personnel and the public or for the care and preservation of the Work and materials. Subject to any directions in the notice of suspension or termination, the Design-Builder will discontinue ordering materials, will not enter into any further Subcontracts (except such Subcontracts as are necessary for the safety of personnel or for the care and preservation of the Work) and will make every reasonable effort in the event of termination to cancel existing Subcontracts and orders on the best terms available.

52.5 During the period of suspension the Design-Builder will not remove from the Site any of the Work, or any material, without the prior written consent of the Authority.

52.6 If the period of suspension is 30 days or less, the Design-Builder, upon the expiration of the period of suspension, will resume the performance of the Work and will be paid for all costs reasonably incurred by the Design-Builder in complying with the suspension, determined in accordance with Section 49 and for costs reasonably incurred for acceleration of the Work so that Substantial Completion of the Building is achieved by the Target Building Substantial Completion Date, Substantial Completion of the Seven Sisters Facility is achieved by the Target Seven Sisters Facility Substantial Completion Date and Substantial Completion of the Project is achieved by the Target Project Substantial Completion Date where the Authority requires such acceleration by written notice to the Design-Builder. If the Authority does not require the acceleration of the Work, or if it is not possible for the Design-Builder, using all reasonable efforts, to achieve Substantial Completion of the Building by the Target Building Substantial Completion Date, Substantial Completion of the Seven Sisters Facility is achieved by the Target Seven Sisters Facility Substantial Completion Date or Substantial Completion of the Project by the Target Project Substantial Completion Date despite an intended acceleration of the Work, the Authority and the Design-

Builder will, acting reasonably, agree on a new Target Building Substantial Completion Date and Target Project Substantial Completion Date, as applicable.

52.7 If the period of suspension is greater than 30 days and, before 120 days after the date of the notice of suspension, the Authority and the Design-Builder agree to continue with and complete the Work, the Design-Builder will resume operations and complete the Work in accordance with any terms and conditions agreed upon by the Authority and the Design-Builder and the Design-Builder will be paid for all costs reasonably incurred by the Design-Builder in complying with the suspension, determined in accordance with Section 49.

52.8 If the period of suspension is greater than 30 days and the Authority and the Design-Builder do not agree to continue with and complete the Work, or they fail to agree on the terms and conditions upon which the Design-Builder is to resume operations and complete the Work, before 120 days after the date of the notice of suspension, this Agreement will be deemed to have been terminated.

52.9 If this Agreement is terminated pursuant to this Section 52:

(a) the Authority will pay the Design-Builder:

(i) in accordance with this Agreement, for all Work performed and for all of the Design-Builder's obligations under Subcontracts that it was unable to cancel, or asked by the Authority not to cancel, less any payments made by the Authority prior to termination; and

(ii) all costs reasonably incurred by the Design-Builder in complying with the suspension or termination order, determined in accordance with Section 49, less any costs already paid to the Design-Builder pursuant to Section 52.6; and

(b) the Authority will be entitled to:

(i) take possession of the Work or any part of the Work;

(ii) take possession of the Drawings and Specifications and make use of them in accordance with the rights granted under this Agreement; and

(iii) finish the Work or any part of the Work by whatever reasonable method the Authority may consider expedient.

52.10 The Design-Builder's obligations as to quality, correction and warranty of any portion of the Work performed prior to termination continue in force after termination under this Section 52.

52.11 The Design-Builder, by giving written notice to the Authority, may suspend performance of the Work to the extent the Work is stopped for a period in excess of 30 days by an order of any court or public authority having jurisdiction through no act or fault of the Design-Builder, its Subcontractors or for anyone whose acts the Design-Builder may be held liable.

SECTION 53
DEFAULT AND TERMINATION OF AGREEMENT

53.1 The Authority may give written notice to the Design-Builder of default under this Agreement if the Design-Builder:

(a) is adjudged bankrupt, makes a general assignment for the benefit of creditors, or a receiver is appointed on account of its insolvency, or fails to make payment to creditors when payment is due;

(b) abandons the Work;

(c) breaches a material term of this Agreement;

(d) makes a material misrepresentation of a representation or warranty set out in this Agreement;

(e) has delivered a statutory declaration in support of application for a payment under this Agreement that was false or materially inaccurate; or

(f) has made an assignment of this Agreement without the required consent of the Authority.

53.2 If a default referred to in Section 53.1 occurs, other than a default referred to in Section 53.1(a) or 53.1(b), the Design-Builder will remedy the default within a 7 day rectification period after the notice given under Section 53.1. If the nature of such default is that it cannot be remedied within such 7 day period, the Design-Builder will within such 7 day period provide the Authority with a schedule acceptable to the Authority for remedying the default and the Design-Builder will remedy the default in accordance with that schedule.

53.3 If a default referred to in Section 53.1(a) or 53.1(b) occurs or if the Design-Builder fails to remedy any other default within the rectification period described in Section 53.2 or in accordance with the schedule acceptable to the Authority, the Authority may without prejudice to any other right or remedy exercise any or all of the following:

(a) suspend all or part of the Work;

(b) terminate the Design-Builder's right to continue with the Work in whole or in part;

(c) remedy the default and deduct the cost thereof from any payment then or thereafter due to the Design-Builder; and

(d) terminate this Agreement.

53.4 If the Authority terminates the right to continue with all or part of the Work or terminates this Agreement pursuant to Section 53.3, the Authority will be entitled to:

(a) take possession of the Work or any part of the Work;

(b) take possession of the Drawings and Specifications and make use of them in accordance with the rights granted under this Agreement;

(c) use construction machinery and equipment, subject to the rights of third parties;

(d) finish the Work or any part of the Work by whatever reasonable method the Authority may consider expedient;

(e) charge the Design-Builder the amount by which the full cost of finishing the Work and a reasonable allowance to cover the cost of corrections to Work performed by the Design-Builder that may be required under Section 38 exceeds the unpaid balance of the Contract Price; and

(f) on expiry of the Warranty Period, charge the Design-Builder the amount by which the cost of corrections to Work under Section 38 exceeds the allowance provided for such corrections, or reimburse the Design-Builder with the portion of the allowance unspent on the cost of corrections to the Work under Section 38 as applicable.

53.5 The termination of the right to continue with part of the Work does not relieve or discharge the Design-Builder from any obligations under this Agreement, except the obligation to perform the part of the Work removed from the Design-Builder.

53.6 The rights, powers and remedies conferred on the Authority under this Agreement are not intended to be exclusive but are cumulative, are in addition to, do not limit and are not in substitution for any other right, power and remedy existing under this Agreement, under any other agreement, at law or in equity. The exercise by the Authority of any right, power or remedy does not preclude the simultaneous or later exercise by the Authority of any other right, power or remedy.

SECTION 54
TERMINATION BY THE DESIGN-BUILDER

54.1 The Design-Builder may by giving written notice to the Authority declare the Authority in default of this Agreement for any of the following reasons:

(a) the Authority has failed to pay the Design-Builder within 45 days of the date that any payment becomes due to the Design-Builder in accordance with the terms of this Agreement, unless the Authority is bona fide disputing liability to make such payment and has provided notice to the Design-Builder of the basis for its dispute before the time provided in Section 40.10 for payment of invoices;

(b) the Authority has failed to substantially supply the Site to the Design-Builder, subject to any property availability restrictions identified in this Agreement, within 180 days following the Site Occupation Date; or

(c) substantially all of the Work is stopped by an order of any court or public authority having jurisdiction (providing that such order was not issued as the result of any act or fault of the Design-Builder or a Subcontractor) for a period of 90 days.

54.2 If a default referred to in Section 54.1 occurs, the Authority will remedy the default within a 21 day rectification period after the notice given under Section 54.1 or within such extension thereof established by the Design-Builder.

54.3 If the Authority fails to remedy the default within the rectification period described in Section 54.2 or any extension thereof established in accordance with that Section, the Design-Builder may exercise any or all of the following:

(a) waive the default;

(b) further extend the rectification period;

(c) suspend the Work; and

(d) terminate this Agreement.

54.4 If the Design-Builder terminates this Agreement in accordance with Section 54.3(d), the Design-Builder is entitled to be paid:

(a) in accordance with the terms of this Agreement for all Work satisfactorily performed to the date of termination; and

(b) expenses of the Design-Builder that are directly related to the termination and reasonable in the circumstances including the Design-Builder's obligations to other parties.

PART H – REPRESENTATIONS AND WARRANTIES

SECTION 55
REPRESENTATIONS AND WARRANTIES

55.1 The Design-Builder represents and warrants to the Authority:

(a) as of the Effective Date that:

(i) all necessary proceedings have been taken to authorize the Design-Builder to enter into this Agreement and to execute and deliver this Agreement;

(ii) this Agreement has been properly executed by an authorized signatory of the Design-Builder and is enforceable against the Design-Builder in accordance with its terms;

(iii) the Design-Builder has had sufficient time, opportunity and resources to investigate and has investigated and satisfied itself of every condition and risk relating to, affecting or that may affect the Project and the Work, or either of them, including the Site conditions, and the labour, equipment, material and other resources that may be necessary for the performance of the Work in a manner that will meet or exceed all requirements of this Agreement;

(iv) the Design-Builder's investigations and assessments described in Section 55.1(a)(iii), including of the Site conditions (such conditions including for greater certainty geotechnical conditions, subsurface conditions, bearing pressure, settlement characteristics and nature and consistency of soil), and any conclusions reached in such investigations and assessments, including any conclusions as to the effect, if any, on the Design, Construction, Substantial Completion Dates and Contract Price, (or any of them), except for objective geotechnical information that

can be relied upon for accuracy but not interpretation, sufficiency or relevance, are based on the Design-Builder's own experience, examination, knowledge, information, interpretation, assessment, analysis and judgment and not upon any statement, representation or information, whether oral or written, made, produced or provided by, through or on behalf of the Authority or its advisors;

(v) subject to Section 28.1 in respect of the accuracy of objective geotechnical data identified in Section 28.1(b), the Design-Builder acknowledges that the investigations made by the Authority of the conditions of the Site, including subsurface conditions, are of a preliminary nature and are made for the purpose of study and preliminary design for the sole benefit of the Authority only except for objective geotechnical data that can be relied upon by the Design-Builder for accuracy but not interpretation, sufficiency or relevance;

(vi) the Design-Builder has no knowledge of any fact that materially adversely affects or, so far as it can foresee, might materially adversely affect either its financial condition or its ability to fulfill its obligations under this Agreement;

(vii) there is no bona fide proceeding pending or threatened against the Design-Builder, which would, if successful, materially adversely affect the ability of the Design-Builder to fulfill its obligations under this Agreement; and

(viii) the Design-Builder acknowledges that it has the responsibility for informing itself of all aspects of the Project and all information necessary to perform the Work; and

(b) as of the Effective Date (to the extent applicable as of the Effective Date) and at all times throughout the Term that:

(i) the Design-Builder has filed all tax, corporate information and other returns required to be filed by all applicable Laws, has complied with all workers' compensation legislation and other similar legislation to which it is subject, and has paid all taxes, fees and assessments due by the Design-Builder under those laws as of the Effective Date, except for Lien Holdback monies properly retained, payments deferred by agreement and accounts withheld by reason of legitimate dispute;

(ii) the Design-Builder holds all permits, licences, consents and authorities issued by any level of government, or any agency of any level of government, that are required by all applicable Laws to perform the Work;

(iii) the Design-Builder has paid, as they became due, all accounts, expenses, wages, salaries, taxes, rates, fees and assessments required to be paid by it in respect of the Work and fulfillment of its obligations under this Agreement;

(iv) the Design-Builder is not in breach of any Law that is material to performance of the Design-Builder's obligations under this Agreement;

(v) the Key Individuals or any substitute with equivalent qualifications proposed by the Design-Builder who have first been expressly accepted in writing by the Authority will be available and fully involved in the performance of the Work; and

(vi) the Design-Builder is registered for the purposes of the GST.

55.2 The Authority represents and warrants to the Design-Builder as of the Effective Date that:

(a) it has been properly constituted pursuant to applicable legislation;

(b) it has been properly authorized to fulfill the obligations of the Authority under this Agreement; and

(c) it has the power, capacity and authority to enter into this Agreement and to carry out its obligations under this Agreement.

PART I – PROTECTION AND INDEMNITY

SECTION 56
PROTECTION OF WORK AND PROPERTY

56.1 The Design-Builder will protect the Work, the Site and property adjacent to the Site from damage that may arise as the result of the Design-Builder's operations under this Agreement, and will be responsible for such damage, except damage that occurs as the result of actions of the Authority, its agents, employees or Other Contractors.

56.2 Should any damage occur to the Work, the Site and property adjacent to the Site for which the Design-Builder is responsible as provided in Section 56.1, the Design-Builder will make good such damage at its own expense or pay all costs incurred by the Authority or others in making good such damage.

56.3 Should any damage occur to the Work, the Site and property adjacent to the Site for which the Design-Builder is not responsible as provided in Section 56.1, the Design-Builder will at the Authority's direction and expense make good such damage. The Contract Price and Contract Time will be adjusted in accordance with Section 48 and Section 49.

SECTION 57
EXCLUSIONS OF LIABILITY

57.1 Neither the Design-Builder nor the Authority will be liable to the other for any consequential or indirect damages in connection with this Agreement, whether based in contract, tort (including negligence), strict liability or otherwise and including loss of use, loss of revenues or profits and loss of opportunity. This Section 57.1 will not limit any liability the Design-Builder may have under this Agreement to pay liquidated damages.

57.2 Subject to Section 57.3 the maximum amount of the total aggregate liability of the Design-Builder to the Authority in connection with this Agreement, whether based in contract, tort (including negligence), strict liability or otherwise, is:

(a) in respect of a loss by the Indemnified Parties for which insurance is to be provided by the Authority under Section 1 or Section 3 of Schedule 4 - Insurance Conditions, the applicable limit or sub-limit of the Wrap-up Liability coverage or the Course of Construction coverage, whichever is applicable to the loss, with such limit or sub-limit calculated without reduction for the amount of any deductible; or

(b) in respect of any liability other than a loss referred to in Section 57.2(a) above, 50% of the Contract Price.

If this Agreement is terminated, the reference in this Section 57.2 to the "Contract Price" will be deemed only for purposes of this Section 57.2 to be the amount to which the Design-Builder would have been entitled if the Design-Builder had properly performed and completed the Work and this Agreement had not been terminated.

57.3 Section 57.2 will not limit the Design-Builder's liability in connection with:

(a) fraud, gross negligence or wilful, fraudulent or criminal misconduct;

(b) bodily injury, sickness, disease or death;

(c) liability to third parties in respect of tangible personal or real property;

(d) breach by the Design-Builder of its obligations of confidentiality under this Agreement; and

(e) penalties, fines or other liability imposed by a governmental authority, an administrative tribunal or a court of competent jurisdiction for breach of applicable Law.

57.4 Nothing in this Section 57 will be construed to limit the liability of an insurer under the insurance required to be maintained under this Agreement.

SECTION 58
INDEMNIFICATION

58.1 The Design-Builder will indemnify and save harmless the Authority and its officers, employees, representatives, consultants and agents including the Authority's Representative (collectively the "**Indemnified Parties**") from and against any and all losses, claims, damages, actions, causes of action, costs and expenses (including actual legal and other professional fees and disbursements) that any of the Indemnified Parties may sustain, incur, suffer or be put to at any time either before or after the expiration or termination of this Agreement, where the same or any of them are based upon, arise out of or occur, directly or indirectly, by reason of any act or omission of the Design-Builder or of any representative, agent, employee, officer, director, consultant of the Design-Builder or of any Subcontractor, excepting only liability to the extent arising out of the independent acts of the Indemnified Parties.

58.2 The obligations of the Design-Builder under Section 58 will not be affected by completion or termination of this Agreement, whether for default or otherwise, or suspension of the Work or any withdrawal of services or labour from the Project.

58.3 Neither the requirement of the Design-Builder to purchase and maintain insurance as described in the Insurance Conditions nor the acceptance of evidence of such insurance by the Authority will, in any manner, limit or qualify the right of the Authority to make a claim and recover insurance proceeds under the insurance policies described in the Insurance Conditions or the liability and obligations otherwise assumed by the Design-Builder under this Agreement.

SECTION 59
DESIGN-BUILDER'S DISCHARGE OF LIABILITY

59.1 The Design-Builder will discharge all liabilities incurred by it, including for labour, equipment, materials or services used or reasonably required for use, in the performance of this Agreement, on or before the date each becomes due. In the case of bona fide disputed payments, the Design-Builder will discharge such liabilities when legally obliged to do so.

59.2 The Design-Builder will include as a condition of every Subcontract that the Subcontractor discharge all liabilities incurred by it, including for labour, equipment, materials, supplies or services used or reasonably required for use, in the performance of the Subcontract, on or before the date upon which each becomes due. In the case of bona fide disputed payments, the Design-Builder will discharge such liabilities when legally obliged to do so.

59.3 The Design-Builder will furnish the Authority with satisfactory evidence that its liabilities and those of Subcontractors have been discharged, such satisfactory evidence to be a statutory declaration in the form of CCDC 9A sworn by a knowledgeable officer or senior management employee of the Design-Builder or Subcontractor, as the case may be, or such other evidence as the Authority may require.

59.4 With the exception of any claim of builder's lien, builder's liens or certificates of pending litigation that arise due to an improper non-payment by the Authority, the Design-Builder will not directly or indirectly create, incur, assume or allow to be created by any of its Subcontractors or workers any lien, charge or encumbrance on the Site, Project or any part thereof or interest therein. The Design-Builder will immediately notify the Authority of any lien, charge or encumbrance asserted upon the Site, Project or any part thereof.

PART J – SECURITY, RECORDS, REPORTS AND AUDIT

SECTION 60
BONDS

60.1 Before commencing the Work, the Design-Builder will purchase and deliver to the Authority an executed performance bond and an executed labour and materials payment bond (the "**Bonds**"). The form of the Bonds will be in accordance with the latest edition of the CCDC approved bond form or in substantially equivalent form acceptable to the Authority.

60.2 Each Bond under Section 60.1 will be in the amount of 50% of the Contract Price and will be issued by a surety licensed to transact the business of a surety in British Columbia and acceptable to the Authority, acting reasonably.

60.3 Upon entering into a Subcontract with a Subcontractor, the Design-Builder will advise the Subcontractor that a labour and materials payment Bond is in effect and will supply a copy of that Bond to the Subcontractor on request.

60.4 The Design-Builder will pay for and maintain the Bonds in force during the Term.

60.5 If the surety notifies either party that the Bonds are or are going to be terminated or cancelled for any reason whatsoever, the Design-Builder will obtain and provide the Authority with valid bonds effective from the date of termination or cancellation of the original bonds that comply with the bonding requirements of this Agreement.

60.6 The Design-Builder will, if required by the surety, obtain the written consent of the surety to any Change and will upon request by the Authority provide confirmation from the surety of such consent or confirmation from the surety that such consent is not required.

60.7 For greater certainty, the amount of the Bonds and any claim under the Bonds will not limit the Authority from seeking additional claims, damages, or remedies the Authority may be entitled to by reason of the Design-Builder's failure to successfully complete the Agreement in accordance with its terms and conditions.

SECTION 61
INSURANCE

61.1 The Authority and the Design-Builder will obtain and maintain during the Term the insurance specified for each of them under the Insurance Conditions, and will otherwise comply with the Insurance Conditions.

61.2 Before beginning the Work, the Design-Builder will deliver to the Authority certified copies of all insurance coverage obtained by the Design-Builder in accordance with the Insurance Conditions, or such other proof of that insurance as is satisfactory to the Authority, acting reasonably.

SECTION 62
RECORDS AND AUDIT

62.1 The Design-Builder will, in connection with this Agreement retain for a minimum of 6 years after the expiry of the Warranty Period all records, reports, and other documentation required under this Agreement and the following records, reports and other documentation relating to the Project whether or not required under other provisions of this Agreement:

(a) all documents relating to permits;

(b) all notices, reports, results and certificates relating to completion of the Design and Construction and completion of all commissioning activities;

(c) all records relating to any inspections of the Facility conducted under applicable Laws or by or of any governmental authority;

(d) all orders or other requirements issued to the Design-Builder by any governmental authority in connection with the Work;

(e) all documents relating to applications for payment, Changes or delay or other claims by the Design-Builder.

The Design-Builder will permit the Authority and its consultants and representatives to inspect and copy any or all such records, reports and other documentation.

62.2 Without limiting the other provisions of this Agreement, the Design-Builder will provide to the Authority and its consultants and representatives all records, reports and other documentation reasonably required by the Authority to support any applications for payment, Changes or delay or other claims by the Design-Builder.

62.3 The Authority and its consultants and representatives may on request, and acting reasonably, audit all books and records of the Design-Builder that relate to any applications for payment, Changes or delay or Disputes or other claims by the Design-Builder.

62.4 The Design-Builder will fully cooperate with the Authority to conduct an audit pursuant to this Section 62.

PART K – DISPUTE RESOLUTION

SECTION 63
DISPUTE RESOLUTION

63.1 All Disputes will be resolved in accordance with the Dispute resolution process set out in this Section 63.

63.2 The Dispute resolution process set out in this Section 63 may be commenced by either party by giving notice to the other party briefly setting out the pertinent facts, the remedy or relief sought and the grounds on which such remedy or relief is sought.

63.3 Within 7 days of a notice under Section 63.2, the Design-Builder's Representative and the Authority's Representative will:

(a) make bona fide efforts to resolve any Dispute arising between them by amicable negotiations; and

(b) provide frank, candid and timely disclosure of all relevant facts, information and documents, including full written particulars of the nature, entitlement and magnitude of any Dispute including the relevant provisions of this Agreement.

63.4 If the Authority's Representative and the Design-Builder's Representative fail to resolve the Dispute within 10 days after receipt of the notice pursuant to Section 63.3, the parties will refer the Dispute and all information to a nominated senior officer of the Authority and a nominated senior officer of the Design-Builder for resolution.

63.5 If the nominated senior officer of the Authority and the nominated senior officer of the Design-Builder fail to resolve the Dispute within 10 days after the Dispute has been referred to them, unless otherwise agreed in writing by the parties, either party may refer the Dispute to the Authority's Consultant by notice in writing to both the Authority's Consultant and to the other party. The Authority will require the Authority's Consultant to give a decision in writing and within a reasonable period of time. Both parties reserve their rights to dispute the decision of the Authority's Consultant.

63.6 Where either or both parties dispute the Authority's Consultant's decision made pursuant to Section 63.5, the parties will abide by the Authority's Consultant's decision until such time as the Dispute is finally resolved under the other provisions of this Section 63.

63.7 If either party disputes the Authority's Consultant's decision made pursuant to Section 63.5, or if the Authority's Consultant's decision is not made within a reasonable period of time, either party may elect to give notice of its intention to submit the Dispute to binding arbitration. If within 10 days of such notice the other party does not give a notice of objection to arbitration, the Dispute will be resolved by arbitration. The Dispute will be referred to a single arbitrator and finally

resolved by binding arbitration under the rules of the British Columbia International Commercial Arbitration Centre. The arbitrator will be chosen by mutual agreement between the Design-Builder and the Authority. If an arbitrator has not been appointed within 14 days of the date that the Dispute has been referred to an arbitrator, the arbitrator will be appointed by the British Columbia International Commercial Arbitration Centre.

63.8 Prior to receiving a notice of intention to submit a Dispute to binding arbitration or after giving a notice of objection to arbitration in accordance with Section 63.7 a party may commence proceedings in respect of the Dispute in the courts of British Columbia and serve the other party as required in respect of such proceedings.

63.9 Any of the times specified in this Section 63 may be varied by mutual agreement between the Design-Builder's Representative and the Authority's Representative.

63.10 Pursuit of the resolution of a Dispute under any part of this Section 63 does not relieve either party of its responsibility to ensure timely performance of its obligations under this Agreement. In relation to all Disputes, whether or not a notice under Section 63.2 has been given, the Design-Builder will diligently proceed with the Work and closely track all costs and impacts associated with the Dispute and may reserve its rights concerning the Dispute.

PART L – GENERAL PROVISIONS

SECTION 64
LAWS, NOTICE, PERMITS AND FEES

64.1 The Design-Builder will perform the Work in accordance with all applicable Laws and Standards and will comply with all Laws and Standards that may affect or relate to the Work.

64.2 The Design-Builder will apply for, pay for and obtain the development permit, the building permit, the occupancy permit and all other permits, licences and approvals required for the performance of the Work. When requested to do so by the Design-Builder, the Authority may at its discretion provide reasonable assistance to the Design-Builder in obtaining permits, licences, and approval required for the performance of the Work but, in no circumstance will the Authority be required to incur any costs or make any payments pursuant to this Section.

64.3 All applicable Laws in force in British Columbia, as amended from time to time, govern the Work.

64.4 Except as otherwise provided in this Agreement, if after:

(a) the Financial Submission Date a COVID-19 Change in Law comes into effect;

(b) the Financial Submission Date an Epidemic Change in Law comes into effect; or

(c) the Effective Date a change to applicable Laws and Standards comes into effect

either party will be entitled to make a claim for an adjustment in the Contract Price or the Contract Time as a Change.

SECTION 65
INTELLECTUAL PROPERTY FEES

65.1 The Design-Builder will obtain and pay for all intellectual property rights (including of any patent, copyright, industrial design, trademark or trade secret) all royalties and licence fees required for the performance of the Work and will, without limiting Section 58, indemnify and hold the Authority harmless from and against all claims, demands, losses, costs, damages, actions, suits or proceedings arising out of the Design-Builder's performance of the Work under this Agreement that are attributable to infringement or an alleged infringement of any intellectual property right by the Design-Builder or its Subcontractors or anyone for whose acts the Design-Builder may be liable.

SECTION 66
CONFIDENTIALITY AND COMMUNICATIONS

66.1 Subject to Section 66.2, each party will hold in confidence any Confidential Information received from the other party, except that this Section 66 will not restrict:

(a) the Design-Builder from disclosing or granting access to such information to its professional advisers and consultants, to the extent necessary, to enable it to perform (or to cause to be performed) or to enforce its rights or obligations under this Agreement and provided further that the Design-Builder may, subject to obtaining confidentiality restrictions similar to those set out in this Agreement, provide to a Subcontractor and its advisors, or provide or cause to be provided to other third parties, Confidential Information which is necessary to enable the Design-Builder to perform (or to cause to be performed) its obligations under this Agreement; and

(b) the Authority from disclosing or granting access to such information to any provincial ministry, Infrastructure BC Inc. and any other governmental authority which require the information in relation to the Project;

66.2 Subject to any restrictions on the Confidential Information which are imposed by a third party that may own any Confidential Information, the obligation to maintain the confidentiality of the Confidential Information does not apply to:

(a) Confidential Information which the party that disclosed the Confidential Information confirms in writing is not required to be treated as Confidential Information;

(b) Confidential Information which is or comes into the public domain otherwise than through any disclosure prohibited by this Agreement;

(c) Confidential Information to the extent any person is required to disclose such Confidential Information by Law, including a disclosure required under FIPPA;

(d) Confidential Information to the extent consistent with any Authority's policy concerning the Authority's Confidential Information, the details of which have been provided to the Design-Builder in writing prior to the disclosure; or

(e) the material referred to in Section 18.5 and any Confidential Information that the Authority is entitled to receive from the Design-Builder pursuant to this Agreement.

66.3 Without prejudice to any other rights and remedies that the other party may have, each of the parties agrees that damages may not be an adequate remedy for a breach of Section 66.1 and that the other party will, in such case, be entitled to the remedies of injunction, specific performance or other equitable relief for any threatened or actual breach of Section 66.1 subject, in the case of a claim for any such remedy against the Authority, to the provisions of the *Crown Proceeding Act* (British Columbia).

66.4 Unless required by any Law, neither party will make or permit to be made any public announcement or disclosure whether for publication in the press, radio, television or any other medium of any Confidential Information, without the consent of the other party (which will not be unreasonably withheld or delayed).

66.5 Except to the extent required for compliance with any applicable securities laws, the Design-Builder will not make any public announcement relating to the Project or this Agreement without the prior written consent of the Authority. The Design-Builder, with the prior written consent of the Authority, may include the Project in its promotional materials.

66.6 The Design-Builder acknowledges that the Authority may, in its discretion and without consultation with the Design-Builder, make any public announcement relating to the Project.

66.7 The parties will comply with Schedule 5 – Communication Roles.

SECTION 67
NOTICE

67.1 Any notice or communication required or permitted to be given under this Agreement will be in writing and will be considered to have been sufficiently given if delivered by hand or transmitted by electronic transmission to the address or electronic mail address of each party set out below:

(a) if to the Authority:

NORTHERN HEALTH AUTHORITY

Suite 300-299 Victoria Street
Prince George V2L 5B8

Attention: Paul Rudecki
Email: Paul.Rudecki@Northernhealth.ca

(b) if to the Design-Builder:

PCL CONSTRUCTORS WESTCOAST INC.

310 – 13911 Wireless Way
Richmond, BC V6V 3B9

Attention: Michael King
Email: msking@pcl.com

or to such other address or electronic mail address as any party may, from time to time, designate in the manner set out above.

67.2 Any such notice or communication will be considered to have been received:

(a) if delivered by hand during business hours (and in any event, at or before 5:00 pm local time in the place of receipt) on a Business Day, upon receipt by a responsible representative of the receiver, and if not delivered during business hours, upon the commencement of business hours on the next Business Day; and

(b) if sent by electronic transmission during business hours (and in any event, at or before 5:00 pm local time in the place of receipt) on a Business Day, upon receipt, and if not delivered during business hours, upon the commencement of business hours on the next Business Day, provided that:

(i) the receiving party has, by electronic transmission, by hand delivery or by facsimile transmission, acknowledged to the notifying party that it has received such notice; or

(ii) within 24 hours after sending the notice, the notifying party has also sent a copy of such notice to the receiving party by hand delivery or facsimile transmission.

67.3 Delivery by mail will not be considered timely notice under this Agreement.

67.4 In the event of an emergency or urgent matter, in addition to the notice required by this Section 67, a verbal notice will be given as soon as the party giving the notice becomes aware of any material event or circumstance that gives rise to the requirement for a written notice being given.

SECTION 68
LEGAL RELATIONSHIP

68.1 The Design-Builder is an independent contractor and not the servant, employee, partner or agent of the Authority.

68.2 The Design-Builder will not commit the Authority to the payment of any money to any person.

68.3 No partnership, joint venture or agency involving the Authority is created by this Agreement or under this Agreement.

68.4 All personnel engaged by the Design-Builder to design and construct the Project are at all times the employees or Subcontractors of the Design-Builder and not of the Authority. The Design-Builder is solely responsible for all matters arising out of the relationship of employer and employee.

SECTION 69
ASSIGNMENT

69.1 The Design-Builder will not, without the prior written consent of the Authority, assign, either directly or indirectly, any right or obligation of the Design-Builder under this Agreement.

69.2 The Authority may, upon notice to the Design-Builder, assign any or all of its rights or obligations under this Agreement to any other agency or organization that will assume responsibility for the operation of the Facility. Subject to the foregoing and subject to the right of assignment of the licence referred to in Section 18.5, the Authority will not, without the prior written consent of the

Design-Builder, assign, either directly or indirectly, any right or obligation of the Authority under this Agreement.

SECTION 70
INTEREST

70.1 If payment by either party of any amount payable under this Agreement is not made when due, interest will be payable on such amount at 2% per annum over the prime rate, calculated from the date due under this Agreement until paid, compounded monthly. The party to whom payment is owed and overdue will notify the other party at least monthly of the overdue amount and the accrued interest on that amount. The prime rate is the annual rate of interest announced by the Royal Bank of Canada (or its successor), or any other Canadian chartered bank agreed to by the parties, as its "prime" rate then in effect for determining interest rates on Canadian dollar commercial loans made by it in Canada.

SECTION 71
WAIVER

71.1 No waiver by either party of a right of that party or any breach by the other party in the performance of any of its obligations under this Agreement is effective unless it is in writing.

71.2 No waiver of any right or obligation is a waiver of any other right or obligation under this Agreement.

71.3 Failure or delay to complain of an act or failure of the other party or to declare the other party in default, irrespective of how long the failure or delay continues, does not constitute a waiver by the party of any of its rights against the other party.

71.4 The duties and obligations imposed by this Agreement and the rights and remedies available hereunder will be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by Law.

SECTION 72
ASSUMPTION OF RISK

72.1 Except to the extent expressly allocated to the Authority or otherwise provided for under this Agreement, all risks, costs and expenses in relation to the performance by the Design-Builder of its obligations under this Agreement are allocated to, and accepted by, the Design-Builder as its entire and exclusive responsibility.

SECTION 73
GENERAL DUTY TO MITIGATE

73.1 In all cases where the Design-Builder is entitled to receive from the Authority any additional compensation or any costs, damages or extensions of time, the Design-Builder will use all reasonable efforts to mitigate such amount required to be paid by the Authority to the Design-Builder under this Agreement, or the length of the extension of time. Upon request from the Authority, the Design-Builder will promptly submit a detailed description, supported by all such documentation as the Authority may reasonably require, of the measures and steps taken by the Design-Builder to mitigate and meet its obligations under this Section 73.

SECTION 74
OTHER PROVISIONS

74.1 The exclusions, waivers and limitations of liability, representations and warranties and indemnities in this Agreement, the provisions of Section 62, Section 63, 64.4, Section 66 and rights accrued prior to completion or termination of this Agreement will survive the completion or termination of this Agreement.

74.2 This Agreement constitutes the entire agreement between the parties, expressly superseding all prior agreements and communications (both oral and written) between any of the parties hereto with respect to all matters contained herein or therein, and except as stated herein or the instruments and documents to be executed and delivered pursuant hereto, contains all the representations and warranties of the respective parties.

74.3 No waiver of any provision of this Agreement and no consent required pursuant to the terms of this Agreement is binding or effective unless it is in writing and signed by the party providing such waiver or consent.

74.4 No failure to exercise, and no delay in exercising, any right or remedy under this Agreement will be deemed to be a waiver of that right or remedy. No waiver of any breach of any provision of this Agreement will be deemed to be a waiver of any subsequent breach of that provision or of any similar provision.

74.5 This Agreement enures to the benefit of and binds the Authority, its successors and its assigns and the Design-Builder and its successors and permitted assigns.

74.6 The parties must do everything reasonably necessary to give effect to the intent of this Agreement, including execution of further instruments.

74.7 The Design-Builder and the Authority will take all reasonable and necessary steps to minimize and avoid all costs and impacts arising out of the performance of the Work and this Agreement.

74.8 Neither the Authority nor the Design-Builder will take advantage of any apparent discrepancy, ambiguity, error or omission in this Agreement and will notify the other party forthwith following the detection of anything it suspects may be an ambiguity, discrepancy, error or omission.

74.9 Each Schedule attached to this Agreement is an integral part of this Agreement as if set out at length in the body of this Agreement.

74.10 This Agreement may only be amended by an agreement of the parties in writing. No such amendments will be valid unless executed by the Authority and the Design-Builder.

74.11 This Agreement will be deemed to be made pursuant to the Laws of the Province of British Columbia and the Laws of Canada applicable therein and will be governed by and construed in accordance with such Laws.

74.12 For the purposes of any legal actions or proceedings brought by any party hereto against the other party, the parties hereby irrevocably submit to the exclusive jurisdiction of the courts of the Province of British Columbia and acknowledge their competence and the convenience and propriety of the venue and agree to be bound by any judgment thereof and not to seek, and hereby waive, review of its merits by the courts of any other jurisdiction.

74.13 Where the Design-Builder is a joint venture, partnership or consortium, each member agrees to be jointly and severally liable for the obligations of the Design-Builder.

74.14 Time is of the essence of this Agreement.

74.15 This Agreement may be executed in any number of counterparts, each of which will be deemed to be an original, and this has the same effect as if the signatures on the counterparts were on a single copy of this Agreement so that it will not be necessary in making proof of this Agreement to produce or account for more than one such counterpart.

74.16 A party may deliver an executed copy of this Agreement by facsimile or other electronic means but that party will immediately deliver to the other parties an originally executed copy of this Agreement.

[Signature Page to Follow]

IN WITNESS WHEREOF the parties have executed this Agreement as of the Effective Date.

NORTHERN HEALTH AUTHORITY

Per: _____
Name: Cathy Ulrich
Title: President & CEO

PCL CONSTRUCTORS WESTCOAST INC.

Per: _____
Name: Joseph Oliverio
Title: Senior Manager, Finance & Administration/Secretary

IN WITNESS WHEREOF the parties have executed this Agreement as of the Effective Date.

NORTHERN HEALTH AUTHORITY

Per: _____
Name: Cathy Ulrich
Title: President & CEO

PCL CONSTRUCTORS WESTCOAST INC.

Per: _____
Name: Joseph Oliverio
Title: Senior Manager, Finance & Administration/Secretary

Per: _____
Name: Sean Hamelin
Title: Senior Vice President, District Manager

SCHEDULE 1

STATEMENT OF REQUIREMENTS

SCHEDULE 1
STATEMENT OF REQUIREMENTS

DBA EXECUTION DRAFT V3

MAY 26, 2021

TABLE OF CONTENTS

SCHEDULE 1

DESIGN AND CONSTRUCTION SPECIFICATIONS

PART 1. INTERPRETATION

1.1 Definitions

In this Schedule, in addition to the definitions set out in Schedule 1 of this Agreement:

"Acoustical Privacy" – A reasonable safeguard to ensure speech privacy (the inability of an outside listener to understand a conversation between two or more individuals) both in-person and telephone conversations with patients and between employees;

"Alternative Solution" – means all or part of a building design that demonstrates compliance with the Building Code but differs completely or partially from the Acceptable Solutions or Verification Methods in the Building code;

"Ambulatory/Outpatient Care" - Walk-in care not requiring an overnight stay in hospital and may include diagnostic services, rehabilitation services and day care procedures;

"As-Built Drawings" – means drawings based on field measurements for a completed project;

"Authority Network" – refers to the Network;

"Bariatric" – the branch of medicine that deals with the causes, prevention and treatment of obesity. For the purposes of this Project, bariatric patients shall be defined as individuals that weigh 135 - 326 KG (297 - 720- lbs.);

"Bariatric Resident" – for the purpose of this Statement of Requirements, bariatric individuals are considered to be those within the range of 135 kg to 326 kg; (297 - 720 lbs.);

"Borrowed Natural Light" – means light that is transmitted to an interior space through an interior window and that comes from an adjacent space having an exterior window;

"Building Management System" (BMS) – means the computer networking of electronic devices designed to monitor and control the mechanical, security, fire, lighting, energy usage, HVAC and humidity control and ventilation systems in a building;

"BC Building Code (BCBC)" – means the British Columbia Building Code;

"Building Envelope Specialist (BES)" – means a building envelope specialist who has a minimum of 10 years' experience with a minimum of 5 recent years' experience working in a cold weather environment; and Who is registered as an engineer or architect licenced to practice in one of the provinces or territories of Canada;

"Building Gross Area "or "*Building Gross Square Metres" (BGSM)* - The sum of all building floor areas measured including voids, staircases and shafts (excluding atria) to the inside face of exterior walls for all stories or areas having floor surfaces, plus the inside face of exterior wall perimeter per floor area multiplied by 150mm. A building gross area includes component gross areas, general circulation, mechanical and electrical space, voids (excluding atria) and exterior walls;

"Ceiling Height" – means the clear vertical distance from the finished floor to the finished ceiling;

"CGSM" - That portion of a building assigned to a specific component, including net areas, internal circulation, partitions, building structure, and small mechanical shafts. Component gross area is measured to the inside face of exterior walls and to the centre line of partitions adjoining other components or general circulation space;

"Chemotherapy" – The treatment of disease by chemical agents taken orally or intravenously;

"City" – means the City of Terrace, British Columbia;

"City Good Neighbour Protocol" – means a protocol document consisting of municipal guidelines that outline what proposed projects should do as "good neighbours" to minimize construction impacts on residents, businesses, and visitors;

"Clean Supplies Room" – A room for the storage of patient items such as clean linens and sterile supplies. At minimum it contains an HHS, counter work area and storage cabinets;

"Clinical Space/Area/Room" – A clinical room, area or space is any room, area or space that could at any time accommodate a patient or client while they are or could be receiving direct care, treatment, therapy, counseling, training, instruction and/or interaction with staff while occupying the room or space. Further, a clinical room or space is also defined as any room or space that clinical staff may access on a frequent basis for supplies, materials and equipment during the course of their interaction with the `patient – during the treatment or care of the patient.

"Clinical Specifications" – describes and outlines the key needs and building design attributes required to successfully implement clinical operations and achieve the desired model of care. The document describes both general planning concepts and detailed specific clinical needs;

"Commissioning" – means the process comprising of the integrated application of a set of engineering techniques and procedures to check, inspect and test every operational component of the Project, from individual functions up to complex amalgamations;

"Communications Tower" – means a roof-top emergency communications antennae tower;

"Component or functional component" – is a cohesive grouping of activities or spaces related by service or physical arrangement. A component or functional component may or may not be a Department since the term "department" refers to an administrative organization rather than a functional organization of space and activities;

"Construction Documents" – means drawings and specifications prepared by the architect setting forth the requirements for the construction of the Project;

"Construction Period" – means the period between the beginning of construction of a Project or the date on which the Bonds are first delivered to the purchasers thereof, whichever is earlier, and Substantial Completion;

"Construction Plan" – means contractor's plan for construction of the Work that will include: (a) the construction staging plan setting forth construction scheduling, phasing, laydown areas and storage, trailer areas, trailer locations, priorities as to site use, ingress/egress and other similar site logistic matters for the Work as approved by the Authority; and (b) procedures for the assignment of responsibilities for safety precautions and programs for the Work;

"Continuing Care Facility" - is a residential care setting for individuals with complex health needs requiring moderate to extensive assistance with activities of daily living, 24-hour monitoring and/or professional care. The facility provides coordinated interdisciplinary care including 24 hour on site nursing care and intermittent therapy, dietician and social work services. Medical care is provided as needed. All facility programs strive to provide individualized quality care and a home-like environment that encourages and supports independence and quality of life;

"Contract Documents" – means the documents that form the legal agreement between the Authority and the contractor, which include the agreement between the Authority and contractor, conditions of the contract, drawings, specifications, and addenda issued prior to execution of the contract, other documents listed in the agreement, and modifications issued after execution of the contract;

"Convenient Access" – means physical access between rooms or components which is suitable or agreeable to the needs or purpose of the delivery of continuing care and/or support services through the use of easily accessible, well-suited with respect to facility and ease of use, horizontal and/or vertical general circulation;

"CPTED" or "Crime Prevention Through Environmental Design" means a multi-disciplinary approach to deterring undesirable and criminal activity and behavior through environmental design;

"Data Room" – means the Authority has established a website to be used as an electronic Data Room in which it has placed documents in the possession of the Authority that the Authority has identified as relevant to the Project, and that may be useful to Design-Builder;

"**dBA**" is a weighted sound pressure level within a space adjusted based on human hearing systems (e.g. less sensitive to low frequencies);

"Deck" – means the outdoor deck/balcony space associated with upper floors;

"Disaster" – Refers to an event inherent with the building design that may cause a network outage;

"Disaster Situation" - Any event that creates a significant, short-term spike in the demand for emergency care services that requires extraordinary measures to address adequately;

"Direct Access" – means physical access between rooms or components through the use of a minimal possible amount of horizontal and/or vertical general or internal circulation;

"Direct Natural Light" – means that the space must have an exterior window and that the centre of the space falls within the 8 meter light radius measured from the entire length of the window (10 meter light radius if the area is over 45 square meters); the window glass opening must be 1.7 square meters in area minimum;

"Documents" – refers to Submittal, technical manuals, supporting materials, warranties and Design-Builder produced technical drawings, details and illustrations which are to be provided by the Design-Builder to the Authority pursuant to this Schedule of Requirements;

"Drawings" – refers to the graphic and pictorial portion of the Contract Documents showing the design location and dimensions of the Services, generally including plans, elevations, sections, details, schedules and diagrams.

"Electronic Medical Records" (EMR) – means the digital medical record of the Residents. The EMR software system used by the Authority is Gold Care;

"Elevation" – means a horizontal orthographic projection of a building onto a vertical plane, the vertical plane normally being parallel to one side of the building;

"Emergency" – The BC Ministry of Health defines an emergency as "a condition of such severity that death, severe pain, chronic illness or permanent disability may result if immediate hospital treatment is not given". In some instances (e.g., terminal cancer cases), death will be inevitable though not necessarily immediate, yet instant hospital admission will be required for the relief of suffering;

"Energy Use Target" – is the maximum allowed total yearly energy used in the building per square meter of the space;

"Environment of Care" – means the healthcare environment that is defined through six components that consist concurrently in all healthcare settings: the service delivery model, the facility and service users, the systems design, the layout and operational planning, the design and implementation process, and the physical environment;

"Evidence Based Design" (EBD) "Evidence Based Design" means that decisions about the design of the Facility will be based on credible research, information derived from comparable projects, and information about Authority operations, in order to achieve the best possible outcomes. The goal of Evidence Based Design is to deliver measurable improvements (for example in the Authority's patient and workflow outcomes, productivity, economic performance, and customer satisfaction);

"Final Completion" – is a term denoting that the work has been completed in accordance with the terms and conditions of the contract documents;

"Fire Safety Plan" – means a detailed document that covers all aspects of fire safety for a specific building or property, often required by the local Fire Code;

"FM Network" has the meaning set out in Section 7.4.2;

"Function Protection" – designates the highest level of disaster preparedness with the goal to protect life and investment, and to ensure that the facility continues to operate post disaster;

"Garden" – means outdoor courtyard or garden space located on Ground Level;

"General Circulation" – is the system of connecting links (corridors, elevators, stairs) providing access for people and materials to or between functional components;

"General Therapeutic Garden" – means the garden associated with the main gathering space of the Facility;

"Glazing" - the act of furnishing or fitting with glass to enable viewing into a space, area and room;

"Good Industry Practice" – means in relation to the performance of any activity to which this standard is applied, the exercise of that degree of skill, diligence, prudence and foresight as would reasonably be expected from a properly qualified and competent person engaged in carrying out works or services of a similar size, nature, scope, type and complexity, complying with all legal requirements and applicable Standards of;

"Governmental Authority" – means the government of Canada, any other nation or any political subdivision thereof, whether provincial or local, and any agency, authority, instrumentality, regulatory body, court, central

bank or other entity exercising executive, legislative, judicial, taxing, regulatory or administrative powers or functions of or pertaining to government;

"Gridlines" – means the identification marks on a floor plan consisting of a combination of lines, letters, and/or numbers to locate specific areas on the floor plan;

"Headcount" – means the translation of full time equivalents (FTE) into the actual number of people. This includes part time and full time employees;

"Healing Environment" – means a physical environment of highest quality which capitalizes on elements that have been proven to create therapeutic and low stress environments, and create a comfortable functional environment for Residents, their families, and staff;

"Human Scale" – is the set of physical qualities, characterizing the human body, its motor, sensory, or mental capabilities, and human social institutions;

"Inpatient" - A patient who is admitted to a hospital for overnight care and to whom an inpatient bed has been assigned;

"Inpatient Care" - Care requiring admission to a hospital or other health care facility for a stay of at least twenty-four hours;

"Inpatient Units" - includes Birthing Unit, Medical/Surgical Inpatients, and Psychiatric Inpatient Unit;

"Internal Circulation" – means the system of connecting links (corridors, elevators, stairs) within functional components, connecting rooms of a component or directly connecting contiguous components;

"IT Systems" refers to the data communication systems equipment provided by either the Authority or the Design-Builder including: systems described in this Schedule; data networks and equipment; wireless infrastructure; wireless staff communication system; telephony; video conferencing; user information systems; Wireless communications system; and all related equipment, printers, fax machines, servers, cabling and other related hardware, software and applications;

"Landscape Architect" – means a professional who practices landscape architecture and is registered with the regulatory body of a province if registration is required for practicing landscape architecture in that province;

"**LEAN**" means to a structured way of continuously providing solutions to eliminate waste in systems that deliver value to customers and as defined by the Lean Enterprise Institute;

"Lean Healthcare" – means the application of "lean" ideas in healthcare to minimize waste with ongoing process improvement;

"Length of Stay" (LOS) - The amount of time, usually measured in days, spent by a patient in a hospital;

"Main Entrance" – means the primary public entrance to the Building;

"Main Entry Garden" – means the garden associated with the Main Entrance;

"Mass Casualty Tent Area" – means an exterior area that is of a size capable of accommodating temporary tents in case of a mass casualty event requiring the decontamination and treatment of up to 150 patients;

"Master Site Plan" – has the meaning set out in Section 4.1 of this Schedule;

"NC" – means Noise Criteria: NC is a single number rating that is sensitive to the relative loudness within a given space at different frequencies;

"Net Area or Net Square Meters" (NSM) – The horizontal area of space assignable to a specific function. The Net Area is the area of the space, as measured from the inside face-of-wall to inside face-of-wall, including area occupied with permanent millwork or equipment and excluding "box-outs" (i.e. furring). The Net Area requirements outlined within this Schedule are to be considered the minimum requirement for each space;

"Non-Clinical Space/Area/Room" – A room, area or space that does not accommodate a patient while the patient is receiving care and/or the staff do not need to regularly access to obtain supplies necessary for care of the patient (during the treatment of a patient). Examples of non-clinical rooms include: Staff Lounge, Lockers, Staff Washroom, Housekeeping Room, Offices;

"NRC" – means Noise Reduction Coefficient. NRC is a single number rating of the sound absorbing properties of a material – derived by arithmetically averaging the Sabine absorption coefficients at 250 Hz, 1000 Hz, 2000 Hz and 4000 Hz. An NRC of 0.00 indicates zero absorption while; an NRC of 1.00 indicates 100% absorption;

"Obstetrics" – The branch of medicine concerned with pregnancy and prenatal care, childbirth, and postnatal care;

"Oncology" – Specializing in the study and treatment of cancer;

"Patient" – means a recipient of any direct care or treatment provided at the Facility;

"Persons with Disabilities" – means a person who has a loss, or a reduction, of functional ability and activity and includes a person in a wheelchair and a person with a sensory disability;

"PI" – means Privacy Index. The privacy index is a way of measuring how intelligible speech is across a given space as defined in ASTM 1130;

"Plan" – means a drawing or diagram made by projection on a horizontal plane showing the layout of the site, a roof, a floor, or a portion of a floor of a building;

"Progress Schedule" – means a diagram, graph, or other pictorial or written schedule showing proposed or actual times of commencement and completion of the various elements of the work;

"Public Spaces" – Refers to all areas that have unsecure access during business hours that allow visitors the freedom of movement without special permissions;

"Record Documents" – means construction drawings revised to show significant changes made during the construction process, usually based on marked-up prints, drawings, and other data furnished by the contractor to the architect;

"Regularly Occupied Space" – means a room or space within the Facility that is likely to be occupied for 30 minutes or more by a Facility user. Regularly Occupied Spaces include, but are not limited to, Resident rooms,

team work areas and care stations Regularly Occupied Spaces do not include 'transient' type spaces such as corridors and washrooms;

"Reflected Ceiling Plan" – means a plan view of the ceiling looking down as if there was a mirror on the floor reflecting the plan back at the viewer;

"Rehabilitation" – Multidisciplinary services that provide access to, and delivery of: physical, communication, mental, social, vocational, preventative, recreational, avocational, psychosocial, and independent living services;

"Redline" – Restricted area which can only be entered by passing a control point where there are specific requirements for attire (eg. scrubs, hair nets);

"RO Plant" – means a plant where the process of reverse osmosis which is used to purify or desalinate contaminated water by forcing water through a membrane takes place;

"Schedule of Accommodation" – means the list of all required rooms and spaces with all their net areas as required by Appendix 1A Clinical Specifications;

"Secondary Entrance" – means the primary public entrance to Seven Sisters Facility;

"Section" – means a drawing or diagram to represent spaces and surrounding and/or internal structures of a building or a building component, as if it had been cut through vertically along an imaginary plane;

"Secured" – Ability to be locked;

"Secure Mental Health Courtyard" – means the courtyard associated with the Mental Health House;

"Secure Outdoor Space" – means the secure outdoor space as defined in Appendix 1A Clinical Specifications;

"Shop Drawings" – as defined in applicable CCDC contract in the Contract Documents;

"Sightlines" – the ability to see clearly from one location to another with a hypothetical line;

"Soiled Utility Room" – A room that minimizes the risk of infection transmission in clinical areas that generate soiled equipment, soiled linen and waste. At minimum it contains a work counter with HHS, space for garbage and recycling containers, hospital approved product and equipment for cleaning, closed cupboards for storage of equipment and supplies. Soiled rooms may also contain refrigerators for the storage of laboratory specimens;

"Staff Garden" – means the garden associated with the Staff break room;

"STC" – means (Laboratory) Sound Transmission Class: STC is a single number that is an indication of a partition's ability to block sound (i.e. in the speech frequencies). The higher the STC rating, the higher is the sound transmission loss. For instance: loud speech can be understood fairly well through an STC 30 wall but should not be audible through an STC 60 wall;

"STI" – means Speech Transmission Index: Speech Transmission Index is a measure of speech transmission quality;

"TAB" means testing, adjusting and balancing;

"Telehealth" means the use of electronic information and telecommunications technologies to support long-distance clinical health care, Resident and professional health-related education, public health and health administration;

"Workstation" – workspace with voice, data, and power access. Assumes at least one seat, task lighting, and storage.

1.2 Interpretation

1.2.1. This Schedule is written as an output specification and defines what the Design-Builder must achieve in the design and construction. Except as expressly stated otherwise, the Design-Builder will carry out the design and construction as required and contemplated by each provision of this Schedule and its Appendices whether or not the provision is written as an obligation of the Design-Builder or is stated in the imperative form.

1.2.2. Where “cost effective”, “appropriate”, “sufficient”, “minimize” and related and similar terms are used, they are to be construed and interpreted in terms of whether they are cost effective, appropriate, sufficient, minimizing from the perspective of a prudent public authority of a major public hospital facility who balances capital costs against maintenance, operations, clinical efficiency and other non capital costs over the life of the Facility.

1.2.3. Unless expressly stated otherwise, each reference to a standard in this document will be deemed to mean the latest version of that standard as of the Financial Submission Date.

1.3 Acronym List

1.3.1. AAMA – American Architectural Manufacturers Association

1.3.2. AAS – Aluminum Association Standards

1.3.3. ABG - Arterial Blood Gases

1.3.4. ACI – American Concrete Institute

1.3.5. ACC – Ambulatory Care Centre

1.3.6. ADC – Automatic Dispensing Cabinet

1.3.7. ADL - Activities of Daily Living

1.3.8. ADT - Admission Discharge Transfer

1.3.9. AE – Ambulance Entrance

1.3.10. AECB – Atomic Energy Control Board AED – Automated External Defibrillator

1.3.11. AFFL - Above Finished Floor Level

1.3.12. AFUE – Annual Fuel Utilization Efficiency

1.3.13. AHC – Architectural Hardware Consultant

1.3.14. AH/IT - Allied Health / Interprofessional Team

1.3.15. AIBC – Architectural Institute of British Columbia

1.3.16. AISI – American Iron and Steel Institute

1.3.17. ALOS - Average Length of Stay

1.3.18. AMCA – Air Movement and Control Association

1.3.19. ANSI – American National Standards Institute

1.3.20. APEGBC – Association of Professional Engineers and Geoscientists of BC

1.3.21. ARCs - Affiliated Regional Centres

1.3.22. ARCAL – Aircraft Radio Control of Aerodrome Lighting

1.3.23. ARDS - Acute Respiratory Distress Syndrome

1.3.24. ARI – Air Conditioning and Refrigeration Institute

1.3.25. ASHRAE – American Society of Heating, Refrigerating and Air-conditioning Engineers

1.3.26. ASME – American Society of Mechanical Engineers

1.3.27. ASPE – American Society of Plumbing Engineers

1.3.28. ASTM – American Society for Testing and Materials

1.3.29. AV / IT – Audio Visual / Information Technology

1.3.30. AWCC – Association of Wall and Ceiling Contractors

1.3.31. AWMAC – Architectural Woodwork Manufacturers Association of Canada

1.3.32. AWPA - American Wood Protection Association

1.3.33. AWWA – American Water Works Association

1.3.34. BCAS - BC Ambulance Service

1.3.35. BCBC – British Columbia Building Code

1.3.36. BCERMS – British Columbia Emergency Response Management System

1.3.37. BCC - BC Cancer

1.3.38. BCCA - BC Cancer Agency

1.3.39. BCICA – British Columbia Insulation Contractors Association

1.3.40. BCIT - British Columbia Institute of Technology

1.3.41. BCLNA – British Columbia Landscape & Nursery Association

1.3.42. BCLS: British Columbia Landscape Standard

1.3.43. BCSLA – British Columbia Society of Landscape Architects

1.3.44. BFHI – Baby Friendly Health Initiative

1.3.45. BICSI – Building Industry Consulting Service International

1.3.46. Bi-PAP - Bilevel Positive Airway Pressure

1.3.47. BMD - Bone Mineral Densitometry

1.3.48. BMS – Building Management System

1.3.49. BSC – Biological Safety Cabinet

1.3.50. BSP - Breast Screening Program

1.3.51. CAC – Ceiling Attenuation Class

1.3.52. CATV – Community Access Television

1.3.53. CCI - Canadian Classification of Health Interventions

1.3.54. CCC – Cancer Care Clinic

1.3.55. CCD – Charge Couple Device

1.3.56. CCHSA - Canadian Council on Health Services Accreditation

1.3.57. CCTV – Closed Circuit Television

1.3.58. CCU – Critical Care Unit

1.3.59. CDP – Central Distribution Panel

1.3.60. CEC – Canadian Electrical Code

1.3.61. CFL – Compact Fluorescent Lamp

1.3.62. CGA - Compressed Gas Association

1.3.63. CGSB – Canadian Standards Board

1.3.64. CGSM - Component Gross Square Metres

1.3.65. CIF – Common Intermediate Format

1.3.66. CIS – Coroner's Information System

1.3.67. CIVA - Central Intravenous Additive Services

1.3.68. CISC – The Canadian Institute of Steel Construction

1.3.69. CISCA – Ceiling Interior Systems Construction Association

1.3.70. CLS – Canadian Landscape Standard

1.3.71. CMCA – Canadian Masonry Contractors Association

1.3.72. CNE - Clinical Nurse Educators

1.3.73. CNL - Clinical Nurse Leader

1.3.74. CNS – Clinical Nutritional Services

1.3.75. CNSC – Canadian Nuclear Safety Commission

1.3.76. CODEC – Coder/Decoder

1.3.77. COO - Chief Operating Officer

1.3.78. COPD - Chronic Obstructive Pulmonary Disease

1.3.79. COW - Computer on Wheels

1.3.80. CPAP – Continuous Positive Airway Pressure

1.3.81. C-PEC/PEC - Containment Primary Engineering Control

1.3.82. CPI - Centre for Process Innovation

1.3.83. CPL - Clinical Practice Leader

1.3.84. CPMA – Canadian Paint Manufacturer's Association

1.3.85. CPOE - Computerized Physician Order Entry

1.3.86. CPS – Cardiopulmonary Services

1.3.87. CPTED – Crime Prevention Through Environmental Design

1.3.88. CPU – Central Processing Unit

1.3.89. CRI/IAQ – Canadian Rug Institute/Indoor Air Quality Program

1.3.90. CRS - Cardio-Respiratory Services

1.3.91. CRT – Cathode Ray Tube

1.3.92. CRU - Community Response Unit

1.3.93. CRTC – Canadian Radio-television and Telecommunications Commission

1.3.94. CSA – Canadian Standards Association

1.3.95. CSDFMA – Canadian Steel Door and Frame Manufacturers Association

1.3.96. CSSBI – Canadian Sheet Steel Building Institute

1.3.97. CT - Computerized Tomography

1.3.98. CTAS - Canadian Triage & Acuity Scale

1.3.99. CTI – Cooling Technology Institute

1.3.100. CVA - Cerebrovascular Accident

1.3.101. CWB – Canadian Welding Bureau

1.3.102. dB – Decibels

1.3.103. dBA – A-Weighed sound pressure level

1.3.104. DDC – Direct Digital Controls

1.3.105. DFO – Department of Fisheries and Oceans

1.3.106. DHI – Door and Hardware Institute

1.3.107. DID – Direct Inward Dialling

1.3.108. DISS – Diameter Index Safety System

1.3.109. DSSS – Direct Sequence Spread Spectrum

1.3.110. DST - Decision Support Tool

1.3.111. EBD - Evidence-Based Design

1.3.112. ECG – Electrocardiogram

1.3.113. ECT - Electroconvulsive Therapy

1.3.114. EDI - Electronic Data Interchange

1.3.115. EEG – Electroencephlogram

1.3.116. EENT - Ears, Eyes, Nose and Throat Specialist

1.3.117. EIA/TIA – Electronics Industry Association/Telecommunications Industry Association

1.3.118. EHR - Electronic Health Record

1.3.119. eMAR - Electronic Medication Administration Record

1.3.120. EMT – Electric Metallic Tubing

1.3.121. EMR - Electronic Medical Record

1.3.122. EMC - Emergency Medical Services

1.3.123. ENS – Environmental Notation System

1.3.124. EOC – Emergency Operations Centre

1.3.125. EPA – Environmental Protection Agency

1.3.126. ES – Emergency Services

1.3.127. ESS – Electronic Safety & Security

1.3.128. ETL – Electronic Testing Laboratories

1.3.129. FACP – Fire Alarm Control Panel

1.3.130. FATO – Final Approach and Take-off Area

1.3.131. FM – Facilities Management

1.3.132. FM – Factory Mutual

1.3.133. FMO – Facilities Management Office

1.3.134. FoM – Faculty of Medicine

1.3.135. FS – Food Services

1.3.136. FTE - Full-Time Equivalent

1.3.137. GCA – Glazing Contractors Association of British Columbia

1.3.138. GEM - Geriatric Emergency Medicine

1.3.139. GFI - Ground Fault Interrupter

1.3.140. GP - General Practitioner

1.3.141. GPO - General Practitioner Oncologist

1.3.142. GPS – Global Positioning Satellite

1.3.143. HA - Hospital Auxiliary

1.3.144. HACCP - Hazard Analysis & Critical Control Point

1.3.145. HAU – High Acuity Unit

1.3.146. HAZMAT – Hazardous Materials

1.3.147. HEPA – High Efficiency Particulate Air

1.3.148. HH - Hand Hygiene

1.3.149. HHS - Hand Hygiene Sink

1.3.150. HIMS – Health Information Management Services

1.3.151. HOA – Hand/Off/Auto

1.3.152. HP – Horsepower

1.3.153. HAS – Health Services Administrator

1.3.154. HRA - Health Records Analyst

1.3.155. HRC – High Rupting Capacity (fuse type)

1.3.156. HSA - Health Services Administrator

1.3.157. HSDA - Health Services Delivery Area

1.3.158. Ht/ hts - height / heights

1.3.159. HVAC – Heating, Ventilating and Air-Conditioning

1.3.160. IIABC – Irrigation Industry Association of British Columbia

1.3.161. IBMP – Integrated Building Management Platform

1.3.162. ICU – Intensive Care Unit

1.3.163. IDS / IPS – Intrusion Detection System / Intrusion Prevention System

1.3.164. IEEE – Institute of Electrical and Electronic Engineers

1.3.165. IIABC - Irrigation Industry Association of British Columbia

1.3.166. IIC – Impact Isolation Class

1.3.167. IGMAC – International Glazing Manufacturers Association of Canada

1.3.168. IOL - Intraocular Lens

1.3.169. IP – Internet Protocol

1.3.170. IP & C - Infection Prevention & Control

1.3.171. IMIT – Information Management Information Technology

1.3.172. IPLW – Indigenous Patient Liaison Workers

1.3.173. IPU - Inpatient Unit and Critical Care Component

1.3.174. ISA - International Society of Arboriculture

1.3.175. ITIL – Information Technology / Telecommunication

1.3.176. IV – Intravenous

1.3.177. IVAD - Implanted Vascular Access Device

1.3.178. IVP - Intravenous Pyelogram

1.3.179. KW – Kilowatt

1.3.180. KWH – Kilowatt hours

1.3.181. KV – Kilovolt

1.3.182. KVA – Kilovolt Ampere

1.3.183. LAN – Local Area Network

1.3.184. LHA - Local Health Authority

1.3.185. LCD – Liquid Crystal Display

1.3.186. LDRP – Labour Delivery Recovery and Post-Partum

1.3.187. LED – Light Emitting Diode

1.3.188. LEED – Leadership in Energy and Environmental Design

1.3.189. LIS – Laboratory Information System

1.3.190. LPN - Licensed Practical Nurse

1.3.191. LTC - Long-Term Care

1.3.192. LS – Laboratory Services

1.3.193. Mb – Megabit

1.3.194. MDC – Medical Day Care

1.3.195. MDR – Medical Device Reprocessing

1.3.196. MDRD - Medical Device Reprocessing Department

1.3.197. MEP – Mechanical, Electrical and Plumbing

1.3.198. MCP – Motor Circuit Protector

1.3.199. MHAS - Mental Health & Addiction Services

1.3.200. MHSUS - Mental Health and Substance Use Services

1.3.201. MI – Medical Imaging

1.3.202. MM – Material Management

1.3.203. MMCD – Master Municipal Construction Documents

1.3.204. MMH – Mills Memorial Hospital

1.3.205. MOA - Memorandum of Agreement

1.3.206. MOH - Ministry of Health

1.3.207. MPI – Master Painters Institute

1.3.208. MRI - Magnetic Resonance Imaging

1.3.209. MRP - Most Responsible Physician

1.3.210. M/S IPU - Medical/Surgical IPU

1.3.211. MTICS – Ministry of Technology, Innovation and Citizen's Services

1.3.212. NAAMM – National Association of Architectural Metal Manufacturers

1.3.213. NAPRA - National Association of Pharmacy Regulatory Authorities

1.3.214. NC – Noise Criteria

1.3.215. NCRP – National Council on Radiation Protection and Measurement

1.3.216. NCSC – Northern Clinical Simulation Centre

1.3.217. NEMA – National Electrical Standards Association

1.3.218. NFCA – National Floor Covering Association

1.3.219. NFPA – National Fire Protection Association

1.3.220. NH - Northern Health

1.3.221. NH - Northern Health Authority

1.3.222. NIC – Noise Isolation Class

1.3.223. NMP - Northern Medical Program

1.3.224. NRC – Noise Reduction Coefficient

1.3.225. nsm - Net Square Metres

1.3.226. NSTs - Non-Stress Tests

1.3.227. NTSC – National Television Standards Committee

1.3.228. NUC - Nursing Unit Clerk

1.3.229. NVHA – Nisga Valley Health Authority

1.3.230. NWHSDA – North West Health Services Delivery Area

1.3.231. OB/GYN - Obstetrician/Gynaecologist

1.3.232. OFDM – Orthogonal Frequency Division Multiplexing

1.3.233. OGD - Oesophago-Gastro-Duodenoscopy

1.3.234. OH&S - Occupational Health & Safety

1.3.235. OP – Outpatient

1.3.236. OR – Operating Room

1.3.237. OS&Y – Open Stem and Yoke

1.3.238. OT – Occupational Therapy

1.3.239. PAs - Pathologist Assistants

1.3.240. PACS – Picture Archiving and Communication System

1.3.241. PACU – Post Anaesthetic Care Unit

1.3.242. PACS - Picture Archiving and Communication System

1.3.243. PBX – Private Branch Exchange

1.3.244. pc - Piece

1.3.245. PC – Personal Computer

1.3.246. PCA - Patient-Controlled Analgesia

1.3.247. PCR – Primary Communications Room

1.3.248. PDA – Personal Digital Assistant

1.3.249. PCC - Patient Care Coordinator

1.3.250. PCM - Patient Care Manager

1.3.251. PFT - Pulmonary Function Test

1.3.252. PGY - Post-Graduate Year

1.3.253. PHSA – Provincial Health Services Authority

1.3.254. PI – Privacy Index

1.3.255. PICC - Peripherally Inserted Central Catheter

1.3.256. PoC – Point of Care

1.3.257. PoE – Power Over Ethernet

1.3.258. PoU - Point-of-Use

1.3.259. PPE - Personal Protective Equipment

1.3.260. PR - Patient Registration

1.3.261. PSSC - Pre-Surgery Screening Clinic

1.3.262. PT – Physiotherapy

1.3.263. PTN - Patient Transfer Network

1.3.264. PTZ – Pan Tilt Zoom

1.3.265. PVC – Polyvinyl Chloride

1.3.266. QA - Quality Assurance

1.3.267. RCABC – Roofing Contractors Association of British Columbia

1.3.268. RCMP - Royal Canadian Mounted Police

1.3.269. RFID – Radio Frequency Identification

1.3.270. RCDD – Registered Communications Distribution Designer

1.3.271. RIS - Radiology Information System

1.3.272. RN - Registered Nurse

1.3.273. RPG - Resource Planning Group Inc.

1.3.274. RT - Respiratory Therapy/Therapist

1.3.275. RTC - Regional Trauma Coordinator

1.3.276. RT60 – Reverberation Time

1.3.277. RTLS – Real Time Location System

1.3.278. SAGA – System of Approach Azimuthal Guidance

1.3.279. SCR – Secondary Communications Room

1.3.280. SDC – Surgical Daycare

1.3.281. SES – Safety Engineering Society

1.3.282. SIP – Session Initiated Protocol

1.3.283. SLP - Speech Language Pathologist

1.3.284. SMACNA – Sheet Metal and Air Conditioning Contractors National Association

1.3.285. SMDR – Station Message Detail Recording

1.3.286. SNR – Signal to Noise Ratio

1.3.287. SPECT - Single-Photon Emission Computed Tomography

1.3.288. SQL – Structured Query Language

1.3.289. SSBC – Shared Services or British Columbia

1.3.290. STC – Sound Transmission Class

1.3.291. STI – Speech Transmission Index

1.3.292. SW – Social Work

1.3.293. TCO – Total Cost of Ownership

1.3.294. TCP – Transmission Control Protocol

1.3.295. TDM – Time Division Multiplexing

1.3.296. THD – Total Harmonic Distortion

1.3.297. TIA - Transient Ischemic Attack

1.3.298. TLOF – Touchdown and Lift-off Area

1.3.299. TNK – Tenecteplase

1.3.300. TPA - Tissue Plasminogen Activator

1.3.301. TPN - Total Parenteral Nourishment

1.3.302. T/R - Trauma/Resuscitation

1.3.303. TRUC - Tertiary Resource Utilization Coordinator

1.3.304. TTMAC – Terrazzo and Tile Manufacturers Association of Canada

1.3.305. TVOC – Total Volatile Organic Compounds

1.3.306. TVL – Terraceview Lodge

1.3.307. TVSS – Transient Voltage Surge Suppressor

1.3.308. UBC, FOM – University of British Columbia, Faculty of Medicine

1.3.309. UBC, NMP - UBC Northern Medical Program

1.3.310. UBCO - University of British Columbia Okanagan

1.3.311. UBCV - University of British Columbia Vancouver

1.3.312. UHNBC - University Hospital of Northern BC

1.3.313. ULC – Underwriters' Laboratories of Canada

1.3.314. UNBC - University of Northern British Columbia

1.3.315. UPS – Uninterruptible Power Supply

1.3.316. USGBC – United States Green Building Council

1.3.317. UVic - University of Victoria

1.3.318. US – Ultrasound

1.3.319. USP - U.S. Pharmacopoeia

1.3.320. V - Volt

1.3.321. VAR – Volt Ampere Reactive power

1.3.322. VFD – Variable Frequency Drive

1.3.323. VLAN – Virtual Local Area Network

1.3.324. VOC – Volatile Organic Compounds

1.3.325. VoIP – Voice Over Internet Protocol

1.3.326. VS - Volunteer Services

1.3.327. WAG - Wasted Anaesthetic Gas

1.3.328. WAN – Wide Area Network

1.3.329. WAP2 – Wireless Application Protocol 2

1.3.330. WC – Water Closet (Washroom)

1.3.331. WCB - Workers Compensation Board

1.3.332. WH – Warnock Hersey

1.3.333. WH & S - Workplace Health & Safety

1.3.334. WHMIS - Workplace Hazardous Materials Information System

1.3.335. WMM – WiFi Multimedia

1.3.336. WSBC - Work Safe British Columbia

PART 2. GENERAL

2.1 Applicability of Specifications to the Facility

2.1.1. This Schedule 1 and the Appendices attached to this Schedule 1 set out specifications for the design and construction of the new replacement Facility: Mills Memorial Redevelopment Project.

2.2 Project Overview

2.2.1. A brief overview of the Project is set out below:

2.2.1.1 The Site will include:

2.2.1.1(1) the Facility;

2.2.1.1(2) Existing Seven Sisters;

2.2.1.1(3) Landscaping and other improvements;

2.2.1.1(4) surface parking and landscaping;

2.2.1.1(5) on and off-site services; and

2.2.1.1(6) associated works.

2.2.1.2 The Facility, located on the Site of the Existing Mills Memorial Hospital, will include:

2.2.1.2(1) The Building;

2.2.1.2(2) Seven Sisters Facility;

2.2.1.2(3) Related structures;

2.2.1.2(4) Utility connections;

2.2.1.2(5) Landscaping and other improvements;

2.2.1.3 Demolition and removal will include:

2.2.1.3(1) Existing Mills Memorial Hospital;

2.2.1.3(2) Existing Seven Sisters, if required;

2.2.1.3(3) Existing Sleeping Beauty;

2.2.1.3(4) Existing parking and landscaping; and

2.2.1.3(5) Existing on and off-site services;

2.3 Clinical Specifications

2.3.1. Clinical Specifications for the Facility are set out in Appendix 1A Clinical Specifications.

2.3.2. The Design-Builder will design and construct the Facility:

2.3.2.1 so that it accommodates all of the spaces, activities, functions, design features and adjacencies described in the applicable Appendix 1A –Clinical Specifications; and

2.3.2.2 in accordance with the requirements of the applicable Appendix 1A –Clinical Specifications, subject to any adjustments or refinements made in accordance with the Schedule 2 – Review Procedure.

2.4 The Facility

2.4.1. The Facility and Seven Sisters Facility will include the functional components identified in Appendix 1A Clinical Specifications.

2.5 Seven Sisters Facility

2.5.1. The functional components of the Seven Sisters Facility is integrated as part of the Facility. The Seven Sisters Facility will include the components and adjacencies identified in Appendix 1A Clinical Specifications.

2.5.2. The new Seven Sisters Facility will be constructed as a stand-alone building, but infrastructure may be interconnected.

2.6 Additional Rooms and Spaces

2.6.1. Notwithstanding anything in Appendix 1A Clinical Specifications, the Design-Builder will design and construct the Facility to include all rooms and spaces as required to comply with the terms of this Agreement, including sufficient rooms and spaces as necessary for the Authority to operate and maintain the Facility in accordance with healthcare best practices and standards.

2.7 Standards

2.7.1. The Design-Builder will undertake the design and construction:

2.7.1.1 in accordance with the standards set out in this Schedule;

2.7.1.2 in accordance with the BCBC and all applicable Laws;

2.7.1.3 having regard for the concerns, needs and interests of:

2.7.1.3(1) all persons who will be Facility Users;

2.7.1.3(2) all Governmental Authorities; and

2.7.1.3(3) the community;

2.7.1.4 in accordance with Good Industry Practice; and

2.7.1.5 to the same standard that an experienced, prudent and knowledgeable long-term Authority of a high-quality health care facility in North America operated publicly would employ.

2.7.2. If more than one of the above standards is applicable then the highest such standard will apply.

2.7.3. If the Design-Builder wishes to make reference to a code or standard from a jurisdiction outside of Canada, then the Design-Builder will demonstrate to the Authority's satisfaction that such code or standard meets or exceeds the requirements of this Schedule.

2.7.4. Without limiting Section 2.9 of this Schedule, the Design-Builder will undertake the design and construction in compliance with all applicable standards and guidelines (current version), including the following:

2.7.4.1 AAMI TIR 34; Water for Reprocessing of Medical Devices;

2.7.4.2 Ambulance Station Design Standards, British Columbia Ambulance Service, BC Emergency and Health Services;

2.7.4.3 BCICA Quality Standards Manual for Mechanical Insultation;

2.7.4.4 BCLNA - British Columbia Landscape & Nursery Association;

2.7.4.4(1) BC Landscape Standard;

2.7.4.4(2) Plant Materials;

2.7.4.4(3) Growing Medium;

2.7.4.4(4) Landscape Maintenance;

2.7.4.4(5) Tree Protection and Preservation; and

2.7.4.4(6) Irrigation Design.

2.7.4.5 BC Supplement to TAC Geometric Design Guide;

2.7.4.6 American Conference of Governmental Hygienists, Industrial Ventilation: A Manual of Recommended Practice;

2.7.4.7 AISI:

2.7.4.7(1) AISI S100 – North American Specification for Design of cold formed Steel Structural Members (including commentary);

2.7.4.7(2) AISI 200 – North American Standard for Cold Formed Steel Framing (general provisions);

2.7.4.7(3) AISI 201 – North American Standard for Cold Formed Steel Framing (Product Data);

2.7.4.8 ANSI / AHRI:

2.7.4.8(1) Standard 550/590-15: Performance Rating Of Water-Chilling and Heat Pump Water-Heating Packages Using the Vapor Compression Cycle.

2.7.4.9 ANSI / AIHI

2.7.4.9(1) Z9.5-2012 Laboratory Ventilation.

2.7.4.10 ANSI / ASME (American National Standards Institute / American Society of Mechanical Engineers)

2.7.4.10(1) AWS D11.3 – Structural Welding Code – Sheet Steel;

2.7.4.10(2) CSA A23.1 Concrete materials and methods of concrete construction;

2.7.4.10(3) ACI 315R – Manual of Engineering and Placing Drawings for Reinforced Concrete Structures

2.7.4.10(4) ASPE Plumbing Engineers Handbook, Vol. 1-4;

2.7.4.10(5) A13.1 Visibility Standard (Pipe Labeling);

2.7.4.10(6) B16 Piping Component Standards;

2.7.4.10(7) B31 Pressure Piping Code;

2.7.4.10(8) B36 Piping Standards;

2.7.4.10(9) X 358.1: Emergency Eyewash and Shower Equipment;

2.7.4.10(10) Section VIII: Pressure Vessels;

2.7.4.10(11) Section IX: Welding Qualifications; and

2.7.4.10(12) Unfired Pressure Vessels;

2.7.4.11 ANSI / EIA

2.7.4.11(1) 568-B.1 & 568-B.2 (CSA-0T529-M95) Commercial Building Telecommunications Cabling Standard – Parts 1 & 2;

2.7.4.11(2) 568-B3 (CSA-T529-M95) Commercial Building Telecommunications Cabling Standard – Part 3;

2.7.4.11(3) 569-B (CSA-T530) Commercial Building Standard for Telecommunications Pathways and Spaces;

2.7.4.11(4) 606A (CSA-T528) Administration Standard for Telecommunications Infrastructure of Commercial Buildings; and

2.7.4.11(5) 607A (CSA-527) Commercial Grounding and Bonding Requirements for Telecommunications;

2.7.4.12 ANSI / ESNA American National Standard Practice for Lighting.

2.7.4.12(1) IESNA RP 29-06;

2.7.4.13 ANSI / TIA

2.7.4.13(1) 942 Telecommunications Infrastructure Standard for Data Centers; and

2.7.4.13(2) TSB-162 Telecommunications Cabling Guidelines for Wireless Access Points;

2.7.4.13(3) 1179 Standard for Healthcare Facility Telecommunications Infrastructure Standard

2.7.4.14 ASHRAE (American Society of Heating, Refrigeration and Air-Conditioning Engineers)

2.7.4.14(1) Handbooks: 2017 Fundamentals, 2018 Refrigeration, 2019 HVAC Applications, 2016 HVAC Systems and Equipment;

2.7.4.14(2) Design of Smoke Control Systems;

2.7.4.14(3) ASHRAE Guideline 1 – The HVAC Commissioning Process;

2.7.4.14(4) ASHRAE Guideline 12 – Minimizing the Risk of Legionellosis Associated with Building Water Systems;

2.7.4.14(5) Standard 52.2: Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size;

2.7.4.14(6) Standard 55: Thermal Environmental Conditions for Human Occupancy;

2.7.4.14(7) Standard 62.1: Ventilation for Acceptable Air Quality;

2.7.4.14(8) Standard 90.1

2.7.4.14(9) Standard 111: Practices for Measurement, Testing, Adjusting and Balancing of Building HVAC systems;

2.7.4.14(10) Standard 129: Measuring Air Change Effectiveness;

2.7.4.14(11) Standard 514: Building Water Management Standard;

2.7.4.14(12) 135016: Data Communication Protocol for Building Automation and Control Network;

2.7.4.15 ASPE (American Society of Plumbing Engineers)

2.7.4.15(1) Plumbing Engineering Design Handbook, Volumes 1 – 4;

2.7.4.16 ASTM (American Society for Testing and Materials)

2.7.4.16(1) ASTM A27 – Specification for Structural;

2.7.4.16(2) G40.20-13/G40.21-13 – General Requirements for rolled or welded structural quality steel;

2.7.4.16(3) CSA G30.18 Billet Steel bars for concrete reinforcement;

2.7.4.16(4) ASTM A185- Standard Specification for Steel Welded Wire Fabric;

2.7.4.16(5) ASTM A193 / A193M – Standard Specification for Alloy –Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications;

2.7.4.16(6) ASTM A307 – Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60000 PSI Tensile Strength;

2.7.4.16(7) ASTM A325 – Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength;

2.7.4.16(8) ASTM A326M – Standard Specification for Structural Bolts, Steel, Bolts, Steel, Heat Treated, 830 MPa Minimum Tensile Strength (Metric);

2.7.4.16(9) ASTM A490 – Standard Specification for Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Steel Strength;

2.7.4.16(10) ASTM A490M- Standard Specification for High Strength Structural Steel Bolts, Classes 10.9 and 10.9.3, for Structural Steel joints (Metric);

2.7.4.16(11) ASTM A653 – Specification for Steel Sheet Zinc coated (galvanized) or Zinc-Iron Alloy Coated (galvannealed) by hot dip process;

2.7.4.16(12) ASTM A775 – Specifications for Epoxy Coated Reinforcing Steel;

2.7.4.16(13) ASTM A792 – Specification for Sheet Steel 55% Aluminum – Zinc Alloy coated by hot dip process;

2.7.4.16(14) ASTM A955 – Standard specification for Load Bearing (transverse and axial) Steel Studs, Runners (tracks) and bracing or Bridging for screw application of Gypsum Panel products;

2.7.4.16(15) ASTM B88: Copper Piping;

2.7.4.16(16) ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric);

2.7.4.16(17) ASTM C260 / C260M – Standard Specification for Air-Entraining Admixtures for Concrete;

2.7.4.16(18) ASTM C309 – Specification for Liquid Membrane Forming Compounds for Curing Concrete;

2.7.4.16(19) ASTM C494 / C494M – Standard Specification for Chemical Admixtures for Concrete;

2.7.4.16(20) ASTM C503- Standard Specification for Marble Dimension Stone;

2.7.4.16(21) ASTM C568 - Standard Specification for Limestone Dimension Stone;

2.7.4.16(22) ASTM C615 - Standard Specification for Granite Dimension Stone;

2.7.4.16(23) ASTM C616 - Standard Specification for Quartz-Based Dimension Stone;

2.7.4.16(24) ASTM C645 – Standard Specification for Nonstructural Steel Framing Members; and

2.7.4.16(25) ASTM E1155 - Standard Test Method for Determination of FF Floor Flatness and FL Floor Levelness Numbers;

2.7.4.16(26) ASTM E336, Standard Test Method for Measurement of Airborne Sound Attenuation Between Rooms in Buildings.

2.7.4.16(27) ASTM E917.24401 Life Cycle Cost Assessment Methodology;

2.7.4.16(28) ASTM F710 – Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring;

2.7.4.16(29) ASTM F1233 Test Method for Security Glazing Materials And Systems;

2.7.4.16(30) ASTM F1450 Test Methods for Hollow Metal Swinging Door Assemblies for Detention and Correctional Facilities;

2.7.4.16(31) ASTM F1577 Test Methods for Detention Locks for Swinging Doors;

2.7.4.16(32) ASTM F1592 Test Methods for Detention Hollow Metal Vision Systems;

2.7.4.16(33) ASTM F1643 Test Methods for Detention Sliding Door Locking Device Assembly;

2.7.4.16(34) ASTM F1758 Test Methods for Detention Hinges Used on Detention-Grade Swinging Doors;

2.7.4.16(35) ASTM F1869- Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using anhydrous Calcium Chloride;

2.7.4.16(36) ASTM F1915 Standard Test Methods for Glazing for Detention Facilities;

2.7.4.17 BC Guidelines for Decontamination of Patients in Health Facilities.

2.7.4.18 BC Supplement to TAC Geometric Design Guide;

2.7.4.19 BICSI Telecommunications Distribution Methods Manual (TDMM);

2.7.4.20 British Columbia Ministry of Health and Ministry of Seniors Standards and Hospital Based Psychiatric Emergency Services;

2.7.4.21 Ministry of Health — Province of British Columbia Provincial Quality, Health & Safety Standards and Guidelines for Secure Rooms in Designated Mental Health Facilities under the B.C. Mental Health Act

2.7.4.22 Code Plus: Physical Design Components for an Elder Friendly Hospital;

2.7.4.23 CTI (Cooling Tower Institute) Standard STD-201.

2.7.4.24 ECABC Seismic Restraint Standards Manual;

2.7.4.25 Guidelines for Design and Construction of Health Care Facilities;

2.7.4.26 ICAO / Annex 14, Volume II;

2.7.4.27 IEEE

2.7.4.27(1) 802.1 series for Interworking, Security, Audio/Video Bridging and Data Centre Bridging;

2.7.4.27(2) 802.3 series of Ethernet Standards;

2.7.4.27(3) 802.11 series of Wireless Standards;

2.7.4.27(4) IEEE 519-1992 Harmonic Limits; and

2.7.4.27(5) Intentionally deleted;

2.7.4.28 Fire Underwriter Survey – Water Supply for Public Fire Protection;

2.7.4.29 Government of Canada's publication, Canadian Biosafety Standard;

2.7.4.30 Master Floor Covering Standards Institute;

2.7.4.31 Master Painters Institute Architectural Specification Standards Manual;

2.7.4.32 Master Municipal Construction Document (MMCD) and MMCD supplemental specifications, as authored or adopted by the applicable municipal authorities having jurisdiction;

2.7.4.33 Ministry of Transportation and Infrastructure (MoTI) Standard Specifications for Highway Construction (latest edition);

2.7.4.34 NAPRA - National Association of Pharmacy Regulatory Authorities (NAPRA) Model and Guidance Standards for Non-Sterile Preparations, Non-Hazardous Sterile Preparations and Hazardous Sterile Preparations.

2.7.4.35 NETA

2.7.4.35(1) ATS International Electrical Testing Association (Acceptance Testing Specifications); and

2.7.4.35(2) MTS Standards for Maintenance Testing;

2.7.4.35(3) UL 1069 Hospital Signaling and Nurse Call Equipment;

2.7.4.36 NFPA (National Fire Protection Association)

2.7.4.36(1) 10: Standard for Portable Fire Extinguishers;

2.7.4.36(2) 13: Standard for Installation of Sprinkler Systems;

2.7.4.36(3) 14: Standard for Installation of Standpipe and Hose Systems;

2.7.4.36(4) 17: Standard for Dry-Chemical Extinguishing Systems;

2.7.4.36(5) 20: Standard for the Installation of Stationary Pumps for Fire Protection;

2.7.4.36(6) 25: Standard for the Inspection, Testing and Maintenance of Water Based Fire Protection;

2.7.4.36(7) 30: Flammable and Combustible Liquids Code;

2.7.4.36(8) 55: Compressed Gases and Cryogenic Fluids Code;

2.7.4.36(9) 56F: Non-flammable Medical Gas System;

2.7.4.36(10) 70: National Electrical Code;

2.7.4.36(11) 70B: Recommended Practice for Electrical Equipment Maintenance;

2.7.4.36(12) 90A: Standard for Installation of Air Conditioning and Ventilation Systems;

2.7.4.36(13) 92A: Standard for Smoke Control Systems Utilizing Barriers and Pressure Differences;

2.7.4.36(14) 96: Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations;

2.7.4.36(15) 99: Heath Care Facilities Code;

2.7.4.36(16) 101: Life Safety Code;

2.7.4.36(17) 214: Standard on Water-Cooling Towers;

2.7.4.36(18) 701 - Standard Methods of Fire Tests for Flame Propagation of Textiles and Films;

2.7.4.37 Provincial Hand Hygiene Group – Best Practices for Hand Hygiene Facilities & Infrastructure in Healthcare Settings;

2.7.4.38 Sheet Metal and Air Conditioning Contractors National Association Inc. (SMACNA) Manuals;

2.7.4.39 Sustainability

2.7.4.39(1) LEED V4/V4.1 (USGBC) in Canada

2.7.4.39(1)(a) LEED Reference Guide for Green Building Design and Construction – Healthcare Supplement 2009 Edition

2.7.4.39(2) United States Green Building Council – LEED V4 BD+C: HC;

2.7.4.39(3) The Green Guide for Health Care;

2.7.4.39(4) Green Globes – Environment Assessment for New Buildings;

2.7.4.39(5) BOMA (Building Owner Authority and Managers Association) Go Green Program;

2.7.4.39(6) ASHRAE Green Healthcare Construction Guidance Statement;

2.7.4.39(7) Sustainable Health Care Architecture –by Robin Guenther and Gail Vittori;

2.7.4.39(8) Canadian Building Green Hospitals Checklist - Canadian Coalition for Green Health Care;

2.7.4.39(9) Natural Resources Canada Energy Innovators Initiative;

2.7.4.39(10) Building Materials for the Environmentally Hypersensitive, CMHC;

2.7.4.39(11) ASHRAE Standard 189.1- Standard for the Design of High-Performance Green Buildings;

2.7.4.39(12) ASHRAE Standard 189.3– Design, Construction, and Operation of Sustainable High-Performance Health Care Facilities

2.7.4.39(13) BC Hydro High Performance Building Program;

2.7.4.39(14) Healthy Built Environment (HBE) Linkages Toolkit Version 2.0; and

2.7.4.39(15) Sustainable and Climate-Resilient Health Care Facilities Toolkit.

2.7.4.39(16) ASHRAE Guideline 1.1-2007 – HVAC & R Technical Requirements for the Commissioning process;

2.7.4.39(17) ASHRAE Guideline 0-2019 – The Commissioning Process;

2.7.4.39(18) ASHRAE 110-2016: Method of Testing Performance of laboratory Fume Hoods;

2.7.4.39(19) ASHRAE 170-2017 Ventilation of Health Care Facilities;

2.7.4.39(20) ASHRAE System Design Manual for Hospitals and Clinics; and

2.7.4.39(21) Advanced ENERGY Guide for Hospitals and Healthcare Facilities.

2.7.4.40 Terrace – Downtown Design Guidelines – Appendix C City of Terrace Official Community Plan

2.7.4.41 Terrazzo Tile and Marble Association of Canada

2.7.4.42 TP-312 – Transport Canada Aerodrome Standards and Recommended Practices;

2.7.4.43 University of British Columbia Faculty of Medicine:

2.7.4.43(1) Specifications and Requirements for Clinical Education Facilities

2.7.4.43(2) Design Guidelines and Functional Requirements for Learning Spaces: Small Seminar Rooms;

2.7.4.43(3) Design Guidelines and Functional Requirements for Learning Spaces: Clinical Skills and Enhanced Clinical Skills Rooms; and

2.7.4.43(4) Design Guidelines and Functional Requirements for Learning Spaces: On Call Room.

2.7.4.44 WorkSafe BC Regulations and Guidelines, including the following:

2.7.4.44(1) Illumination

2.7.4.44(1)(a) Part 4, General Conditions, Section 4.64 – 4.69.

2.7.4.44(2) HVAC

2.7.4.44(2)(a) Part 4, General Conditions, Indoor Air Quality, Sections 4.70 – 4.80;

2.7.4.44(2)(b) Part 4, General Conditions, Environmental Tobacco Smoke, Sections 4.81 – 4.82;

2.7.4.44(2)(c) Part 5, Flammable and Combustible Substances, Section 5.35;

2.7.4.44(2)(d) Part 5, Controlling Exposure, Section 5.56;

2.7.4.44(2)(e) Part 5, Ventilation, Sections 5.60-5.71; and

2.7.4.44(2)(f) Part 30, General Requirements, Sections 30.4, 30.5, 30.7, 30.8-30.12

2.7.4.44(3) Ergonomics

2.7.4.44(3)(a) Part 4, General Conditions, Ergonomics (MSI) Requirements, Sections 4.46 – 4.53; and

2.7.4.44(3)(b) Guidelines Part 4 – Ergonomics (MSI) Requirements Update 2006, G4.46 – 4.53(2).

2.7.4.44(4) Emergency Eyewash / Showers

2.7.4.44(4)(a) Part 5, Chemical Agents and Biological Agents, Definitions, Section 5.1;

2.7.4.44(4)(b) Part 5, Chemical Agents and Biological Agents, Emergency Washing Facilities, Sections 5.85 – 5.96;

2.7.4.44(4)(c) Guidelines Part 5, Emergency Washing Facilities, Issued 1999; and

2.7.4.44(4)(d) Guidelines Part 30, General Requirements, Plumbing, G30.4, Issued 1999.

2.7.4.44(5) Fall Protection

2.7.4.44(5)(a) Part 4, General Conditions, Work Areas Guards and handrails, Sections 4.54 – 4.63;

2.7.4.44(5)(b) Part 11, Fall Protection, Section G11.1 – G11.10(0.1).

2.7.4.44(6) Emergency Response

2.7.4.44(6)(a) Part 4, General Conditions, Emergency Preparedness and Response, 4.13 – 4.18.

2.7.4.44(7) Eating Areas / Washrooms / Change Areas / Unsafe Water

2.7.4.44(7)(a) Part 4, General Conditions, Occupational Environment Requirements, Section 4.84 – 4.87.

2.7.4.44(8) Electrical Safety

2.7.4.44(8)(a) Part 4, General Conditions, Buildings, Structures, Equipment and Site Conditions, Conformity to Standards, Section 4.4; and

2.7.4.44(8)(b) Part 19, Electrical Safety, Sections 19.1 – 19.9.

2.7.4.44(9) Radiation Safety

2.7.4.44(9)(a) Division 3 Radiation Exposure (included ionizing and non-ionizing radiation) Section 7.18 – 7.24 Guidelines Part 7 – Division 3 Radiation Exposure G7.18 – G7.19 (4)-2;

2.7.4.44(9)(b) BCICA Quality Standards Manual for Mechanical Insulation;

2.7.4.44(9)(c) TIAC (Thermal Insulation Association of Canada) standards;

2.7.4.44(9)(d) Canadian Council on Health Services Accreditation Program, Latest Edition;

2.7.4.44(9)(e) Ministry of Health — Province of British Columbia Provincial Quality, Health & Safety Standards and Guidelines for Secure Rooms in Designated Mental Health Facilities under the B.C. Mental Health Act; and

2.7.4.44(9)(f) Health Canada Safety Code 35: Safety Procedures for the Installation, Use and Control of X-ray Equipment in Large Medical Radiological Facilities.

2.7.4.45 FGI Guidelines for Design and Construction of Health Care Facilities (Electrical, Security, Lighting, Communication reference section).

2.7.4.46 CSA/CAN3-C235, Preferred Voltage Levels for AC Systems, 0 to 50,000 V.

2.7.4.47 CSA C22.2 No 38 Thermoset-Insulated Wires and Cables, latest edition.

2.7.4.48 ANSI C37.121, Unit Substations Requirements.

2.7.4.49 CAN/CSA-C2, Single-Phase and Three-Phase Distribution Transformers, Types ONAN and LNAN.

2.7.4.50 IEEE C57.19.91, IEEE Standard test code for dry-type distribution and power transformers.

2.7.4.51 NEMA PB2.2, Application Guide for Ground Fault Protection Devices for Equipment.

2.7.4.51(1) NFPA 20, Stationary Fire Pumps for Fire Protection

2.7.4.52 CAN/CSA-B72 Installation Code for Lightning Protection Systems.

2.7.4.53 CSA A23.3-14 – Design of Concrete Structures;

2.7.4.53(1) Intentionally deleted.

2.7.4.54 B651: Barrier Free Design;

2.7.4.55 C9-02 Dry Type Transformers;

2.7.4.56 S524 Standards for the Installation of Fire Alarm Systems; and

2.7.4.57 S537 Standards for Verification of Fire Alarm Systems.

2.7.4.58 CAN/CSA C22.1 & C22.2 Canadian Electrical Code as adopted in British Columbia;

2.7.4.59 C282-15 Emergency Electrical Power Supply for Buildings;

2.7.4.60 Z32- 15 Electrical Safety and Essential Electrical System in Health Care Facilities;

2.7.4.61 Z317.5 Illumination Systems in Health Care Facilities;

2.7.4.62 Z318.5 Commissioning of Electrical Equipment and Systems in Health Care Facilities;

2.7.4.63 Z318.0: Commissioning of Health Care Facilities;

2.7.4.64 Z462 – Workplace Electrical Safety;

2.7.4.65 A23.4 - Precast Concrete - Materials and Construction;

2.7.4.66 W186-M1990 (R2002) - Welding of Reinforcing Bars in Reinforced Concrete Construction;

2.7.4.67 A370-04 (R2009) - Connectors for Masonry;

2.7.4.68 A23.1-09/A23.2 - Concrete Materials and Methods of Concrete Construction / Methods of Test and Standard Practices for Concrete;

2.7.4.69 S832 (R2011) – Seismic Risk Reduction of Operational and Functional Components (OFCS of buildings);

2.7.4.70 S478 (R2007) Guideline on Durability of Buildings;

2.7.4.71 S413 - Parking Structures;

2.7.4.72 S16 - Design of Steel Structures;

2.7.4.73 S136 - Design of Cold Formed Steel Members;

2.7.4.74 S157 (R2010) – Strength Design in Aluminum;

2.7.4.75 S304.1 (R2010) - Masonry Design for Buildings;

2.7.4.76 Z314.7 Steam sterilizers for Health Care Facilities;

2.7.4.77 Z317.11 Area requirements for Health Care Facilities;

2.7.4.78 Z317-10.09 Handling of waste materials in Health Care Facilities and Veterinary Health Care Facilities

2.7.4.79 CSA S832 Guidelines for Seismic Risk Reduction of Operational and Functional Components of Buildings;

2.7.4.80 B44 – Safety Code for Elevators and Escalators;

2.7.4.81 B45 Series: Plumbing Fixtures;

2.7.4.82 B64 Series: Backflow Preventers and Vacuum Breakers;

2.7.4.83 B52HB: Mechanical Refrigeration Code;

2.7.4.84 B125: Plumbing Fittings;

2.7.4.85 B139: Installation Code for Oil-Burning Equipment;

2.7.4.86 B149.1: Natural Gas and Propane Installation Code;

2.7.4.87 B651: Barrier Free Design;

2.7.4.88 CSA Group

2.7.4.88(1) CAN/CSA-A165 Series, CSA Standards on Concrete Masonry Units consists: A165.1, A165.2, A165.3.

2.7.4.88(2) CAN/CSA-A371, Masonry Construction for Buildings.

2.7.4.88(3) CSA B44 Safety Code for Elevators and Escalators

2.7.4.88(4) CSA B44 Safety Code for Elevators and Escalators, Appendix E

2.7.4.88(5) C22.1 Canadian Electrical Code part 1

2.7.4.88(6) CSA Standard Z432 Safeguarding and Machinery

2.7.4.88(7) CSA S304.1, Design of Masonry Structures.

2.7.4.88(8) South Coast Air Quality Management District (SCAQMD)

2.7.4.88(8)(a) SCAQMD Rule 1168, Adhesive and Sealant Applications.

2.7.4.88(9) Underwriters Laboratories of Canada (ULC)

2.7.4.88(9)(a) CAN/ULC-S101, Standard Methods of Fire Endurance Tests of Building Construction and Materials.

2.7.4.89 CSA-C22.3 No. 1, Overhead Systems;

2.7.4.90 CSA C9, Dry Type Transformers;

2.7.4.91 CSA Z314.8 Decontamination of Reusable Medical Devices;

2.7.4.92 CSA Z314.3 Effective Sterilization in Health Care Settings by the Steam Process;

2.7.4.93 CSA Z314.23 Chemical Sterilization of Reusable Medical Devices;

2.7.4.94 CSA Z386 – Safe Use of Lasers in Health Care;

2.7.4.95 Z317.1: Special Requirements for Plumbing Installations in Health Care Facilities;

2.7.4.96 Z317.2: Special Requirements for Heating, Ventilation, and Air-Conditioning (HVAC) Systems in Health Care Facilities;

2.7.4.97 Z318.0: Commissioning of Health Care Facilities; and

2.7.4.98 Z318.1: Commissioning of HVAC Systems in Health Care Facilities;

2.7.4.99 Z7396.1: Medical Gas Pipeline Systems – Part 1

2.7.4.100 Z9170-1: Terminal Units for Medical Gas Pipeline Systems – Part 1.

2.7.4.101 IMIT Communication Infrastructure Standards 1.2

2.7.4.102 NEMA VE 1, Metal Cable Tray Systems.

2.7.5. CSA Z8000: Canadian Health Care Facilities

2.7.5.1 CSA Z8000 complements the standards and codes specified in Schedule 1 by providing overarching design principles and referencing specific standards and codes that are appropriate for healthcare facility design.

2.7.5.2 The Design-Builder will:

2.7.5.2(1) refer to CSA Z8000 for design guidance to resolve issues not otherwise addressed in Schedule 1; and

2.7.5.2(2) Use the CSA Z8000 as a guideline, for:

2.7.5.2(2)(a) any minimum standards and codes referenced in CSA Z8000 (except for space requirements);

2.7.5.2(2)(b) space requirements, comply with the space requirements as listed in Appendix 1A Clinical Specifications Schedule of Accommodations;

2.7.5.2(2)(c) all infection control provisions set out in CSA Z8000; and

2.7.5.2(2)(d) Accommodation of Bariatric Persons set out in CSA Z8000.

2.7.6. CSA Z317: Infection Control during Construction, Renovation or Maintenance of Health Care Facilities;

2.7.6.1 CSA Z317 complements the standards and codes specified in Schedule 1 by providing overarching design principles and referencing specific standards and codes that are appropriate for healthcare facility design.

2.7.6.2 The Design-Builder will:

2.7.6.2(1) refer to CSA Z317 for guidance to resolve issues not otherwise addressed in Schedule 1; and

2.7.6.2(2) comply with:

2.7.6.2(2)(a) any minimum standards and codes referenced in CSA Z317: and

2.7.6.2(2)(b) all infection control provisions set out in CSA Z317

2.7.6.2(2)(c) CSAZ32 Electrical Safety and Essential Electrical System in Health Care Facilities;

2.7.6.2(2)(d) CSA Z317.5-Illumination Systems in Health Care Facilities;

2.7.6.2(2)(e) CSA Z318.5 Commissioning of Electrical Equipment and Systems in Health Care Facilities;

2.7.6.2(2)(f) CSA Z318.0: Commissioning of Health Care Facilities;

2.7.6.2(2)(g) CSA Z462 – Workplace Electrical Safety.

2.7.7. Industry and Authority standards, including PHSA CISS for acute care facilities, NH structured cabling standards and applicable ANSI/TIA/EIA standards.

2.8 Coordination and Project Control

2.8.1. The Design-Builder will coordinate the progress of the Work, Progress Schedules, Submittals, the use of the Site, access to the Site, temporary utilities, construction facilities and controls, and the Work of all sections of this Schedule to ensure the efficient and orderly installation of interdependent construction elements.

2.8.2. Coordinate the Work of the various sections having independent responsibilities for installing, connecting to and placing in service utilities and equipment.

2.8.3. Coordinate space requirements, supports and the installation of mechanical and electrical work including all systems and services required for the installation of new services in the Facility. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance and for repairs.

2.8.4. In finished areas, conceal pipes, ducts and wiring in floors, except as indicated in Section 5.1.1.6, walls, and ceilings. Coordinate locations of fixtures and outlets with finished elements and the Authority's requirements;

2.8.5. Coordinate the commissioning of the Work of separate sections in preparation for Substantial Completion.

2.8.6. Coordinate the completion and clean-up of the Work of separate sections in preparation for Final Completion.

2.8.7. Coordinate the move with the Authority.

2.8.8. Proponent to make available an electronic site or data base to allow the Authority to review drawings and documents during the design and construction phase.

2.9 Construction Documents

2.9.1. Progressive Submittal

2.9.1.1 The Design-Builder is to make submissions to the Authority in accordance with Section 2.9 Construction Documents.

2.9.1.2 Refer to the corresponding sections and tables within this Section for minimum list of documents to be submitted at each stage.

2.9.1.2(1) Submit Shop Drawings per the following list:

2.9.1.2(1)(a) 01 35 33 Infection Control Procedures

2.9.1.2(1)(b) 01 50 00 Temp Facilities & Controls

2.9.1.2(1)(c) 03 30 00 Cast-in-Place Concrete

2.9.1.2(1)(d) 03 53 00 Concrete Topping

2.9.1.2(1)(e) 04 21 00 Clay Unit Masonry Assemblies

2.9.1.2(1)(f) 04 22 00 Concrete Unit Masonry

2.9.1.2(1)(g) 05 10 00 Structural Steel

2.9.1.2(1)(h) 05 31 00 Steel Decking

2.9.1.2(1)(i) 05 45 00 Load Bearing Steel Studs (Metal Support Assemblies)

2.9.1.2(1)(j) 05 50 00 Metal Fabrications

2.9.1.2(1)(k) 05 59 63 Glazed Detention and Windscreen Enclosures

2.9.1.2(1)(l) 06 10 00 Rough Carpentry

2.9.1.2(1)(m) 06 20 00 Finish Carpentry

2.9.1.2(1)(n) 06 40 00 Architectural Woodwork

2.9.1.2(1)(o)	07 13 00	Below Grade Sheet Waterproofing
2.9.1.2(1)(p)	07 14 16	Cold Fluid Applied Waterproofing
2.9.1.2(1)(q)	07 16 16	Crystalline Waterproofing
2.9.1.2(1)(r)	07 18 13	Pedestrian Traffic Coatings
2.9.1.2(1)(s)	07 18 16	Vehicular Traffic Coatings
2.9.1.2(1)(t)	07 21 00	Building Insulation
2.9.1.2(1)(u)	07 21 19	Foamed in Place Polyurethane Insulation
2.9.1.2(1)(v)	07 21 29	Spray Applied Mineral Fibre Insulation
2.9.1.2(1)(w)	07 25 00	Weather Barriers
2.9.1.2(1)(x)	07 42 13	Metal Wall Panels
2.9.1.2(1)(y)	07 42 63	Zinc Wall Panel Assemblies
2.9.1.2(1)(z)	07 43 00	Composite Wall Panels
2.9.1.2(1)(aa)	07 43 23	Ext Grade Wood Composite Panels
2.9.1.2(1)(bb)	07 44 19	Terra Cotta Clay Wall Panel Assemblies
2.9.1.2(1)(cc)	07 46 23	Wood Siding
2.9.1.2(1)(dd)	07 46 43	Mineral Fibre Reinforced Composite Panels
2.9.1.2(1)(ee)	07 52 16	SBS Membrane Roofing
2.9.1.2(1)(ff)	07 61 13	Standing Seam Metal Roofing
2.9.1.2(1)(gg)	07 62 00	Sheet Metal Flashing & Trim
2.9.1.2(1)(hh)	07 81 00	Applied Fireproofing
2.9.1.2(1)(ii)	07 81 23	Intumescent Fireproofing
2.9.1.2(1)(jj)	07 84 00	Firestopping & Smoke Seals
2.9.1.2(1)(kk)	07 92 00	Joint Sealants
2.9.1.2(1)(ll)	08 11 00	Metal Doors & Frames
2.9.1.2(1)(mm)	08 21 00	Wood Doors
2.9.1.2(1)(nn)	08 31 00	Access Doors & Panels

2.9.1.2(1)(oo)	08 33 00	Coiling Doors and Grilles
2.9.1.2(1)(pp)	08 34 73	Sound Control Door Assemblies
2.9.1.2(1)(qq)	08 35 13	Folding Security Grilles
2.9.1.2(1)(rr)	08 41 13	Aluminum Framed Entrances and Storefronts
2.9.1.2(1)(ss)	08 42 29	Automatic Entrances
2.9.1.2(1)(tt)	08 44 13	Glazed Aluminum Curtain Walls
2.9.1.2(1)(uu)	08 63 00	Metal Framed Skylights
2.9.1.2(1)(vv)	08 71 00	Door Hardware
2.9.1.2(1)(ww)	08 74 00	Access Control Hardware
2.9.1.2(1)(xx)	08 81 00	Glass & Glazing
2.9.1.2(1)(yy)	08 90 00	Louvres and Vents
2.9.1.2(1)(zz)	09 21 16	Gypsum Board Assemblies
2.9.1.2(1)(aaa)	09 30 00	Ceramic Tiling
2.9.1.2(1)(bbb)	09 51 00	Acoustical Ceilings
2.9.1.2(1)(ccc)	09 65 00	Resilient Flooring
2.9.1.2(1)(ddd)	09 67 00	Fluid Applied Flooring
2.9.1.2(1)(eee)	09 68 13	Tile Carpeting
2.9.1.2(1)(fff)	09 84 00	Acoustic Room Components
2.9.1.2(1)(ggg)	09 90 00	Painting & Coating
2.9.1.2(1)(hhh)	10 11 00	Visual Display Surfaces
2.9.1.2(1)(iii)	10 14 00	Signage
2.9.1.2(1)(jjj)	10 21 14	Toilet Compartments
2.9.1.2(1)(kkk)	10 21 23	Cubicle Curtain And Track
2.9.1.2(1)(lll)	10 26 00	Wall and Door Protection
2.9.1.2(1)(mmm)	10 28 13	Toilet and Bath Accessories
2.9.1.2(1)(nnn)	10 44 00	Fire Protection Specialties

2.9.1.2(1)(ooo)	10 51 00	Metal Lockers
2.9.1.2(1)(ppp)	10 71 13	Exterior Sun Control Devices
2.9.1.2(1)(qqq)	11 24 23	Fall Arrest Equipment
2.9.1.2(1)(rrr)	11 40 00	Food Services Equipment
2.9.1.2(1)(sss)	12 10 00	Art
2.9.1.2(1)(ttt)	12 24 00	Window Coverings
2.9.1.2(1)(uuu)	12 36 00	Countertops
2.9.1.2(1)(vvv)	12 48 16	Entrance Floor Grilles
2.9.1.2(1)(www)	12 50 00	Furniture
2.9.1.2(1)(xxx)	12 93 00	Site Furnishings
2.9.1.2(1)(yyy)	12 93 33	Manufactured Planters
2.9.1.2(1)(zzz)	13 12 13	Exterior Fountains
2.9.1.2(1)(aaaa)	14 21 13	Electric Traction Elevators.
2.9.1.2(1)(bbbb)	20 05 13	Motors Starters and Wiring
2.9.1.2(1)(cccc)	20 05 14	Adjustable Frequency Drives
2.9.1.2(1)(dddd)	20 05 16	Flex Connections, Expansion Joints, Anchors and Guides
2.9.1.2(1)(eeee)	20 05 18	Flow and Energy Meters
2.9.1.2(1)(ffff)	20 05 19	Indicating Gauges
2.9.1.2(1)(gggg)	20 05 23	Valves
2.9.1.2(1)(hhhh)	20 05 29	Hangers and Supports
2.9.1.2(1)(iiii)	20 05 48	Vibration and Seismic Controls
2.9.1.2(1)(jjjj)	20 05 49	Seismic Restraint Systems
2.9.1.2(1)(kkkk)	20 05 53	Identification Equipment Insulation
2.9.1.2(1)(llll)	20 07 19	Piping Insulation
2.9.1.2(1)(mmmm)	20 08 01	Start-Up and Performance Testing Reporting

2.9.1.2(1)(nnnn) 21 13 13 Wet Pipe Sprinkler System

2.9.1.2(1)(oooo) 21 13 16 Dry Pipe Sprinkler System

2.9.1.2(1)(pppp) 21 13 19 Preaction Sprinkler System

2.9.1.2(1)(qqqq) 21 30 13 Packaged Fire Pump

2.9.1.2(1)(rrrr) 22 10 10 Plumbing Pumps

2.9.1.2(1)(ssss) 22 11 16 Domestic Water Piping

2.9.1.2(1)(tttt) 22 33 13 Domestic Water Heaters

2.9.1.2(1)(uuuu) 22 42 01 Plumbing Specialties

2.9.1.2(1)(vvvv) 22 42 03 Plumbing Fixtures and Trim

2.9.1.2(1)(wwww) 22 63 13 Medical Gas Systems

2.9.1.2(1)(xxxx) 23 11 13 Facility Fuel Oil Piping

2.9.1.2(1)(yyyy) 23 11 33 Natural Gas Systems

2.9.1.2(1)(zzzz) 23 13 13 Oil Storage Tanks

2.9.1.2(1)(aaaaa) 23 13 15 Fuel Oil Pumps

2.9.1.2(1)(bbbbb) 23.13.19 Fuel Filtration Systems

2.9.1.2(1)(ccccc) 23 15 13 Fuel Management System

2.9.1.2(1)(ddddd) 23 21 11 Water Specialties-Heating and Cooling

2.9.1.2(1)(eeeee) 23 21 13 Steel Pipe and Fittings – Heating and Cooling

2.9.1.2(1)(fffff) 23 21 23 Pumps – Heating and Cooling

2.9.1.2(1)(ggggg) 23 22 11 Steam Specialties

2.9.1.2(1)(hhhhh) 23 22 13 Steel Pipe and Fittings – Steam and Condensate

2.9.1.2(1)(iiiii) 23 22 23 Central Plant Condensate Receiver

2.9.1.2(1)(jjjjj) 23 25 13 HVAC Water Treatment Systems

2.9.1.2(1)(kkkkk) 23 34 05 Fans

2.9.1.2(1)(lllll) 23 36 13 Terminal Boxes

2.9.1.2(1)(mmmmm) 23 37 13 Grilles, Registers and Diffusers

2.9.1.2(1)(nnnnn) 23 51 16 Fabricated Breeching and Accessories

2.9.1.2(1)(ooooo) 23 51 19 Fabricated Stacks

2.9.1.2(1)(ppppp) 23 51 33 Insulated Sectional Chimneys

2.9.1.2(1)(qqqqq) 23 52 16 Packaged Hot Water Boiler - Condensing

2.9.1.2(1)(rrrrr) 23 52 39 Packaged Boiler – Fire Tube

2.9.1.2(1)(sssss) 23 53 16 Deaerator

2.9.1.2(1)(ttttt) 23 57 13 Heat Exchangers

2.9.1.2(1)(uuuuu) 23 61 09 Refrigerant Detection System

2.9.1.2(1)(vvvvv) 23 62 23 Process Cooling Package Chiller - Scroll

2.9.1.2(1)(wwwww) 23 64 16 Packaged Chiller - Centrifugal

2.9.1.2(1)(xxxxx) 23 65 13 Cooling Towers

2.9.1.2(1)(yyyyy) 23 65 15 Indirect Air-Side Economizer Recirculation Cooling Unit

2.9.1.2(1)(zzzzz) 23 73 10 Air Handling Units

2.9.1.2(1)(aaaaaa) 23 74 33 Makeup Air Unit

2.9.1.2(1)(bbbbbb) 23 81 26 Ducted Split Air Conditioners

2.9.1.2(1)(cccccc) 23 82 19 Electric Reheat Coils

2.9.1.2(1)(dddddd) 23 82 39 Unit Heaters

2.9.1.2(1)(eeeeee) 23 84 13 Humidifiers

2.9.1.2(1)(ffffff) 25 05 01 Emc General Requirements

2.9.1.2(1)(gggggg) 31 00 00 Earthwork

2.9.1.2(1)(hhhhhh) 31 23 01 Excavating Trenching & Backfiling

2.9.1.2(1)(iiiiii) 32 01 90.33 Tree Protection

2.9.1.2(1)(jjjjjj) 32 11 16.1 Granular Subbase

2.9.1.2(1)(kkkkkk) 32 11 23 Granular Base

2.9.1.2(1)(llllll) 32 12 13.2 Asphalt Prime

2.9.1.2(1)(mmmmmm) 32 12 16 Asphalt Paving

2.9.1.2(1)(nnnnnn)	32 13 13	Portland Cement Concrete Pavement
2.9.1.2(1)(oooooo)	32 14 13	Precast Concrete Unit Paving
2.9.1.2(1)(pppppp)	32 17 23	Painted Pavement Markings
2.9.1.2(1)(qqqqqq)	32 18 16	Synthetic Resilient Surfacing
2.9.1.2(1)(rrrrrr)	32 31 13	Chain Link Fences & Gates
2.9.1.2(1)(ssssss)	32 80 00	Irrigation
2.9.1.2(1)(tttttt)	32 91 13	Growing Medium Preparation
2.9.1.2(1)(uuuuuu)	32 92 93	Sodding
2.9.1.2(1)(vvvvvv)	32 93 00	Planting
2.9.1.2(1)(wwwwww)	33 11 01	Waterworks
2.9.1.2(1)(xxxxxx)	33 30 01	Sanitary Sewers
2.9.1.2(1)(yyyyyy)	33 40 01	Storm Sewers
2.9.1.2(1)(zzzzzz)	33 44 01	Manholes and Catch basins

2.9.2. Architectural Construction Documents

Percentage Complete at Submission Stages	30%	60%	95%	100%	As-Built
Drawing Content					
Site plans, context site plans, sections and details – includes coordination with civil works, hard landscape features and site servicing	✔	✔	✔	✔	✔
Title sheet, legends, drawing list, key plans and assembly listings	✔	✔	✔	✔	✔
Floor plans, penthouse and roof plans	✔	✔	✔	✔	✔
Reflected ceiling plans	✔	✔	✔	✔	✔
Exterior elevations	✔	✔	✔	✔	✔
Interior elevations	-	✔	✔	✔	✔
Building sections, transverse, longitudinal	✔	✔	✔	✔	✔
Wall sections	-	✔	✔	✔	✔

Large scale plans, lobbies, special purpose spaces, conference rooms, kitchens	✔	✔	✔	✔	✔
Large scale plans patient bedrooms and washrooms	✔	✔	✔	✔	✔
Plan and section details	-	✔	✔	✔	✔
Vertical movement – plans, sections and details, stairs, ramps, elevators	✔	✔	✔	✔	✔
Special elements, furnishings, signage	-	✔	✔	✔	✔
Schedules, doors, millwork, windows, hardware, finishes.	-	✔	✔	✔	✔
Millwork – plans, sections, and details	-	✔	✔	✔	✔
Code Compliance – Fire Separations (vertical and horizontal), Exiting Travel Distance Plans, Occupant loads, and exit width capacities	✔	✔	✔	✔	✔
Code Compliance Report	✔	✔	✔	✔	✔
Specifications					
Table of Contents	-	✔	✔	✔	-
General Requirements	-	✔	✔	✔	-
Existing Conditions – if any	-	✔	✔	✔	-
Concrete	-	✔	✔	✔	-
Masonry	-	✔	✔	✔	-
Metals	-	✔	✔	✔	-
Wood, Plastics and Composites	-	✔	✔	✔	-
Thermal and Moisture Protection	-	✔	✔	✔	-
Openings	-	✔	✔	✔	-
Door Hardware; Door program and functioning started in coordination with requirements for Electronic Safety and Security	-	✔	✔	✔	-

Finishes	-	✔	✔	✔	-
Specialties	-	✔	✔	✔	-
Equipment	-	✔	✔	✔	-
Furnishings	-	✔	✔	✔	-
Special Construction – if any	-	✔	✔	✔	-
Conveying Equipment – Elevators	-	✔	✔	✔	-
Other					
Virtual Model	-	-	-	✔	-
Colour Boards Master Colour Palette	-	✔	✔	✔	-
Sample boards	-	✔	✔	✔	-
Presentation to Patient	-	✔	✔	✔	-
3-Dimensional renderings	✔	✔	✔	✔	-
Perform a Facility Threat and Risk Assessment on the building design and provide a CPTED report	-	✔	✔	✔	-
Submittal					
Construction Plan	-	-	✔	✔	-
Vibration Monitoring Details	-	-	-	✔	-
Noise Control Plan	-	-	-	✔	-
Wayfinding	-	-	✔	✔	-

2.9.2.1 The Design-Builder will provide Construction Documents that include the following items as required to achieve the percentage of completion for the submissions.

2.9.2.2 The Design-Builder will clearly indicate:

2.9.2.2(1) Floor elevations (geodetic, on floor plans, sections and elevations) complete with floor level changes, stairs and ramps; and

2.9.2.2(2) Floor finishing tolerances, slopes for drainage, drain openings will be identified.

2.9.2.3 Code Construction Documents

2.9.2.3(1) Code Compliance Report will contain:

2.9.2.3(1)(a) BCBC Data Matrix including design considerations; and

2.9.2.3(1)(b) Fire and Life Safety Data Summary (may be illustrated graphically).

2.9.2.3(2) When applicable, Alternative Solutions will contain:

2.9.2.3(2)(a) All information required by the AHJ;

2.9.2.3(2)(b) Any operational impacts of the Alternative Solution; and

2.9.2.3(2)(c) Any maintenance impacts of the Alternative Solution.

2.9.2.4 Plans, Sections and Elevations will contain:

2.9.2.4(1) The outlines of the exterior walls and partitions in relation to the structural framework complete with graphical representation of materials cross- references to partition types and dimensions;

2.9.2.4(2) Clearly indicated functions of each building material component and rain screen construction component, i.e. air barrier, vapour barrier, moisture barrier, acoustical barrier, security barrier, fire resistance, thermal resistance;

2.9.2.4(3) The location of doors and windows, and other openings complete with cross-references to door, window and hardware schedules;

2.9.2.4(4) The location of fixtures and equipment for washrooms, kitchens, conference rooms, equipment/mechanical/electrical/communications rooms complete with cross-references to equipment schedules, notes and dimensions;

2.9.2.4(5) Clearly indicated barrier-free access, path of travel, clearances complete with notes and dimensions;

2.9.2.4(6) Designate room name and number of interior space. Maintain Authority room reference number as stated in the Schedule of Accommodation. The As-built Drawings will include final room numbering as per Section 2.13 and as coordinated with and approved by the Authority;

2.9.2.4(7) Graphically represent construction and finish materials for walls and floors;

2.9.2.4(8) Illustrate built-in furniture, millwork and equipment;

2.9.2.4(9) Graphically illustrate fire separation(s), acoustic separation(s), security separation(s); and

2.9.2.4(10) Gridlines and Gridlines dimensions.

2.9.2.5 Reflected Ceiling Plans will contain:

2.9.2.5(1) Graphical representation of ceiling finishes, equipment (such as ceiling mounted Patient lifts), luminaires complete with cross-reference to lighting, security, sprinkler, HVAC, fire alarm, and ceiling heights;

2.9.2.5(2) Clearly indicated bulkheads complete with graphical representation of construction and materials, notes, ceiling heights and dimensions; and

2.9.2.5(3) Clearly indicated graphical representation of systems and equipment interference for structural, mechanical, electrical, telecommunications, security complete with cross-reference notes and dimensions.

2.9.2.6 Penthouse and Roof Plans will contain:

2.9.2.6(1) The location of fixtures and equipment for mechanical, electrical, maintenance complete with notes and dimensions;

2.9.2.6(2) Clearly indicated roof penetrations for equipment, hatches, access paver paths, fall arrest anchors, antennae supports/ties; and

2.9.2.6(3) Graphically represent construction and finish materials for roof.

2.9.2.7 Exterior Elevations will contain:

2.9.2.7(1) The location of doors and windows, borrowed lights, and other openings;

2.9.2.7(2) Graphical representation of construction and finish materials, including a legend and notations; and

2.9.2.7(3) Scuppers, downs spouts or drainage systems, hose bibs and electrical outlet and exterior light locations.

2.9.2.7(4) Landscape treatment proposed in relation to exterior and windows

2.9.2.8 Interior Elevations will contain:

2.9.2.8(1) The location of doors, windows, and other openings; all wall mounted equipment, mechanical, electrical, and IMIT devices, dimensions of vertical changes in material, room numbers;

2.9.2.8(2) Graphical representation of construction and finish materials including a legend and notations is to be provided: and

2.9.2.8(3) Clearly indicate wall finishes, colour choices and details.

2.9.2.9 Building Sections will contain:

2.9.2.9(1) Clearly indicated floor construction/assemblies, floor elevations, dimensions and ceiling lines; and

2.9.2.9(2) Clearly indicated graphical representation of systems and equipment interference for structural, mechanical, electrical, telecommunications, security complete with cross-reference notes and dimensions.

2.9.2.10 Wall Sections (scale 1:20) will contain:

2.9.2.10(1) Clearly indicated detail location tags and references; wall type notations; and critical dimensions; and

2.9.2.10(2) Clearly indicated graphical representation of systems and equipment interference for structural, mechanical, electrical, telecommunications, security complete with cross- reference notes and dimensions.

2.9.2.1 Large Scale Plans (scale 1:50 or larger) will include:

2.9.2.1(1) The following spaces, including all rooms related to them as shown in the Space Table in Appendix 1A Clinical Specifications:

2.9.2.1(1)(a) team care station;

2.9.2.1(1)(b) Medications Preparation Room;

2.9.2.1(1)(c) Soiled Utility Room;

2.9.2.1(1)(d) Clean Utility Room;

2.9.2.1(1)(e) Interview/Consultation Room

2.9.2.1(1)(f) Exam/Consultation Room

2.9.2.1(1)(g) Mechanical Rooms;

2.9.2.1(1)(h) Electrical Rooms;

2.9.2.1(1)(i) Communication Rooms;

2.9.2.1(1)(j) Education Hub Boardroom/Emergency Operations Centre (EOC);

2.9.2.1(1)(k) Intensive Care Unit – Patient Room, Standard;

2.9.2.1(1)(l) Inpatient Units: Birthing Units – LDRP, Regular;

2.9.2.1(1)(m) Inpatient Units: Birthing Units – LDRP, Twin, Barrier Free;

2.9.2.1(1)(n) Inpatient Units: Psychiatry Inpatient Unit – Secure/Observation Room;

2.9.2.1(1)(o) Inpatient Units: Psychiatry Inpatient Unit – Patient Room, Standard;

2.9.2.1(1)(p) Seven Sisters Mental Health Rehabilitation & Recovery Program – Private Resident Room; and

2.9.2.1(1)(q) Inpatient Units: Medical/Surgical IPU – Patient Room, Standard;

2.9.2.1(1)(r) Inpatient Units: Medical/Surgical IPU – Activity Room/Recreation Therapy

2.9.2.1(1)(s) Surgical Services: Surgical Suite – General Operating Room.

2.9.2.1(1)(t) Emergency Services – Stretcher Bay; and

2.9.2.1(1)(u) Emergency Services – Exam/Treatment Room.

2.9.2.1(2) Provide interior elevations to 1:50 scale for the spaces listed above.

2.9.2.2 Vertical movement plans, sections and details will contain clearly indicated rise and run, headroom clearances, landing elevations, vertical and horizontal dimensions, railing and guards complete with barrier-free clearances, and notes.

2.9.2.3 Millwork plans, sections and details will clearly indicate millwork layout, section elevations, and details complete with material choices, notes and dimensions.

2.9.2.4 Special elements, furnishings, systems furniture, signage will contain:

2.9.2.4(1) Detailed graphical representations of furniture, systems furniture, signage in relation to exterior and interior walls, structural framework, material connections and interrelationships complete with cross-reference to schedules, notes, materials, and dimensions;

2.9.2.4(2) Detailed location of fixtures and equipment for telecommunications, IM/IT, security complete with cross- reference to equipment schedules, notes and dimensions; and

2.9.2.4(3) Base-building elements will be graphically distinct from special elements.

2.9.2.5 Schedules (Doors, Hardware, Windows, Room Finishes, Furniture) will contain:

2.9.2.5(1) Clearly indicated material, size, fire / thermal / acoustic / security resistance rating, colour, texture, pattern; and

2.9.2.5(2) Schedules maybe graphical and/or tabular in drawing or specification format.

2.9.3. Civil Construction Documents

Percentage of drawings completed	30%	60%	95%	100%	As-Built
Drawing Content					
Title sheet, typical sections and details	✔	✔	✔	✔	✔
Existing Conditions	✔	✔	✔	✔	✔
Erosion and Sediment Control	✔	✔	✔	✔	✔
Temporary Service during Construction	✔	✔	✔	✔	✔
Site Coordination Layout, turning templates for emergency and service vehicles	✔	✔	✔	✔	✔
Storm Water Drainage Plan	✔	✔	✔	✔	✔
Grading, site servicing, roads, parking lot(s), Hardscape and streetlights	✔	✔	✔	✔	✔
Deep and Shallow Utilities Plan and profile, on and off site	✔	✔	✔	✔	✔
Retaining Walls Plan and Profile (< 1.0m High)	✔	✔	✔	✔	✔
Sections and details	✔	✔	✔	✔	✔
Pavement Marking and Signage Plans	✔	✔	✔	✔	✔

Constructing phasing	✔	✔	✔	✔	✔
Offsite Drawings	✔	✔	✔	✔	✔
Specifications					
Clearing, Grubbing & Stripping	✔	✔	✔	✔	-
Earthworks	✔	✔	✔	✔	-
Site Servicing	✔	✔	✔	✔	-
Water, Sanitary Sewer and Storm Sewer	✔	✔	✔	✔	-
Manholes and Catchbasins	✔	✔	✔	✔	-
Watermain Flushing, Pressure Testing & Disinfection Plan	✔	✔	✔	✔	-
Base and Sub Base Course Aggregates	✔	✔	✔	✔	-
Asphalt Paving	✔	✔	✔	✔	-
Exterior Improvements	✔	✔	✔	✔	-
Cast-in-Place Concrete	✔	✔	✔	✔	-
Pavement Markings	✔	✔	✔	✔	-
Submittal					
Monthly Site Maintenance Inspection Form *as per Section 4.2.9.7*	-	-	-	✔	-

2.9.3.1 The Design-Builder will provide diagrams with their Submission describing:

2.9.3.1(1) How general traffic works during Construction; and

2.9.3.1(2) How parking stall allocation works during Construction.

2.9.3.2 Existing Conditions Drawing will contain all pertinent topographic information, contours at appropriate interval with spot elevations in clear legible format, all underground utilities including inverts and depths, size and type, borehole and test pit locations and elevations, existing and new survey monuments.

2.9.3.3 Erosion and Sediment Control Drawings will contain existing topographic information, contours at appropriate intervals with spot elevations, calculations for sizing of erosion and sediment control facilities, design and layout of each facility, stormwater discharge connection and location, quality measurement point and details of erosion and sediment control facilities.

2.9.3.4 Site Coordination and Layout Drawing will contain:

2.9.3.4(1) Horizontal and vertical control, the principal site elements to be constructed, survey monuments and/or nearby buildings or structures which may be used to show the relative location of the proposed structure of work, sufficient dimensions or coordinates that the exact location of proposed work is clearly identified, construction lay down area, relative locations of all below and above ground utilities (i.e. electrical, watermain, sanitary sewer, storm sewer.), site removals;

2.9.3.4(2) Demonstrated vehicle and pedestrian movements for all types of expected traffic to and from the Facility;

2.9.3.4(3) Grading Plan will contain the Building footprint and finished floor elevation, proposed grades with existing contours/grades provided in background in light font, drainage structures numbered, typical sections, dimensions and proposed site development features, including pavement/curb, sidewalk type, and street light locations;

2.9.3.4(4) Deep and Shallow Utilities plan and profile will contain horizontal and vertical depths of new, existing, and temporary services; utilities; manholes; drainage structures; valves; roof leader tie in points; location of foundation drainage (if required); structure data table; pipe load and capacities as required by local authorities having jurisdiction;

2.9.3.4(5) Site Servicing Plan will include phasing plan for watermain flushing, pressure testing and disinfecting the services to the Facility. Plan to be submitted and reviewed by the AHJ for approval;

2.9.3.4(6) Storm Water Management Plan will contain catchment areas, existing storm sewer system, flow direction, calculations for pre-development and post-development flows, detention calculations, and best management practices; and

2.9.3.4(7) Offsite drawings will include all drawings and details required by the City of Terrace to secure a Works and Services Agreement for the offsite works.

2.9.4. Structural Construction Documents

Percentage of Drawings Completed	30%	60%	95%	100%	As-Built
Drawing Content					
Title Sheet, General Notes	✔	✔	✔	✔	✔
Typical Details	✔	✔	✔	✔	✔
Slab, Column, and Beam Schedules	✔	✔	✔	✔	✔
Foundation Plans	✔	✔	✔	✔	✔
Floor and Roof Framing Plans	✔	✔	✔	✔	✔
Sections and Details	✔	✔	✔	✔	✔
Wall and Bracing Elevations	✔	✔	✔	✔	✔
Wall Sections	✔	✔	✔	✔	✔
Specifications					
Concrete (Division 03)	✔	✔	✔	✔	-
Masonry (Division 04)	✔	✔	✔	✔	-
Metals (Division 05)	✔	✔	✔	✔	-
Wood (Division 06)	✔	✔	✔	✔	-
Piling (Division 31)	✔	✔	✔	✔	-
Submittal					
Bi-weekly Structural and Geo Technical Field Reports	-	-	-	✔	-

Shoring & Re-shoring	-	-	-	✔	-
Rebar Matting/Coring Layouts (to be determined with Authority on Site)	-	-	✔	✔	-

2.9.4.1 Title Sheet, General Notes, will contain:

2.9.4.1(1) General description of the structure, its main components, gravity load resisting and lateral load resisting systems;

2.9.4.1(2) Codes and standards, with dates of issue, to which the design conforms;

2.9.4.1(3) Description of the lateral load resisting system will indicate values of Rd (ductility factor) and Ro (overstrength factor) used in the design;

2.9.4.1(4) Importance factors used in the design;

2.9.4.1(5) Design criteria indicating vertical design loads including dead and superimposed dead loads; occupancy live loads; snow loads (including drift); wind uplift loads; mechanical equipment loads; construction loads; Patient lift loads; special loading considerations;

2.9.4.1(6) Horizontal design loads indicated including seismic loads, wind loads, lateral earth pressures and hydrostatic pressures;

2.9.4.1(7) Loading plans showing area loads not covered by design criteria information such as planter and soil loads with an indication of maximum soil depth;

2.9.4.1(8) Geotechnical information used in the design including reference to geotechnical report, footing or pile bearing capacities, site classification and site coefficients;

2.9.4.1(9) Concrete mix requirements indicating application, exposure classification, minimum 28-day compressive strength, and maximum aggregate size; and

2.9.4.1(10) Concrete cover requirements, based on weather and soil exposure, fire resistance rating, or chloride penetration.

2.9.4.2 Schedules as required for items such as columns, beams, slabs, walls, foundations, baseplates, and embed plates.

2.9.4.3 Foundation plans, fully coordinated with other consultant's drawings, will contain:

2.9.4.3(1) Gridlines and gridline dimensions;

2.9.4.3(2) Foundation types, sizes and reinforcement, including strip footings, pad footings, rafts, piles and pile caps, soil anchors and grade beams. Foundations should be located relative to the supported structure. Indicatively show and detail steps in footings; indicate pile base and cut-off elevations. Indicate frost protection and adfreeze mitigation measures;

2.9.4.3(3) Interior slabs-on-grade including thickness, reinforcement, contraction joint requirements, and subgrade requirements including moisture barrier if required. Indicate step heights or top of slab elevations and ensure step conditions are sufficiently detailed. Show pits for elevators and mechanical openings;

2.9.4.3(4) Concrete walls including thickness and reinforcement. Clearly indicate shear walls and, if detailed elsewhere, ensure adequate referencing. Ensure wall corners, openings, intersections control joints, and construction joints are sufficiently detailed. Provide full height wall sections as required;

2.9.4.3(5) Concrete columns, pedestals and pilasters including dimensions and reinforcement, including tie arrangement details;

2.9.4.3(6) Steel columns including size and base plate details; and

2.9.4.3(7) Load bearing masonry and or wood / engineered stud walls if applicable, including stud sizes and spacing, plywood sheathing thickness and nailing requirements, masonry unit dimensions, reinforcement and grouting. Provide sufficient details as required.

2.9.4.4 Floor and Roof Framing Plans, fully coordinated with other consultant's drawings, will contain:

2.9.4.4(1) Gridlines and gridline dimensions;

2.9.4.4(2) Concrete slabs including thickness, cambers and reinforcement. Show all openings coordinated with other consultants. Indicate step heights or relative elevations. Ensure step conditions, slab edge conditions, construction joints, delay strips, and such are sufficiently detailed;

2.9.4.4(3) Concrete and masonry walls including thickness and reinforcement and wood frame walls including member sizes and spacing with plywood sheathing thickness and nailing noted. Clearly indicate shear walls and, if detailed elsewhere, ensure adequate referencing. Ensure wall corners, intersections, control and construction joints are sufficiently detailed. Provide full height wall sections as required;

2.9.4.4(4) Concrete columns, pedestals and pilasters including size and reinforcement, including tie and column rebar arrangement details. Ensure that columns starting, stopping and continuing are sufficiently detailed; ensure that offset column transitions are sufficiently detailed; Structural steel and timber columns shall be likewise detailed.

2.9.4.4(5) Concrete beams including reinforcement and dimensions for beams of concrete, timber and structural steel. Elevate concrete beams with complex reinforcement. Ensure beams are sufficiently detailed c/w connections as appropriate;

2.9.4.4(6) Detail concrete stairs, including throat thickness, reinforcement and sufficient details for cast in place stairs. For precast concrete stairs provide sufficient seating details;

2.9.4.4(7) Steel deck with or without concrete topping including thicknesses, deck type, connection to supporting structure, and shear transfer elements. Ensure sufficient deck edges, mechanical openings, ledger angles, framing around openings, and structural requirements for support of mechanical equipment are adequately detailed;

2.9.4.4(8) Steel beams, open web steel joists and steel trusses, including member sizes or depths, spacing, embed plates where connected to concrete and cambers. Ensure all design forces and moments are provided for use by connection designer, open web steel joist designer and truss designer. Ensure steel girts and ledgers between levels are clearly called up. Provide elevations for members between levels if required for clarity;

2.9.4.4(9) Steel columns including size, base plate, embed plate and cap plate details; and

2.9.4.4(10) Detail steel stairs, including stringer sizes and connection details.

2.9.4.4(11) Wood frame, engineered lumber, heavy timber and pre-engineered trusses for floor and roof construction if applicable including all member sizes and connections. This to also include all plywood sheathing and connections including those for diaphragm loading. Provide all design forces for beam and joist connections as well design forces for pre-engineered trusses to ensure that all elements, connections and diaphragm forces are adequately detailed

2.9.4.5 Elevations, fully coordinated with other consultants' drawings, for the following items:

2.9.4.5(1) Concrete masonry and wood frame wall or shear wall elevations as required to convey information not detailed on plan including complex areas of reinforcement, openings, shear wall zones, headers and such;

2.9.4.5(2) Concrete beam elevations for beams with complex reinforcement;

2.9.4.5(3) Steel bracing elevations including member sizes, forces and sufficient information for connection designer; and

2.9.4.5(4) Any other elevations deemed necessary to convey sufficient structural information.

2.9.4.6 Sections and details will contain information for all structural conditions not dealt with completely on plans, elevations or schedules. Additional information includes, but is not limited to clarification of structural geometry, reinforcement, connection configurations, fasteners and welding.

2.9.5. Mechanical Construction Documents

Percentage of Drawings Completed	30%	60%	95%	100%	As-Built
Drawing Content					
Legends, regulatory data, drawing list, key plans	✔	✔	✔	✔	✔
Fire suppression – plans, sections, details	✔	✔	✔	✔	✔
Plumbing – plans, sections, details	✔	✔	✔	✔	✔
Heating and Cooling (Hydraulic) – plans, sections, details	✔	✔	✔	✔	✔
HVAC – plans, sections, details	✔	✔	✔	✔	✔
Integrated Automation – plans, sections, details Schematics and schedules, air and water flow diagrams, equipment schedules, control schematics, sequence of operations.	✔	✔	✔	✔	✔
Specifications					
General Requirements	✔	✔	✔	✔	-
Fire Suppression	✔	✔	✔	✔	-
Plumbing	✔	✔	✔	✔	-
Heating, Ventilating and Air Conditioning	✔	✔	✔	✔	-
HVAC Integrated Automation	✔	✔	✔	✔	-
Other					
Plumbing fixture matrix	✔	✔	✔	✔	-
Med gas outlet matrix	✔	✔	✔	✔	-

Measurement and verification matrix	✔	✔	✔	✔	-
Submittal					
Flexibility of Expansion	-	-	-	✔	-
Expansion of Space	-	-	-	✔	-
Max Flow for Domestic Hot Water Supply	-	-	-	✔	-
Medical Gas Matrix	-	-	-	✔	-
Medical Gas Testing Reports	-	-	-	✔	-
Flue Study	-	-	-	✔	-
Ventilation Calculations	-	-	-	✔	-
Air Exchange Reports	-	-	-	✔	-
Indoor Air Quality Management Plan	-	-	-	✔	-
Metering Matrices submitted	✔	✔	✔	✔	-
Dispersion Study (Exhaust)	-	-	-	✔	-

2.9.5.1 Regulatory sheet – will contain (may be included on title sheet):

2.9.5.1(1) Design load assumptions and calculations.

2.9.5.2 Fire Suppression, plans, sections, details will contain:

2.9.5.2(1) Design calculations for water flow with water supply flow data, fire pump (if required), and smoke control;

2.9.5.2(2) Sprinkler zoning including indication of dry pipe and pre-action systems.

2.9.5.2(3) Provisions to accommodate security hazard classifications

2.9.5.2(4) Clearly indicated ceiling and slab elevations (geodetic) complete with level changes, bulkheads, beams;

2.9.5.2(5) The location of doors and windows, and other openings;

2.9.5.2(6) The location of “special fire hazard / load” conditions such as compact storage shelving, vaults, electronic data processing rooms;

2.9.5.2(7) The location of fixtures and equipment for washrooms, kitchens, conference rooms, equipment/mechanical/electrical/telecommunications rooms;

2.9.5.2(8) The designation (usually by room name and number) of interior spaces including sprinkler head type;

2.9.5.2(9) Graphic indication of fire separation(s), acoustic separation(s), security separation(s); and

2.9.5.2(10) Any specialist fire suppression elements required as part of an Alternative Solution.

2.9.5.3 Plumbing, plans, sections, details will contain:

2.9.5.3(1) Design calculations for water supply including pressure, domestic hot water heating, sanitary waste sizing and roof drainage;

2.9.5.3(2) Riser diagrams with flows indicated for domestic hot and cold water lines, waste and vent lines; and

2.9.5.4 Heating, cooling and ventilation (HVAC) plans, sections, details will contain:

2.9.5.4(1) Design calculations for block loads for heating and cooling, system load and supply air calculations including minimum outside air to be admitted, system pressure static analysis at peak and minimum block loads, acoustical calculations, building heating, cooling and ventilation loads, flow and head calculations for pumping systems, sizing of fuel storage, distribution and vibration isolation;

2.9.5.4(2) Mechanical plant sizing: Number and capacity of each major heating and cooling equipment. Indication of achieving redundancy requirements;

2.9.5.4(3) Air handling unit sizing. Number and capacity of each air handling unit with indication of achieving redundancy requirements;

2.9.5.4(4) HVAC piping layouts including valves complete with locations where temperature, pressure, flow, contaminant/combustion gases, vibration gauges and remote sensing is required;

2.9.5.4(5) HVAC duct layouts and true sizes (double line) including fire dampers and volume control dampers;

2.9.5.4(6) Layout of equipment rooms showing mechanical equipment including space for maintenance (filter replacement, valve adjustments) and removal / replacement of mechanical equipment (coils, heat exchangers, pumps, boilers, chiller tube bundles);

2.9.5.4(7) Roof plan with roof-mounted equipment and penthouses complete with indication of servicing and maintenance access;

2.9.5.4(8) HVAC outside air intake and exhaust air discharge including louver sizes and locations relative to each other, ensuring security and acoustic concerns have been taken into considerations;

2.9.5.4(9) HVAC riser diagram(s), schematic flow and riser diagrams including airflow and water flow quantities and balancing for heating and cooling equipment, flow energy measuring devices for water and air systems. Clear indication of penetrations through rated wall, floor and roof assemblies complete with details;

2.9.5.4(10) Automatic temperature control diagram(s) including control flow diagrams showing sensors, valves and controllers, sequence of operation of systems, diagram showing control signal interface with sequence of operation, locations and connections of energy metering devices for major equipment;

2.9.5.4(11) Equipment schedule including but not limited to chillers, boilers, pumps, air handling units, fans, terminal units, diffusers and grilles;

2.9.5.4(12) Clear indication of seismic restraints for HVAC systems and equipment;

2.9.5.4(13) Integrated automation plans, sections, details will contain:

2.9.5.4(13)(a) Design calculations.

2.9.5.4(13)(b) Integrated automation layout.

2.9.5.4(14) Schematic and schedules will contain:

2.9.5.4(14)(a) Clearly indicated type, flow, head, speed, class, BHP, electrical,

2.9.5.4(14)(b) Schedules maybe graphical and/or tabular in drawing and/or specification format.

2.9.5.5 Energy Modeling:

2.9.5.5(1) Refer to Schedule 9: Energy;

2.9.6. Electrical Construction Documents

Percentage drawing completion	30%	60%	95%	100%	As-Built
Drawing Content					
Legends, regulatory data, drawing list, key plans	✔	✔	✔	✔	✔
Site plans	✔	✔	✔	✔	✔
Power Single Line Diagram	✔	✔	✔	✔	✔
Power Riser Diagram	✔	✔	✔	✔	✔
Large Scale - Electrical room equipment layouts	✔	✔	✔	✔	✔
Large Scale - Electrical room 3-D equipment layouts including equipment dimensions.	-	✔	✔	✔	✔
Grounding Riser Diagram	✔	✔	✔	✔	✔
Grounding Details	-	-	✔	✔	✔
Lightning Protection Riser, Plans	✔	✔	✔	✔	✔
Lightning Protection Details	-	-	✔	✔	✔
Lighting Control Riser	✔	✔	✔	✔	✔
Lighting Control Details	-	-	✔	✔	✔
Clock System Riser	✔	✔	✔	✔	✔

Other Systems Risers	-	✔	✔	✔	✔
Fire Alarm and Voice Communication System Riser	✔	✔	✔	✔	✔
Lighting and Lighting Control:					
Plans	✔	✔	✔	✔	✔
Circuiting	-	✔	✔	✔	✔
Power:					
Plans	✔	✔	✔	✔	✔
Circuiting	-	✔	✔	✔	✔
Fire Alarm and Voice Communication Systems Plans	✔	✔	✔	✔	✔
Other Systems Plans	✔	✔	✔	✔	✔
Switchgear/switchboard/unit substation, elevations and schedules	-	✔	✔	✔	✔
Fire Alarm and Voice Communication Systems schedules	-	✔	✔	✔	✔
Site Service details	-	✔	✔	✔	✔
Miscellaneous details	-	-	✔	✔	✔
All other drawings	-	-	✔	✔	✔
Specifications					
Table of Contents: listing all sections	✔	✔	✔	✔	-
General Requirements	✔	✔	✔	✔	-
Electrical	✔	✔	✔	✔	-
Branch Circuit Panelboard Schedules	-	-	✔	✔	-
Luminaire Schedules	-	✔	✔	✔	-
Lighting Control Schedules	-	-	✔	✔	-

Communications (clock system and interval timers)	-	✔	✔	✔	-
Electronic Safety and Security	✔	✔	✔	✔	-
Other					
Total load calculations (utility electric service)	✔	✔	✔	✔	-
Total load calculations (generator power)	✔	✔	✔	✔	-
Load calculations (transformer loadings)	-	✔	✔	✔	-
Load calculations (generator loadings)	-	✔	✔	✔	-
Load calculations (UPS power)	-	✔	✔	✔	-
Power system ground grid calculations	-	✔	✔	✔	-
Voltage drop calculations	-	✔	✔	✔	-
Short circuit calculations	-	✔	✔	✔	-
Arc flash calculations	-	-	✔	✔	-
Co-ordination study	-	-	✔	✔	-
EMF study	-	-	✔	✔	-
Lighting calculations	-	✔	✔	✔	-
Lightning: grounding resistivity calculations	-	-	✔	✔	-
Cable tray calculations	-	-	✔	✔	-
Ratings of grounding resistors, zig-zag grounding transformers, fuses, bus ducts, feeders, splitters, safety switches, panelboards, power factor correction units	✔	✔	✔	✔	-
Calculated maximum fault levels, symmetrical and asymmetrical, and protective device interrupting ratings, symmetrical and asymmetrical, at each protective device location	✔	✔	✔	✔	-

Calculated arc Flash hazard level at each protective device and switching device location	-	-	✔	✔	-
Utility metering	-	✔	✔	✔	-
Metering	-	✔	✔	✔	-
Dimensions of equipment shown	-	✔	✔	✔	-
Widths of access aisles dimensioned	-	✔	✔	✔	-
Extent of drawout equipment indicated and dimensioned	-	✔	✔	✔	-
Three dimensional drawing files provided	-	✔	✔	✔	-
Ground bus names, following a consistent naming methodology	-	✔	✔	✔	-
Details of ground bus design and mounting	-	-	✔	✔	-
Circuiting of items requiring power	-	✔	✔	✔	-
Submittal					
Detailed Distribution Coordination Study	-	-	-	✔	-
Monthly System Shut Down Schedules	-	-	-	✔	-

2.9.6.1 Regulatory data – will contain design load assumptions and calculations to demonstrate code compliance.

2.9.6.2 Site plans will include:

2.9.6.2(1) Property limits,

2.9.6.2(2) Public roadways,

2.9.6.2(3) Driveways,

2.9.6.2(4) Parking lots,

2.9.6.2(5) Electric utility services,

2.9.6.2(6) Electrical site services,

2.9.6.2(7) Site lighting,

2.9.6.2(8) Exterior building lighting,

2.9.6.2(9) Parking control systems,

2.9.6.2(10) Maintenance hole locations with sump pump circuits as applicable,

2.9.6.2(11) Hand holes, pull pits,

2.9.6.2(12) Lightning protection ground grid.

2.9.6.3 Power Single Line Diagram will include:

2.9.6.3(1) The entire electrical system from the utility service to and including distribution panels, motor control centers, chillers, motors over 50 HP,

2.9.6.3(2) Ratings of transformers, generators, breakers, load break switches, fuses, transfer switches, switchgear, switchboards,

2.9.6.3(3) Transformer and generator winding arrangements;

2.9.6.3(4) Interlock schemes,

2.9.6.3(5) Potential and current transformers,

2.9.6.3(6) Protective and control relays on high voltage breakers including transfer switches,

2.9.6.3(7) Equipment names, following a consistent equipment naming methodology.

2.9.6.4 Power Riser Diagram will include:

2.9.6.4(1) The entire electrical system from the utility service to and including lighting/receptacle/lab panels, motor control centers, chillers, motors over 50 HP,

2.9.6.4(2) Equipment shown in elevation relative to their actual size,

2.9.6.4(3) Equipment shown on the floor level where they will be installed,

2.9.6.4(4) A two-dimensional relative representation of where the equipment will be located,

2.9.6.4(5) Feeders to equipment,

2.9.6.4(6) A two-dimensional representation of the routing of the feeders,

2.9.6.4(7) Equipment names, following a consistent equipment naming methodology.

2.9.6.5 Large Scale - Electrical Room Equipment Layouts will include:

2.9.6.5(1) All electrical rooms drawn to a scale of not less than 1:50,

2.9.6.5(2) All equipment in the room shown to scale,

2.9.6.5(3) Equipment door swings indicated,

2.9.6.5(4) Room doors shown,

2.9.6.5(5) Room names and numbers,

2.9.6.6 Grounding Riser Diagram and Details will include:

2.9.6.6(1) The entire electrical grounding system from the ground grid to each electrical room, generator room, electrical closet, IT room,

2.9.6.6(2) Ground rods, buried cables, ground buses, ground cables,

2.9.6.6(3) Equipment shown in elevation,

2.9.6.6(4) Equipment shown on the floor level where they will be installed,

2.9.6.6(5) A two-dimensional relative representation of where the equipment will be located,

2.9.6.6(6) A two-dimensional representation of the routing of the cables,

2.9.6.6(7) Equipment sizing,

2.9.6.7 Lightning Protection Riser, Plans and Details will include:

2.9.6.7(1) The entire lightning protection system from the ground grid to the lightning rods and roof top equipment connected to the system,

2.9.6.7(2) Ground rods, buried cables, riser cables, horizontal cables,

2.9.6.7(3) Equipment shown in elevation,

2.9.6.7(4) Equipment shown on the floor level where they will be installed,

2.9.6.7(5) A two-dimensional relative representation of where the equipment will be located,

2.9.6.7(6) A two-dimensional representation of the routing of the riser cables,

2.9.6.7(7) Equipment sizing,

2.9.6.7(8) Details of:

2.9.6.7(8)(a) Lightning rod parapet mounting,

2.9.6.7(8)(b) Lightning rod roof mounting,

2.9.6.7(8)(c) Roof penetrations,

2.9.6.7(8)(d) Rod to cable connections,

2.9.6.7(8)(e) Cable to cable connections,

2.9.6.7(8)(f) Bonding straps for other equipment,

2.9.6.8 Lighting Control Riser and Details will include:

2.9.6.8(1) The entire lighting control system,

2.9.6.8(2) Equipment shown on the floor level where they will be installed,

2.9.6.8(3) A two-dimensional relative representation of where the equipment will be located,

2.9.6.8(4) Wiring runs to equipment,

2.9.6.8(5) A two-dimensional representation of the routing of the wiring runs,

2.9.6.8(6) Equipment names, following a consistent equipment naming methodology.

2.9.6.9 Clock System Riser will include:

2.9.6.9(1) The entire clock system,

2.9.6.9(2) Equipment shown on the floor level where they will be installed,

2.9.6.9(3) A two-dimensional relative representation of where the equipment will be located,

2.9.6.9(4) Wiring runs to equipment,

2.9.6.9(5) Equipment names, following a consistent equipment naming methodology,

2.9.6.9(6) Details of integration with other systems.

2.9.6.10 Other Systems Riser will include:

2.9.6.10(1) The entire system,

2.9.6.10(2) Equipment shown on the floor level where they will be installed,

2.9.6.10(3) A two-dimensional relative representation of where the equipment will be located,

2.9.6.10(4) Wiring runs to equipment,

2.9.6.10(5) A two-dimensional representation of the routing of the wiring runs,

2.9.6.10(6) Equipment names, following a consistent equipment naming methodology.

2.9.6.11 Fire Alarm and Voice Communications System Riser Diagram will include:

2.9.6.11(1) The entire fire alarm and voice communication system,

2.9.6.11(2) Equipment shown on the floor level where they will be installed,

2.9.6.11(3) A two-dimensional relative representation of where the equipment will be located,

2.9.6.11(4) Communication wiring between the head end and local panels, and between local panels,

2.9.6.11(5) A two-dimensional representation of the routing of the wiring between the head end and the local panels and between the local panels,

2.9.6.11(6) Each detection loop out of a local panel, including every isolation module used in the loop,

2.9.6.11(7) Intentionally deleted.

2.9.6.11(8) Intentionally deleted.

2.9.6.11(9) Intentionally deleted.

2.9.6.11(10) A typical representation of the detection, monitoring and control devices installed on each segment of a loop (i.e. between isolation modules),

2.9.6.11(11) Intentionally deleted.

2.9.6.11(12) A typical representation of the signal devices installed on each signal circuit,

2.9.6.11(13) Interconnections with other systems,

2.9.6.11(14) Equipment names, following a consistent equipment naming methodology.

2.9.6.12 Lighting and Lighting Control Plans will include:

2.9.6.12(1) Reflected ceiling plans to scale showing all luminaires, including emergency lighting and exit signs, in their relative locations,

2.9.6.12(2) An indication of the luminaire types, corresponding to the luminaire schedules,

2.9.6.12(3) Circuiting of each luminaire,

2.9.6.12(4) Lighting control devices, in their relative locations,

2.9.6.12(5) Full lighting and switching layout for each room and floor plates.

2.9.6.12(6) Control panels, in their relative locations,

2.9.6.12(7) Lighting control zoning,

2.9.6.12(8) Lighting panelboards, in their relative locations,

2.9.6.12(9) Room names and numbers, doors and windows, corridor names.

2.9.6.13 Power Plans will include:

2.9.6.13(1) Floor plans to scale showing all;

2.9.6.13(1)(a) receptacles,

2.9.6.13(1)(b) outlets,

2.9.6.13(1)(c) safety switches,

2.9.6.13(1)(d) transfer switches,

2.9.6.13(1)(e) dry type transformers,

2.9.6.13(1)(f) feeders,

2.9.6.13(1)(g) splitters,

2.9.6.13(1)(h) distribution panels,

2.9.6.13(1)(i) lighting/receptacle/lab panels,

2.9.6.13(1)(j) switches controlling receptacles or outlets,

2.9.6.13(1)(k) timers,

2.9.6.13(1)(l) clocks,

2.9.6.13(1)(m) contactors,

2.9.6.13(1)(n) switchgear,

2.9.6.13(1)(o) switchboards,

2.9.6.13(1)(p) power factor correction units,

2.9.6.13(1)(q) transformers,

2.9.6.13(1)(r) generators,

2.9.6.13(1)(s) UPS equipment,

2.9.6.13(1)(t) motor control centers,

2.9.6.13(1)(u) chillers,

2.9.6.13(1)(v) motors over 50 HP,

2.9.6.13(1)(w) automatic door controls,

2.9.6.13(1)(x) control equipment (other than lighting control), shown in their relative locations,

2.9.6.13(1)(y) An indication of the equipment types, corresponding to the Legend,

2.9.6.13(1)(z) Circuiting of each item of equipment,

2.9.6.13(1)(aa) Room names and numbers, doors and windows, corridor names.

2.9.6.14 Fire Alarm and Voice Communications System Plans will include:

2.9.6.14(1) Reflected ceiling plans to scale showing all detection devices, signal devices, control devices, monitoring devices, isolation modules, in their relative locations,

2.9.6.14(2) An indication of the equipment types, corresponding to the Legend,

2.9.6.14(3) Annunciators, head end equipment, local panels, battery cabinets, paging stations, control centers, in their relative locations,

2.9.6.14(4) Identification of each zone boundary,

2.9.6.14(5) Room names and numbers, doors and windows, corridor names,

2.9.6.14(6) Indication of detection, monitoring and signaling zones and numbers.

2.9.6.14(7) Fire walls, fire separations.

2.9.6.14(8) Indication of each signal circuit out of a local panel.

2.9.6.15 Other Systems Plans will include:

2.9.6.15(1) Floor plans or reflected ceiling plans as required to show any equipment not shown on other plans.

2.9.6.16 Switchgear/switchboard/unit substation, elevations and schedules will include:

2.9.6.16(1) The elevation of each item of switchgear, each switchboard and each unit substation showing protective devices, switching devices, bus arrangements, protective relays, control relays, metering, labelling, surge protective devices,

2.9.6.16(2) Schedules and/or single line diagrams identifying each protective device, switching device, transformer, bus, showing the ratings of each.

2.9.6.16(2)(a) Intentionally deleted.

2.9.6.16(2)(b) Intentionally deleted.

2.9.6.16(2)(c) Intentionally deleted.

2.9.6.16(2)(d) Intentionally deleted.

2.9.6.16(2)(e) Intentionally deleted.

2.9.6.16(2)(f) Intentionally deleted.

2.9.6.16(2)(g) Intentionally deleted.

2.9.6.17 Fire Alarm and Voice Communications Systems Schedules will include:

2.9.6.17(1) All detection, monitoring and control zone designations,

2.9.6.17(2) All signal zone designations,

2.9.6.17(3) A description of the area or equipment involved,

2.9.6.17(4) An indication of the system operation related to that zone,

2.9.6.17(5) All paging zone designations,

2.9.6.17(6) A description of the area involved for each paging zone.

2.9.6.18 Site Service Details will include:

2.9.6.18(1) Maintenance holes and hand holes,

2.9.6.18(2) Cable racking inside maintenance holes,

2.9.6.18(3) Cable pulling provisions inside maintenance holes,

2.9.6.18(4) Built in ladders inside maintenance holes,

2.9.6.18(5) Means of draining maintenance holes including gravity drainage and sump pump systems,

2.9.6.18(6) High water alarms for maintenance holes,

2.9.6.18(7) Lighting and power provisions inside maintenance holes,

2.9.6.18(8) Cross sections of each duct bank,

2.9.6.18(9) Cross sections of any direct buried cables,

2.9.6.18(10) Bases for lighting standards,

2.9.6.18(11) Bases for bollards,

2.9.6.18(12) Bases for other equipment.

2.9.6.19 Miscellaneous Details will include:

2.9.6.19(1) All details required for the full description of the Project not included on other drawings.

2.9.6.20 All other drawings will include:

2.9.6.20(1) Drawings as required for the full description of the Project not included on other drawings.

2.9.6.21 As-Built Drawings will include:

2.9.6.21(1) Drawings included in the 100% submission plus any changes made and any drawings added up to the completion of construction,

2.9.6.21(2) Updating of each drawing to the final “As-Built” condition,

2.9.6.21(3) Final locations of duct banks, maintenance holes, hand holes, conduit, outlets, panels, branch wiring, system wiring, pull boxes, bus ducts, and equipment,

2.9.6.21(4) Dimensions from column lines or edge of roadways to the location of buried services,

2.9.6.21(5) Project surveyor's information on the site services As-Built drawings.

2.9.6.22 Electrical Specifications will include:

2.9.6.22(1) Sections in sufficient detail to unequivocally describe each material and each item of equipment to be used on the electrical scope of work for the Project,

2.9.6.22(2) The method of installation, testing, commissioning and documenting for each material, item of equipment, and system that is part of the electrical scope of work for the Project,

2.9.6.22(3) Identification of the codes and standards that the materials, equipment and systems will be provided in accordance with.

2.9.6.23 Branch Circuit Panelboard Schedules will include:

2.9.6.23(1) A separate schedule for each panelboard,

2.9.6.23(2) Panelboard ratings, voltage and ampacity,

2.9.6.23(3) Main breaker ratings (where applicable),

2.9.6.23(4) Maximum number of branch breaker poles that the panelboard can accommodate,

2.9.6.23(5) The rating and number of poles for each branch breaker,

2.9.6.23(6) The phase that each breaker pole is connected to,

2.9.6.23(7) The name of the load supplied by each branch breaker,

2.9.6.23(8) The anticipated circuit loading in Amperes,

2.9.6.23(9) Spare breakers,

2.9.6.23(10) Breaker spaces,

2.9.6.23(11) The interrupting rating of the circuit breakers,

2.9.6.23(12) Circuits equipped with breaker "lock-on" devices.

2.9.6.24 Lighting Control Schedules will include:

2.9.6.24(1) A separate schedule for each control panel,

2.9.6.24(2) Lighting control zone designations,

2.9.6.24(3) Circuits and sub-circuits controlled,

2.9.6.24(4) Designation of each control relay,

2.9.6.24(5) Rating of each control relay,

2.9.6.24(6) A description of the type of control,

2.9.6.24(7) A listing of “scenes” allocated to the zone,

2.9.6.24(8) Interfaces with other panels, head end equipment, other systems.

2.9.6.25 Communications Specifications Sections will include:

2.9.6.25(1) Sections in sufficient detail to unequivocally describe each material and each item of equipment to be used on the clock system and interval timers under the electrical scope of work for the Project,

2.9.6.25(2) The method of installation, testing, commissioning and documenting for each material, item of equipment, and system that is part of the electrical scope of work for the Project,

2.9.6.25(3) Identification of the codes and standards that the materials, equipment and systems will be provided in accordance with.

2.9.6.26 Electronic Safety and Security Specifications Sections will include:

2.9.6.26(1) Sections in sufficient detail to unequivocally describe each material and each item of equipment to be used on the fire alarm and voice communication system, fuel leakage detection systems and water detection systems, under the electrical scope of work for the Project,

2.9.6.26(2) The method of installation, testing, commissioning and documenting for each material, item of equipment, and system that is part of the electrical scope of work for the Project,

2.9.6.26(3) Identification of the codes and standards that the materials, equipment and systems will be provided in accordance with.

2.9.6.27 Calculations will be:

2.9.6.27(1) Published, hand written calculations will not be submitted,

2.9.6.27(2) Fully detailed to allow review of each step of the calculations,

2.9.6.27(3) With power demand and diversity factors identified,

2.9.6.27(4) With all assumptions clearly stated.

2.9.6.28 Total Load Calculations (utility electric service) will include:

2.9.6.28(1) Calculation of the annual peak demand load, in kW and kVA, expected for the Campus,

2.9.6.28(2) Calculation of the annual peak demand load, in kW and kVA, on each utility service under typical operating conditions, indicating the spare capacity on each service,

2.9.6.28(3) Calculation of the annual peak demand load, in kW and kVA, on each utility service with one utility service shutdown.

2.9.6.28(4) Electrical load redundancy and spare capacity calculations for all normal power identifying loads of different types, such as individual mechanical equipment, lighting, general receptacles, hospital equipment, communications and security equipment and elevators.

2.9.6.29 Total Load Calculations (generator power) will include:

2.9.6.29(1) Calculation of the annual peak demand load on the generating system, in kW and kVA, expected for the Facility,

2.9.6.29(2) Calculation of the annual peak demand load, in kW and kVA, on each generator under typical operating conditions, indicating the spare capacity on each generator,

2.9.6.29(3) Calculation of the annual peak demand load, in kW and kVA, on each generator with one generator out of service,

2.9.6.29(4) Intentionally deleted.

2.9.6.29(5) Electrical load redundancy and spare capacity calculations for all branches of power identifying loads of different types, such as individual mechanical equipment, lighting, general receptacles, hospital equipment, communications and security equipment and elevators.

2.9.6.30 Load Calculations (transformer loadings) will include:

2.9.6.30(1) Calculation of the annual peak demand load, in kW and kVA, on each transformer under typical operating conditions,

2.9.6.30(2) Calculation of the annual peak demand load, in kW and kVA, on each transformer with one transformer out of service, the transformer out of service to be one that causes substation load to be transferred to the transformer for which the load calculation is being performed (i.e. it's twin),

2.9.6.30(3) Intentionally deleted.

2.9.6.30(4) Calculation of the spare capacity provided for in each transformer.

2.9.6.30(5) Electrical load redundancy and spare capacity calculations for all normal power identifying loads of different types, such as individual mechanical equipment, lighting, general receptacles, hospital equipment, communications and security equipment and elevators.

2.9.6.31 Load Calculations (generator loadings) will include:

2.9.6.31(1) Calculation of the annual peak demand load, in kW and kVA, on each generator under typical operating conditions,

2.9.6.31(2) Calculation of the annual peak demand load, in kW and kVA, on each generator with one generator out of service, the generator out of service to be one that causes load to be transferred to the generator for which the load calculation is being performed (i.e. it's twin),

2.9.6.31(3) Intentionally deleted.

2.9.6.31(4) Calculation of the spare capacity provided for in each generator.

2.9.6.31(5) Electrical load redundancy and spare capacity calculations for all branches of power identifying loads of different types, such as individual mechanical equipment, lighting, general receptacles, hospital equipment, communications and security equipment and elevators.

2.9.6.31(6) Calculation of the annual peak demand load on the generating system, in kW and kVA, expected for the Facility to be used to size the permanent load bank.

2.9.6.32 Load Calculations (UPS power) will include:

2.9.6.32(1) Calculation of the annual peak demand load, in kW and kVA, on each UPS system under typical operating conditions,

2.9.6.32(2) Intentionally deleted.

2.9.6.32(3) Calculation of the spare capacity provided for in each UPS system,

2.9.6.32(4) Calculation of the battery support time of each UPS system, based on:

2.9.6.32(4)(a) full load operation,

2.9.6.32(4)(b) with the redundant system not available,

2.9.6.32(4)(c) with the battery capacity derated to the actual ambient room temperature, and

2.9.6.32(4)(d) with the batteries at “end of life”.

2.9.6.33 Power System Ground Grid calculations will include:

2.9.6.33(1) Identification of soil resistivity based on site testing, two level resistivity if applicable,

2.9.6.33(2) Calculation of the GPR, step and touch potentials, in accordance with ANSI/IEEE #80.

2.9.6.34 Voltage Drop calculations will include:

2.9.6.34(1) Calculations of the steady state voltage drop from the utility service though to every power utilizing device,

2.9.6.34(2) Provided that 2% voltage drop is allowed for each branch circuit then the voltage drop calculations can end at the final lighting/receptacle/lab panelboard and MCC,

2.9.6.34(3) Calculations based on a load equal to 80% of the breaker or fuse rating protecting the circuit, unless the load is fixed and known (eg: a single motor) in which case the fixed known load can be used,

2.9.6.34(4) Calculations based on a power factor of 90% unless a different power factor is known to apply in which case the known power factor is to be used.

2.9.6.35 Short circuit calculations will include:

2.9.6.35(1) Calculations of symmetrical and asymmetrical values of fault currents, based on the calculated X/R ratio of the system,

2.9.6.35(2) Calculations of the maximum three phase fault current, the maximum line to line fault current, the maximum line to ground fault current and the minimum line to ground fault current at every protective device and switching device in the electrical system, excluding local switches on branch circuits,

2.9.6.35(3) The maximum fault currents based on the utility supply in parallel with the generator supply, where closed transition transfer switches are used,

2.9.6.35(4) The utility ultimate design fault levels,

2.9.6.35(5) Motor contribution,

2.9.6.35(6) Actual transformer impedances, but until actual impedances are available, worst case (low) impedances.

2.9.6.36 Arc Flash calculations will include:

2.9.6.36(1) Calculations of the arc flash level at every protective device and every switching device in the system, excluding local switches on branch circuits.

2.9.6.37 Coordination Study will include:

2.9.6.37(1) Graphs of each portion of the electrical system on log-log paper showing:

2.9.6.37(1)(a) The operating characteristics of each protective device,

2.9.6.37(1)(b) Full load ratings of transformers,

2.9.6.37(1)(c) Full load ratings of individual generators and generators in parallel,

2.9.6.37(1)(d) The maximum and minimum fault level at each protective device and each switching device,

2.9.6.37(1)(e) Transformer inrush current,

2.9.6.37(1)(f) Motor starting current,

2.9.6.37(1)(g) Cable damage curves,

2.9.6.37(1)(h) Transformer damage curves,

2.9.6.37(1)(i) Full load ratings of generators,

2.9.6.37(1)(j) Generator damage curves,

2.9.6.37(1)(k) Generator decrement curves for individual generators and paralleled generators,

2.9.6.37(1)(l) Full load ratings of UPS systems,

2.9.6.37(1)(m) UPS system fault levels,

2.9.6.37(1)(n) UPS system maintenance bypass fault levels,

2.9.6.37(1)(o) A single line diagram of the portion of the system involved including the equipment names, ratings and settings,

2.9.6.37(2) No more than five (5) time current curves of protective devices on each graph,

2.9.6.37(3) Graphs showing operation on utility power,

2.9.6.37(4) Graphs showing operation on generator power,

2.9.6.37(5) Graphs showing operation on UPS power,

2.9.6.37(6) A sufficient number of graphs to depict the entire electrical system including the utilities protective devices and the generators down to feeders to lighting/receptacle/lab panels, splitters, motor control centers, chillers, motors of 50 HP and larger,

2.9.6.37(7) Separate graphs for phase currents,

2.9.6.37(8) Separate graphs for ground currents,

2.9.6.37(9) Schedules showing each protective device that is equipped with an adjustable trip unit, showing the device frame size, CT ratios and the detailed settings of its trip unit,

2.9.6.37(10) Identification of areas where equipment protection is not adequate,

2.9.6.37(11) Identification of areas where full co-ordination is not achieved.

2.9.6.38 EMF study will include:

2.9.6.38(1) Computer modelling of the proposed Facility to identify the magnetic field intensity emanating from the electrical distribution equipment.

2.9.6.38(2) Mitigation measures that will be employed to reduce the magnetic field strength to within the required levels.

2.9.6.39 Lighting calculations will include:

2.9.6.39(1) Calculation of the average illumination in each area and room,

2.9.6.39(2) Calculation of the max to min ratio in each area and room,

2.9.6.39(3) Identification of the general light loss factors and dirt depreciation factors used in the calculations,

2.9.6.39(4) Intentionally deleted.

2.9.6.39(5) Dimensions of each space and the source of these values.

2.9.6.40 Lightning System Ground Grid calculations will include:

2.9.6.40(1) Identification of soil resistivity based on site testing,

2.9.6.40(2) Calculation of the grounding resistivity of the lightning protection system.

2.9.7. Electrical Shop Drawings

2.9.7.1 Submit shop drawings for the following:

2.9.7.1(1) Co-ordination drawings,

2.9.7.1(2) Detailed installation drawings,

2.9.7.1(3) Documents supporting LEED application,

2.9.7.1(4) Single line diagrams,

2.9.7.1(5) Fire alarm riser diagram,

2.9.7.1(6) Fire alarm zoning plans,

2.9.7.1(7) Nameplate wording,

2.9.7.1(8) Warning signs,

2.9.7.1(9) Labels,

2.9.7.1(10) Access doors,

2.9.7.1(11) Fire stopping:

2.9.7.1(11)(a) Technical data,

2.9.7.1(11)(b) ULC or cUL listing,

2.9.7.1(11)(c) Supports and bases,

2.9.7.1(11)(d) Insert drawings,

2.9.7.1(12) Paint: technical data,

2.9.7.1(13) Plywood backboards: technical data,

2.9.7.1(14) High voltage cables,

2.9.7.1(15) High voltage cable terminators,

2.9.7.1(16) Bus ducts,

2.9.7.1(17) Plug-in busways,

2.9.7.1(18) Low voltage cables,

2.9.7.1(19) Grounding:

2.9.7.1(19)(a) System design,

2.9.7.1(19)(b) Materials,

2.9.7.1(20) Splitters and cabinets,

2.9.7.1(21) Junction boxes with L, W or H larger than 600,

2.9.7.1(22) Cable tray,

2.9.7.1(23) Wireways,

2.9.7.1(24) Duct banks:

2.9.7.1(24)(a) Design

2.9.7.1(24)(b) Materials

2.9.7.1(24)(c) Spacers

2.9.7.1(25) Vibration isolation and seismic restraint:

2.9.7.1(25)(a) Design,

2.9.7.1(25)(b) Materials,

2.9.7.1(26) Maintenance holes,

2.9.7.1(27) Hand holes,

2.9.7.1(28) Pull pits,

2.9.7.1(29) Pad mounted transformer bases,

2.9.7.1(30) Lighting control systems:

2.9.7.1(30)(a) System description,

2.9.7.1(30)(b) Schematic diagrams,

2.9.7.1(30)(c) Wiring diagrams,

2.9.7.1(30)(d) Components,

2.9.7.1(30)(e) Ratings,

2.9.7.1(30)(f) Operating schedules,

2.9.7.1(31) High voltage switchboards:

2.9.7.1(31)(a) Design,

2.9.7.1(31)(b) Ratings,

2.9.7.1(31)(c) Schematics,

2.9.7.1(31)(d) Three (3) wire diagrams,

2.9.7.1(31)(e) Subassemblies (eg: circuit breakers, relays, metering units)

2.9.7.1(31)(f) Batteries,

2.9.7.1(31)(g) Battery calculations,

2.9.7.1(31)(h) Battery charger,

2.9.7.1(31)(i) Controls,

2.9.7.1(31)(j) Enclosures,

2.9.7.1(32) Pad mounted transformers:

2.9.7.1(32)(a) Design,

2.9.7.1(32)(b) Ratings,

2.9.7.1(32)(c) Schematics,

2.9.7.1(32)(d) CSA nameplates,

2.9.7.1(32)(e) Accessories,

2.9.7.1(32)(f) Enclosures,

2.9.7.1(33) Dry type transformers:

2.9.7.1(33)(a) Design,

2.9.7.1(33)(b) Ratings,

2.9.7.1(33)(c) Schematics,

2.9.7.1(33)(d) CSA nameplates,

2.9.7.1(33)(e) Accessories,

2.9.7.1(33)(f) Enclosures,

2.9.7.1(33)(g) High resistance grounding systems,

2.9.7.1(34) Low voltage switchboards:

2.9.7.1(34)(a) Design,

2.9.7.1(34)(b) Ratings,

2.9.7.1(34)(c) Schematics,

2.9.7.1(34)(d) Three wire diagrams,

2.9.7.1(34)(e) Subassemblies (eg: circuit breakers, trip units, metering units, grounding systems)

2.9.7.1(34)(f) Controls,

2.9.7.1(34)(g) Enclosures,

2.9.7.1(35) Panelboards:

2.9.7.1(35)(a) Design,

2.9.7.1(35)(b) Ratings,

2.9.7.1(35)(c) Breaker complement,

2.9.7.1(35)(d) Breaker ratings,

2.9.7.1(35)(e) Spares and spaces,

2.9.7.1(35)(f) Accessories,

2.9.7.1(35)(g) Enclosures,

2.9.7.1(36) Wiring devices,

2.9.7.1(37) Disconnect switches,

2.9.7.1(38) Patient service units:

2.9.7.1(38)(a) Design,

2.9.7.1(38)(b) Materials,

2.9.7.1(38)(c) Device complement,

2.9.7.1(38)(d) Devices,

2.9.7.1(38)(e) Spaces for future devices,

2.9.7.1(38)(f) Accessories,

2.9.7.1(38)(g) Enclosures,

2.9.7.1(38)(h) Wiring and piping,

2.9.7.1(39) Contactors,

2.9.7.1(40) Motor Starters,

2.9.7.1(41) Motor control centers:

2.9.7.1(41)(a) Design,

2.9.7.1(41)(b) Ratings,

2.9.7.1(41)(c) Schematics,

2.9.7.1(41)(d) Subassemblies (eg: starters, metering units, transformers, panelboards)

2.9.7.1(41)(e) Controls,

2.9.7.1(41)(f) Enclosures,

2.9.7.1(42) Harmonic filters:

2.9.7.1(42)(a) Design,

2.9.7.1(42)(b) Ratings,

2.9.7.1(42)(c) Schematics,

2.9.7.1(42)(d) Harmonic current mitigation performance,

2.9.7.1(42)(e) Enclosures,

2.9.7.1(43) Electric pipe heating:

2.9.7.1(43)(a) Components,

2.9.7.1(43)(b) Controller,

2.9.7.1(44) Electric space heating,

2.9.7.1(45) Diesel generators:

2.9.7.1(45)(a) Design,

2.9.7.1(45)(b) Ratings,

2.9.7.1(45)(c) Schematics,

2.9.7.1(45)(d) Three wire diagrams,

2.9.7.1(45)(e) Subassemblies (eg: engine, radiator, alternator, voltage regulators, governor, base, heaters, fuel pumps, fuel filters, fuel coolers, vibration isolators, controls, metering units, circuit breakers, silencers, starting battery, battery charger)

2.9.7.1(45)(f) Paralleling controls,

2.9.7.1(45)(g) Overall assembly,

2.9.7.1(46) UPS systems:

2.9.7.1(46)(a) Design,

2.9.7.1(46)(b) Ratings,

2.9.7.1(46)(c) Schematics,

2.9.7.1(46)(d) Single line diagrams,

2.9.7.1(46)(e) Equipment,

2.9.7.1(46)(f) Modules,

2.9.7.1(46)(g) Static bypass,

2.9.7.1(46)(h) Maintenance bypass,

2.9.7.1(46)(i) Metering,

2.9.7.1(46)(j) Batteries,

2.9.7.1(46)(k) Battery racks,

2.9.7.1(46)(l) Input and output transformers,

2.9.7.1(46)(m) Controls,

2.9.7.1(46)(n) Interlocks,

2.9.7.1(46)(o) Communications systems,

2.9.7.1(46)(p) Drip hoods,

2.9.7.1(46)(q) Enclosures,

2.9.7.1(47) Harmonic cancellation transformers:

2.9.7.1(47)(a) Design,

2.9.7.1(47)(b) Ratings,

2.9.7.1(47)(c) Schematics,

2.9.7.1(47)(d) Harmonic current mitigation performance,

2.9.7.1(47)(e) CSA nameplates,

2.9.7.1(47)(f) Accessories,

2.9.7.1(47)(g) Enclosures,

2.9.7.1(48) Power factor correction units:

2.9.7.1(48)(a) Design,

2.9.7.1(48)(b) Ratings,

2.9.7.1(48)(c) Schematics,

2.9.7.1(48)(d) Harmonic current mitigation performance,

2.9.7.1(48)(e) Subassemblies (eg: tanks, harmonic filters, automatic controller, metering),

2.9.7.1(48)(f) Accessories,

2.9.7.1(48)(g) Enclosures,

2.9.7.1(49) Transfer switches:

2.9.7.1(49)(a) Design,

2.9.7.1(49)(b) Ratings,

2.9.7.1(49)(c) Schematics,

2.9.7.1(49)(d) Three wire diagrams,

2.9.7.1(49)(e) Subassemblies (eg: circuit breakers, relays, metering units)

2.9.7.1(49)(f) Controls,

2.9.7.1(49)(g) Interlocks,

2.9.7.1(49)(h) Enclosures,

2.9.7.1(50) Lightning arrestors,

2.9.7.1(51) Lightning protection:

2.9.7.1(51)(a) System design,

2.9.7.1(51)(b) Materials,

2.9.7.1(51)(c) Components,

2.9.7.1(52) Surge protective devices:

2.9.7.1(52)(a) Design,

2.9.7.1(52)(b) Ratings,

2.9.7.1(52)(c) Schematics,

2.9.7.1(52)(d) Alarm contacts, meters and indicators,

2.9.7.1(52)(e) Enclosures,

2.9.7.1(53) Lighting:

2.9.7.1(53)(a) each type of luminaire,

2.9.7.1(53)(b) each type of illuminated sign,

2.9.7.1(54) Battery lighting equipment:

2.9.7.1(54)(a) Design,

2.9.7.1(54)(b) Illumination levels,

2.9.7.1(54)(c) Batteries,

2.9.7.1(54)(d) Battery capacity,

2.9.7.1(54)(e) Alarm contacts, and indicators,

2.9.7.1(54)(f) Lighting heads and remote heads,

2.9.7.1(54)(g) Enclosures,

2.9.7.1(55) Clock System:

2.9.7.1(55)(a) System design,

2.9.7.1(55)(b) Components,

2.9.7.1(55)(c) Accessories,

2.9.7.1(56) Interval timers,

2.9.7.1(57) Fire alarm system:

2.9.7.1(57)(a) System design,

2.9.7.1(57)(b) Riser diagram,

2.9.7.1(57)(c) Schematics,

2.9.7.1(57)(d) Components,

2.9.7.1(57)(e) Batteries,

2.9.7.1(57)(f) Battery calculations (support time),

2.9.7.1(57)(g) Power supply calculations,

2.9.7.1(57)(h) Amplifier calculations,

2.9.7.1(57)(i) Wiring,

2.9.7.1(57)(j) Zoning,

2.9.7.1(57)(k) Zone isolation,

2.9.7.1(57)(l) Enclosures,

2.9.7.1(57)(m) Accessories,

2.9.7.1(58) Fuel leakage detection,

2.9.7.1(59) Water leakage detection.

2.9.8. Electrical Samples and Mock-ups

2.9.8.1 Submit samples of the following:

2.9.8.1(1) Each luminaire type,

2.9.8.1(2) Each type of illuminated sign,

2.9.8.2 Prepare mock-ups of the following:

2.9.8.2(1) Each type of Patient service unit.

2.9.9. Electrical Studies

2.9.9.1 Submit documentation of the following studies:

2.9.9.1(1) RF study of the property,

2.9.9.1(2) Short circuit studies,

2.9.9.1(3) Protective device Co-ordination studies,

2.9.9.1(4) Arc flash studies.

2.9.10. Electrical Reports

2.9.10.1 Submit reports for the following:

2.9.10.1(1) Operating and Maintenance Manuals,

2.9.10.1(2) Training session records,

2.9.10.1(3) Panelboard loading test results,

2.9.10.1(4) Transformer loading test results,

2.9.10.1(5) Motor control centre loading test results,

2.9.10.1(6) Motor control centre performance testing,

2.9.10.1(7) Seismic restraints,

2.9.10.1(8) Testing of Patient care areas to CSA standard Z32,

2.9.10.1(9) Illumination level measurements,

2.9.10.1(10) Factory witness testing,

2.9.10.1(11) Site acceptance (pre-service) testing,

2.9.10.1(12) Ground resistance measurements,

2.9.10.1(13) Lightning protection grounding resistance,

2.9.10.1(14) UPS battery testing,

2.9.10.1(15) UPS performance testing,

2.9.10.1(16) Generator testing,

2.9.10.1(17) Transfer switch testing,

2.9.10.1(18) Transformer testing,

2.9.10.1(19) High voltage cable testing,

2.9.10.1(20) Switchgear/switchboard testing,

2.9.10.1(21) Distribution system dynamic performance verification,

2.9.10.1(22) EMF levels in sensitive areas,

2.9.10.1(23) Clock system signal coverage.

2.9.11. Electrical Certificates and Verifications

2.9.11.1 Submit the following certificates and verifications:

2.9.11.1(1) Manufacturers' letters verifying that the equipment has been installed in accordance with their instructions for the following:

2.9.11.1(1)(a) Fire stopping,

2.9.11.1(1)(b) Fire rated wiring,

2.9.11.1(1)(c) Lighting control systems,

2.9.11.1(1)(d) Clock system,

2.9.11.1(1)(e) Automatic transfer switches,

2.9.11.1(1)(f) Diesel generators,

2.9.11.1(1)(g) UPS systems,

2.9.11.1(1)(h) UPS batteries,

2.9.11.1(1)(i) Power factor correction units,

2.9.11.1(1)(j) Pipe heating systems,

2.9.11.1(2) Wiring in Patient care areas (Z32),

2.9.11.1(3) Seismic certifications:

2.9.11.1(3)(a) Transformers,

2.9.11.1(3)(b) Diesel generators,

2.9.11.1(3)(c) Transfer switches,

2.9.11.1(3)(d) Switchgear/switchboards,

2.9.11.1(4) Seismic restraints,

2.9.11.1(5) Fire alarm system verification,

2.9.11.1(6) Radio licence for clock system,

2.9.11.1(7) Request for final review,

2.9.11.1(8) Equipment warranties.

2.9.12. Telecommunications Construction Documents

2.9.12.1 Telecommunications drawings shall be identified as “T” series (Telecommunications) drawings in the approved construction drawings, separated from “E” (Electrical) drawings. The T-series drawings at a minimum shall include:

Percentage of drawings completed	30%	60%	95%	100%	As-Built
Drawing Content					
Legends, drawing list, key plans	✔	✔	✔	✔	✔

Location, Site – plans, sections and details	✔	✔	✔	✔	✔
Floor Layouts	-	✔	✔	✔	✔
Communications Room Layouts and Elevations	-	✔	✔	✔	✔
Equipment Rack Layouts	-	✔	✔	✔	✔
Communications Room Wall Layouts	-	✔	✔	✔	✔
Telecommunications Bonding and Grounding System	-	✔	✔	✔	✔
Intra-Building Backbone Pathways	✔	✔	✔	✔	✔
Intra-Building Backbone Cabling Subsystem	✔	✔	✔	✔	✔
Public Address Plans, Sections and Details	-	✔	✔	✔	✔
Audio Visual (Multimedia Room Layouts, Elevations and Reflected Ceiling Plans)	-	-	✔	✔	✔
Nurse Call Riser	-	✔	✔	✔	✔
Nurse Call	-	✔	✔	✔	✔
Specifications					
Communications (Division 27)	-	-	✔	✔	-

2.9.12.2 Construction Drawings

2.9.12.2(1) All drawings, specifications, Submittal and construction documents will be produced and reviewed and stamped by the RCDD employed by the Design-Builder.

2.9.12.2(2) Floor Layouts will indicate:

2.9.12.2(2)(a) The locations of all communications rooms and their associated serving zone boundaries

2.9.12.2(2)(b) All telecommunications outlets identifying types of cables, label details and number of cable drops per outlet.

2.9.12.2(2)(c) Locations, quantity and sizes of all low voltage conduits, raceways, cable tray, sleeves, junction boxes and pull boxes.

2.9.12.2(2)(d) Backbone cabling routes including the routes of the telecommunications grounding backbone.

2.9.12.2(3) Communications Room layouts will be provided in 2D and 3D.

2.9.12.2(3)(a) Layouts will be to scale providing detail plan views, reflected ceiling plans and elevations of all communications and low voltage components and equipment, racks and enclosures.

2.9.12.2(3)(b) Layout will include:

(a).1 Maintenance and operational clearances.

(a).2 Non-telecom related materials, equipment, devices and structures (all dimensions are to be included). This includes, but is not limited to electrical distribution (panels and receptacles) and lighting fixtures, locations and sizes of all pathways (sleeves, conduits, entrance ducts, cable tray), grounding busbar, backboards, mechanical ducting and equipment, fire detection and suppression systems and security, nurse call, BMS, overhead paging and audio visual/video conferencing equipment.

(a).3 High voltage gear situated adjacent to communications rooms with clearance elements of telecom items from all such objects.

2.9.12.2(4) Detailed elevation drawings of equipment layout in each floor or wall mounted equipment rack and cabinet in communications rooms. Elevation drawings will include vertical and horizontal wire managers, fiber and copper patch panels, hardware such as shelves and all active equipment regardless of the supplier.

2.9.12.2(5) Elevation drawings of all walls of each Communications Room, clearly showing the layout of all termination hardware, grounding & bonding components, horizontal pathway penetrations, and wall mounted equipment cabinets.

2.9.12.2(6) Telecommunications schematic drawings shall be provided for the following elements:

2.9.12.2(6)(a) Telecommunications Bonding and Grounding System.

2.9.12.2(6)(b) Intra-Building backbone pathway system including the Service Entrance Facilities identifying quantity and sizes of conduits, trays and sleeves.

2.9.12.2(6)(c) Intra-Building Backbone Cabling Subsystem identifying cross connect locations and type, size, sheath, gauge, length and strand or copper pair count of each cable installed.

2.9.12.2(7) Public Address plans, sections, details will contain:

2.9.12.2(7)(a) Reflected Ceiling Plans showing locations of all speakers.

2.9.12.2(7)(b) Complete point to point wiring details, schematic diagrams and other information required to demonstrate that the system has been properly designed and coordinated to meet the requirements of the Authority.

2.9.12.2(7)(c) Layouts of equipment and appurtenances and their relationship to other parts of the work including clearances for maintenance and operation.

2.9.12.2(8) Audio Visual

2.9.12.2(8)(a) Floor layouts of each multimedia room identifying quantities and types of cables, endpoint locations, pathways, floorbox locations.

2.9.12.2(8)(b) Elevation layouts of each multimedia room identifying locations of all power/data outlets, wall backing for equipment mounts, locations for display screens, control panels and switches, source connection patch panels, cameras, speakers and other AV components.

2.9.12.2(8)(c) Reflected ceiling plans of each multimedia room identifying location of ceiling mounted AV equipment including projectors, motorized screens, speakers, microphones and other ceiling devices including sprinkler heads, lighting fixtures, sensors, vents, grilles.

2.9.12.2(9) Nurse call drawings will include:

2.9.12.2(9)(a) Floorplans showing zoning, and locations and types of all devices, panels and equipment to be installed as part of the nurse call system.

2.9.12.2(9)(b) Complete wiring details illustrating how each device will connect back to the main panels (including tie in to fire alarm system), and the cable type to be used for each connection.

2.9.12.2(9)(c) Network interface with other systems

2.9.12.3 Submittal

2.9.12.3(1) The purpose of shop drawing Submittal is to demonstrate the Design-Builder's understanding of the design intent. This understanding is demonstrated by articulating which equipment and material is required, and by what methods of fabrication and installation shall be utilized.

2.9.12.3(2) Before installation of any cable, structured cabling component, pathway, firestop assembly or related material, equipment or hardware, the Design-builder will provide submittal of shop drawings and product data sheets for each component supplied to the Authority.

2.9.12.3(3) Shop drawings and product data sheets shall indicate operating characteristics for each required item and design conditions.

2.9.12.3(4) Shop drawing and product data will include, but is not limited to the following:

(a).4 Copper Cabling

(a).5 Fiber Cabling

(a).6 Coaxial Cabling

(a).7 Fiber Connector Housings

(a).8 Faceplates

(a).9 Floorboxes

(a).10 Jacks/Inserts

(a).11 Patch Panels

(a).12 (AV) Source Connection Panels

(a).13 110 Punch Block System (Gigabix)

(a).14 Fiber Connectors

(a).15 Equipment Racks, Cabinets and Enclosures

(a).16 Vertical and Horizontal Cable Management

(a).17 Cable Tray

(a).18 Firestop Details (Product and System Number)

(a).19 Telecommunications Bonding and Grounding System Materials

(a).20 UPS and ePDUs

(a).21 CATV/Broadband Distribution System Cable, Components and Connectors

(a).22 Overhead Paging System Cable, Equipment (paging amplifiers, speakers, power supplies and other support equipment) and Connectors

(a).23 Intercommunication Systems Cable, Components and Connectors

(a).24 Nurse Call System Devices, Components and Equipment

2.9.12.3(5) The Submittal shall be reviewed for general compliance and not for dimensions, quantities. The submittal review shall not relieve the Design-Builder of responsibility for errors or omissions and deviations from the Agreement requirements.

2.9.12.3(6) Equipment and material substitutions are prohibited.

2.9.12.3(7) Shop Drawings shall be submitted in an electronic format. The file format shall be Adobe portable data file (.pdf) or provide software to enable viewing of files of the other formats at no additional cost to the Authority.

2.9.12.4 As-Built Documentation

2.9.12.4(1) At a minimum, the As-Built Drawings supplied by the Design-Builder will include all information detailed in Section 2.9.6.21.

2.9.12.4(2) The Design-Builder will provide maintenance manual at a minimum contain the following:

2.9.12.4(2)(a) Set of final reviewed Shop Drawings.

2.9.12.4(2)(b) A copy of all As-Built Drawings.

2.9.12.4(2)(c) Digital photos of all communications rooms showing each wall and rack elevations.

2.9.12.4(2)(d) Circuit spreadsheets for horizontal cabling and fiber backbone.

2.9.12.4(2)(e) Manufacturer warranty documents for equipment and workmanship.

2.9.12.4(2)(f) Copper warranty certification test result printouts.

2.9.12.4(2)(g) Optical fiber power meter/light source test result printouts.

2.9.12.4(2)(h) Fire-stop design and records documentation.

2.9.12.4(2)(i) Names, addresses, phone numbers and facsimile numbers of the Design-Builder, Design-Builder's RCDD, subcontractors and suppliers used on the Work together with a specification reference of the portion of the Work they undertook.

2.9.12.4(3) Upon completion of the Project to the Authority satisfaction, the Contractor will submit final documentation consisting of:

2.9.12.4(3)(a) Operation and maintenance manuals.

2.9.12.4(3)(b) As-Built Drawings.

2.9.13. Electronic Security Construction Documents

2.9.13.1 The term “Documents” refers to Submittal, technical manuals, supporting materials, warranties and Design-Builder produced technical drawings, details and illustrations which are to be provided by the Design-Builder to the Authority pursuant to this Schedule of Requirements.

2.9.13.2 The term “Drawings” refers to the graphic and pictorial portion of the Contract Documents showing the design location and dimensions of the Services, generally including plans, elevations, sections, details, schedules and diagrams.

2.9.13.3

Percentage of drawings completed	30%	60%	95%	100%	As-Built
Drawing Content					
Legends, drawing list, key plans	✔	✔	✔	✔	✔
Location, Site – plans, sections and details	✔	✔	✔	✔	✔
Floor Layouts & Zoning	✔	✔	✔	✔	✔
Equipment Rack Layouts & Elevations	-	✔	✔	✔	✔
Specifications					
Electronic Security (Division 28)	-	-	✔	✔	-

2.9.13.4 Construction Drawings

2.9.13.4(1) The drawings will use industry standard symbols and legends. .

2.9.13.4(2) Floor Layouts and Site Plans will indicate:

2.9.13.4(2)(a) Locations, quantity and types of all devices, components and equipment required for the electronic security systems.

2.9.13.4(2)(b) Security zoning (interior and exterior).

2.9.13.4(2)(c) Locations, quantity and sizes of all low voltage conduits, raceways, cable tray, sleeves, junction boxes and pull boxes.

2.9.13.4(2)(d) Location of head-end equipment and storage.

2.9.13.4(3) Overall system riser wiring diagram identifying control units, circuits, terminations, terminal numbers, conductors and raceways.

2.9.13.4(4) Detailed elevation drawings of equipment installed in racks and cabinets. Elevation drawings will include vertical and horizontal wire managers, fiber and copper patch panels, hardware such as shelves and all active equipment regardless of the supplier.

2.9.13.4(5) Control layout, including interconnections between electronic security systems as well as the Authority Network.

2.9.13.4(6) Typical electrified door hardware diagrams, indicating hardware devices, conduit, controllers, junction boxes and the responsibility of various trades to ensure operability.

2.9.13.4(7) Schematic drawings shall be provided for the following elements:

2.9.13.4(7)(a) Intra-Building connections to existing electronic security systems identifying quantity and sizes of conduits, trays and sleeves.

2.9.13.5 Submittal

2.9.13.5(1) The purpose of shop drawing Submittal is to demonstrate the Design-Builder's understanding of the design intent. This understanding is demonstrated by articulating which equipment and material is required, and by what methods of fabrication and installation shall be utilized.

2.9.13.5(2) Before installation of any device, cable, component, pathway, or related material, equipment or hardware, the Design-builder will provide shop drawings and product data sheets submittal for each component supplied to the Authority.

2.9.13.5(3) Shop drawings and product data sheets shall indicate operating characteristics for each required item and design conditions.

2.9.13.5(4) Shop drawing and product data will include, but is not limited to the following

2.9.13.5(4)(a) Access Controls

(a)..1 All devices and components

(a)..2 Door controllers

(a)..3 Field panels

(a)..4 Power Supplies

2.9.13.5(4)(b) Video Surveillance

(b)..1 All devices and components

(b)..2 Cameras

(b)..3 Power Supplies

(b)..4 Monitors, keyboards and controllers

(b)..5 Storage

2.9.13.5(4)(c) Intrusion Detection

(c)..1 All devices and components

(c)..2 Panels

(c)..3 Keypads

(c)..4 Interfaces to other systems

2.9.13.5(4)(d) Panic/Duress System

(d)..1 All devices and components

(d)..2 Pendants

(d)..3 Transmitters/receivers/transceivers

(d)..4 Fixed buttons & station

(d)..5 Panels

(d)..6 Interface to other systems

2.9.13.5(5) The Submittal shall be reviewed for general compliance and not for dimensions, quantities. The Submittal that are returned shall be used for procurement. The responsibility of correct procurement remains solely with the Design-Builder. The submittal review shall not relieve the Design-Builder of responsibility for errors or omissions and deviations from the Agreement requirements.

2.9.13.5(6) Equipment and material substitutions are prohibited. If the submittal shows variations from the requirements of the Contract Documents for any reason, the Design-Builder shall provide written detail of each variation in the letter of transmittal.

2.9.13.5(7) Shop Drawings shall be submitted in an electronic format on USB Memory Key. The file format shall be Adobe portable data file (.pdf) or provide software to enable viewing of files of the other formats at no additional cost to the Authority.

2.9.13.6 As-Built Documentation

2.9.13.6(1) At a minimum, the As-Built Drawings supplied by the Design-Builder will include all information per the IFC and any additions made during construction.

2.9.13.6(2) The Design-Builder will provide Maintenance Manual at a minimum contain the following:

2.9.13.6(2)(a) Set of final reviewed Shop Drawings.

2.9.13.6(2)(b) A copy of all As-Built Drawings.

2.9.13.6(2)(c) Digital photos of all Electronic Security System equipment installed in racks or cabinets.

2.9.13.6(2)(d) Manufacturer Warranty documents for equipment and workmanship.

2.9.13.6(2)(e) Testing and commissioning results.

2.9.13.6(2)(f) Fire-stop design and records documentation.

2.9.13.6(2)(g) Names, addresses, phone numbers and facsimile numbers of the Design-Builder, subcontractors and suppliers used on the Work together with a specification reference of the portion of the Work they undertook.

2.9.13.6(3) Upon completion of the Project to the Authority satisfaction, the Contractor will submit final documentation consisting of:

2.9.13.6(3)(a) Operation and maintenance Manuals

2.9.13.6(3)(b) As-Built Drawings

2.9.14. Landscape Construction Documents

Percentage of drawings completed	30%	60%	95%	100%	As-Built
Drawing Content					
Layout and Site Grading Plan	✔	✔	✔	✔	✔
Secured Outdoor Space Plan	✔	✔	✔	✔	✔

Irrigation Plan	-	✔	✔	✔	✔
Planting Plan	-	✔	✔	✔	✔
Landscape Details and Specifications	-	✔	✔	✔	✔
Sun/Shade Gardens	✔	✔	✔	✔	✔
Garden Enlargement Plans	-	✔	✔	✔	✔
Specifications					
General Requirements	✔	✔	✔	✔	-
Equipment	-	✔	✔	✔	-
Furnishings	-	✔	✔	✔	-
Planting*	-	✔	✔	✔	-
Landscape Establishment Maintenance	-	✔	✔	✔	-
Sample Board/Presentation					
Colour Boards Illustrating Planting Material	-	✔	✔	✔	-
Sample Boards	-	✔	✔	✔	-
Presentation to Patient	-	✔	✔	✔	-
Submittal					
Arborist Report	-	-	-	✔	-

2.9.15. Planting specifications to include planting of trees, shrubs and groundcover, topsoil and finish grading, mulch, seeding, sodding.

2.9.15.1 The 30% submission will include scalable, digitally produced, colour rendered, form and character drawings which illustrate the following:

2.9.15.1(1) Outline of existing and proposed building(s) with existing trees or treed areas;

2.9.15.1(2) Parking layout and surface treatment;

2.9.15.1(3) Soft landscape treatment (trees, hedges, planting beds, vines, lawn), including vegetation within public road right-of-way;

2.9.15.1(4) Tree retention, removal, and replacement Plan, showing preliminary civil site grading design

2.9.15.1(5) Landscape structures (fences, trellis, arbours, retaining walls, lighting);

2.9.15.1(6) Location and size of amenity areas (if applicable);

2.9.15.1(7) Location and size of outdoor spaces;

2.9.15.1(8) Location of garbage enclosure;

2.9.15.1(9) A preliminary grading information sufficient to determine special treatment or provisions to retaining elements;

2.9.15.1(10) Location and size of courtyard areas;

2.9.15.1(11) A sun/shade study for the Secure Outdoor Spaces;

2.9.15.1(12) Garden and deck enlargement plans; and

2.9.15.1(13) BCSLA landscape schedules of assurance will be supplied by a Landscape Architect registered in British Columbia.

2.9.15.2 The 60% drawing submittal will have resolved the layout and grading of the site, with:

2.9.15.2(1) 60% of the irrigation and planting Design complete. Standard details will be incorporated, with site specific details underway;

2.9.15.2(2) Water conservation and irrigation plan prepared by a qualified professional inclusive of a hydro zone plan, landscape water conservation irrigation report (landscape water budget) and an irrigation Design;

2.9.15.2(3) A preliminary plant list of trees, shrubs, perennials and ground covers including quantities, botanical and common names, planting sizes, and on center spacing;

2.9.15.2(4) Location and species of boulevard trees; and preliminary construction drawings; and

2.9.15.2(5) Location, material and height of garbage enclosure (detailed elevation drawings required).

2.9.15.3 The 95% drawing submittal will include completed layout and grading, irrigation and planting Design. All details will be completed. Submittal will incorporate Authority input received at previous submissions.

2.9.15.4 The 100% drawings submittal shall incorporate Authority input received at all previous submissions. Drawings shall be updated and marked "Issued for Construction". No landscape installation shall proceed until the Issued for Construction set has been submitted.

2.9.16. LEED Documentation

2.9.16.1 The 30% submission will include the LEED Letter Template, with The Team, Responsibility and Project Info tabs filled out. A separate Project checklist scorecard will be submitted indicating all of the credits targeted to be achieved. This Project checklist is to be updated and re-submitted at each following review stage.

2.9.16.2 The 100% submission will include a complete documentation package with the updated LEED Letter Template, and required documentation for all pre-design or detailed design credits being pursued.

2.9.16.3 Upon completion of the Project, to the Authority satisfaction, the Design-Builder will submit an electronic copy of all LEED certification submissions, including the final LEED Letter Template fully updated and containing a final updated Project checklist, and any supporting documentation.

2.9.17. Fire Safety Plans

2.9.17.1 The Design-Builder will retain a professional fire safety consultant to provide Fire Safety Plans and all related documentation as required by the authority having jurisdiction and coordinate in further consultation with the Authority to ensure such documentation meets all applicable Authority standards for Fire Safety Plans and related documentation.

2.10 Mock Up Rooms and Prototypes

2.10.1. The Design-Builder will, at its cost and as part of the design review process described in Schedule 2 Review Procedure, provide and make available to the Authority the "mock-ups" and "prototype" rooms submittal described in this Section.

2.10.2. The Design-Builder will include dates on the Submittal Schedule for construction of and for Authority review of mock-ups. The time periods for Authority review and comments on Submittal set out in Schedule 2 - Review Procedure will apply to mock-ups.

2.10.3. For Multimedia and Telecommunication room mock up requirements refer to Section 7.6.6

2.10.4. The Design-Builder will provide fully constructed mock-ups of the following rooms (at a location either within the Facility as it is under construction or at another location provided by Design-Builder near the Facility), including all actual materials, finishes, millwork, services, equipment and furniture included in the design of the room so that the Authority can experience all features of the Design and make Design decisions:

2.10.4.1 Team care station;

2.10.4.2 Medications Preparation Room;

2.10.4.3 Soiled Utility Room;

2.10.4.4 Clean Utility Room;

2.10.4.5 Emergency Services – Stretcher Bay; and

2.10.4.6 Emergency Services – Exam/Treatment Room.

2.10.5. During construction, Design-Builder will construct an in-situ 'prototype' of the following rooms, and make the prototype available to the Authority at appropriate stages of construction so that the Authority can review the prototype room (including all materials, services, millwork, finishes, equipment and furniture) in its actual location within the Facility at various stages of construction, and consider whether any design adjustments are necessary:

2.10.5.1 Soiled utility and clean supply rooms;

2.10.5.2 Medication Prep;

2.10.5.3 Inpatient Units;

2.10.5.4 Team care station;

2.10.5.5 Patient bedroom and ensuite;

2.10.5.6 Medication room;

2.10.5.7 Mental Health Inpatient Room;

2.10.5.8 Secure room;

2.10.5.9 Staff Conference room; and

2.10.6. Equipment and furniture may be actual pieces or replicas, but must accurately represent the actual physical dimensions.

2.10.7. Design-Builder will modify the mock-ups as may be required (to meet the requirements of this Schedule).

2.10.8. The purpose of the mock-up is to illustrate the Design. Design-Builder will update all Design documentation to reflect the mock-ups and prototypes, and any input from the Authority and will submit all such updated Design documentation to the Authority submittal under Schedule 2 - Review Procedure.

2.10.9. The Design-Builder will provide a site acceptable to the Authority for the mock-ups.

2.10.10. Demonstrate the detachment force of all tamper proof fire alarm device protective cages to the Authority in a mock up.

2.11 Requirements During Construction

2.11.1. Good Neighbour Policy

2.11.1.1 The Design-Builder will cooperate with the City and work with them to minimize disruption and impacts during construction of the Facility.

2.11.1.2 The Design-Builder will work with the Authority and the City to establish hours of work on the Site, especially during the daylight hours of summer months.

2.11.1.3 The Design-Builder will comply, in addition to the applicable requirements in this Schedule, with the City Good Neighbour Protocol.

2.11.2. Site Access During Construction

2.11.2.1 The Design-Builder will prepare a Site Plan showing clearly the concept of accessing all entries on the Site during Construction.

2.11.2.2 The Design-Builder will provide security and facilities as required to protect the Work from unauthorized entry, vandalism or theft.

2.11.3. Protection of Property

2.11.3.1 The Design-Builder will:

2.11.3.1(1) protect the Authority’s property (and any third party's property) from damage caused by the Construction, including buildings, roadways, drainage systems, landscaping, surfaces, services and infrastructure; and

2.11.3.1(2) promptly repair any damage to property caused by the Design-Builder in undertaking the Construction, including any damage caused by site settlement or ground vibration.

2.11.3.2 The Design-Builder acknowledges that Construction-caused settlement of existing buildings and structures on the Existing Mills Memorial Hospital and Construction-caused ground vibration may disrupt the operation of medical equipment (including laboratory and diagnostic imaging equipment in the adjacent buildings), requiring the equipment to be shut-down and re-calibrated, and may disrupt utility services to the Existing Mills Memorial Hospital. The Design-Builder will co-operate with the Authority and take all reasonable steps to avoid disrupting such equipment and services, including meeting with the Authority's staff and equipment suppliers in advance of Construction to develop a Work Plan describing measures that the Design-Builder will take to minimize any potential disruption or interference, and implementing the Work Plan, all in accordance with this Schedule. The Design-Builder will monitor site settlement and ground vibration during Construction and take additional steps as may be required to avoid equipment or service disruptions as the Construction progresses. In addition to its obligations to promptly repair any damage to property as required by this Schedule, if any vibration exceeds the tolerances established and if medical equipment is disrupted as a result of Construction-caused settlement or ground vibration outside the established tolerances, The Design-Builder will, at its cost, arrange for the Authority's equipment suppliers to re-calibrate the equipment and return it to service as quickly as possible. The Design-Builder will not be responsible for recalibration as part of regular maintenance of equipment.

2.11.4. Survey and Monitoring

2.11.4.1 The Design-Builder will:

2.11.4.1(1) Prior to start of any Construction, conduct pre-condition surveys of all existing buildings, residential houses and properties, infrastructure, roadways (including all underground services and installations) for the site and to 100 m beyond the property line as required by the Authority and in a form and detail satisfactory to the Authority, acting reasonably, which will without limitation include field observations and photographs of existing conditions, with spot elevations by a British Columbia Land Surveyor (BCLS) registered surveyor at locations that will be accessible throughout and following construction for ongoing settlement monitoring, and deliver a copy of the pre-construction survey report to the Authority; and

2.11.4.1(2) Conduct post-condition surveys of the spot elevations at regular intervals throughout the Construction Period to determine ongoing long-term settlement effects, and deliver monitoring surveys to the Authority in a form and detail satisfactory to the Authority, acting reasonably, including the post-condition survey conducted after Substantial Completion as indicated in Section 13 of the Design Build Agreement.

2.11.4.2 Intentionally deleted.

2.11.5. Control of Vibration

2.11.5.1 The Design-Builder will discuss with the Authority any expected ground vibration from the Design-Builder's Construction activities in advance of those activities (as vibration may result in damage to Existing Mills Memorial Hospital and residential buildings or affect Existing Mills Memorial Hospital installations, infrastructure, operations, and function of sensitive medical equipment or the use and enjoyment of the Existing Mills Memorial Hospital and residential buildings and properties), and without limiting the previous sentence the Design-Builder will:

2.11.5.1(1) carry out its Construction activities so that:

2.11.5.1(1)(a) To prevent cosmetic building damage, ground vibrations from the Design-Builder's Construction activities, including all demolition, ground improvement, and general construction activities, do not exceed 7.5 mm/s peak particle velocity when measured on any Existing Mills Memorial Hospital building or neighbouring residential building at any time of day, and any day of the week;

2.11.5.1(1)(b) To avoid daytime disturbance/annoyance of Patients and staff within Existing Mills Memorial Hospital buildings and of residents within neighbouring residential buildings, ground vibrations do not exceed 1.0 mm/sec peak particle velocity when measured on any Existing Mills Memorial Hospital building or neighboring residential building between the hours of 8 am to 7 pm Monday through Friday, and between 8am and 5 pm on weekends;

2.11.5.1(1)(c) To avoid nighttime disturbance/annoyance of Patients within Existing Mills Memorial Hospital buildings and residents within neighbouring residential buildings, ground vibrations do not exceed 0.3 mm/s peak particle velocity when measured on any Existing Mills Memorial Hospital building or neighbouring residential building between 7 pm and 8 am, Monday through Friday, and between 8 am and 5 pm on weekends outside the hours outlined above or during certain times of the day and certain days of the week as determined by the Authority, acting reasonably; and

2.11.5.1(1)(d) Vibration transfer to Existing Mills Memorial Hospital buildings does not adversely affect Existing Mills Memorial Hospital operations, including in particular diagnostic operations and equipment in the adjacent buildings.

2.11.5.1(2) Complete a vibration monitoring program as follows:

2.11.5.1(2)(a) The Design-Builder will retain a qualified independent third-party vibration monitor to complete vibration monitoring during the Construction activities to confirm that the vibrations caused by the Construction activities do not exceed the limits specified in this Schedule.

2.11.5.1(2)(b) The Design-Builder will undertake preliminary vibration monitoring at the Site during the initial stages of all Construction activities that are expected to cause vibrations in order to determine magnitude and dissipation rate of the vibrations for each activity and provide a mitigation procedure to prevent exceeding the vibration limits specified in this Schedule. The Design-Builder will complete initial vibration related Construction activities at a significant distance away from other Existing Mills Memorial Hospital buildings. The qualified independent third-party vibration monitor will provide the Authority and the Design-Builder with a report outlining the vibration results from each Construction activity. The Authority will review the preliminary vibration monitoring report and without relieving the Design-Builder of its responsibilities, may require the Design-Builder to comply with additional vibration monitoring requirements for each Construction activity prior to commencement of the Construction activity.

2.11.5.1(2)(c) The Design-Builder will install vibration monitoring stations on Existing Mills Memorial Hospital buildings (and on adjacent residential buildings) when vibration generating construction work is taking place within 25 m of the buildings (e.g.). The vibration monitoring stations will be installed at each existing building corner and at the “third points” along the length of the most directly exposed façade of the building – that is, four vibration monitoring locations per building. The Design-Builder will submit typical detail of monitoring stations for the Authority’s review prior to installation.

2.11.5.1(2)(d) The qualified independent third-party vibration monitor will conduct vibration monitoring during all Construction activity that occurs within 25 m of existing buildings, and as determined by the results of the preliminary vibration monitoring report. The qualified independent third-party vibration monitor is to immediately alert within 5 minutes to the Authority (or designate) and the Design-Builder if vibrations exceed the limits specified in this Schedule. The Design-Builder will cease within 5 minutes the activity causing the vibration.

2.11.5.1(2)(e) The qualified independent third-party vibration monitor will provide the Authority and the Design-Builder with a report no later than the 5th day of each month detailing the results of the monitoring for the previous month.

2.11.6. Control of Noise

2.11.6.1 The Design-Builder will discuss with the Authority any expected noise from the Design-Builder's Construction activities in advance of those activities (as noise may affect Existing Mills Memorial Hospital operations and Patient care). Without limiting the foregoing, the Design-Builder will:

2.11.6.1(1) prior to commencement of Construction activities, submit a noise control plan to the Authority. At a minimum, the plan will include the following:

2.11.6.1(1)(a) tentative schedule of activities likely to produce high sound levels (for the duration of the Construction);

2.11.6.1(1)(b) planned hours of work for activities expected to produce high noise levels;

2.11.6.1(1)(c) descriptions of planned specific noise abatement measures including enhanced hoarding adjacent to the Existing Mills Memorial Hospital building;

2.11.6.1(1)(d) intended staging locations and routes to be used for minimization of noise disturbance; and

2.11.6.1(1)(e) the approach to selection of construction equipment to be on the Site;

2.11.6.1(2) on a weekly basis, provide a brief report to the Authority, including a graph of the logged hourly noise levels for the previous week (A-weighted Leq, L10, and L1) and a graph of the daily (24-hour long) A-weighted Leq, L10, and L1 since commencement of Construction;

2.11.6.1(3) include any updates to the noise control efforts and also a schedule of upcoming, noise and vibration producing activities;

2.11.6.1(4) carry out its Construction activities so that:

2.11.6.1(4)(a) sound level in the operating rooms, ICU, and labour and delivery rooms from the Design-Builder's Construction activities does not exceed 65dBA (Lmax) (except with prior written approval from the Authority);

2.11.6.1(4)(b) Between the hours of 7:00 p.m. and 8:00 a.m. Construction activities near the Inpatient Units, ICU, and labour and delivery rooms will not generate noise levels of more than 40dBA (Leq) as measured indoors in the relevant rooms of such Units.

2.11.7. Infection Control and Control of Dust and Noxious Odours

2.11.7.1 The Design-Builder will:

2.11.7.1(1) take all reasonable steps (including any specific steps reasonably required by the Authority) to minimize dust and noxious odours (including diesel exhaust) from the Construction (including demolition and preparation of the Site) and to mitigate any adverse effects on the Existing Mills Memorial Hospital;

2.11.7.1(2) clean all adjacent buildings, roadways, pathways, and other areas directly affected by the Construction at regular intervals to the satisfaction of the Authority to prevent buildup of dirt and dust caused by the Construction and maintain them in the same condition as found and determined by the pre-condition surveys; and

2.11.7.1(3) without limiting the Design-Builder's obligation under the Section above:

2.11.7.1(3)(a) The Design-Builder will retain a qualified independent third-party Infection Control professional to complete infection prevention & control monitoring and compliance by the Design-Builder with *CSA Z317 (Infection Control during Construction, Renovation or Maintenance of Health Care Facilities)*;

2.11.7.1(3)(b) comply with *CSA Z317 (Infection Control during Construction, Renovation or Maintenance of Health Care Facilities)*; and

2.11.7.1(3)(c) monitor compliance with CSA Z317and the Authority's infection prevention & control requirements on a daily basis during the Construction (including demolition and preparation of the Site) and deliver to the Authority no later than the 5th day of each month, a performance report for the previous month that:

2.11.7.1(3)(d) describes the steps taken by the Design-Builder to comply with CSA Z317 and the Authority's infection prevention & control requirements; and

2.11.7.1(3)(e) confirms that the Design-Builder complied with CSA Z317 and the Authority's infection prevention & control requirements or identifies any failure by the Design-Builder to comply.

2.11.8. Waste Management-Hazardous and Non-Hazardous:

2.11.8.1 The Design-Builder will comply with territorial and municipal Standards with respect to waste management programs on construction sites.

2.11.8.2 The Design-Builder will manage waste generated from the Site in accordance with City standards.

2.11.8.3 Take an active role in implementing environmentally sound business practices and producing goods and services that lessen the burden on the environment in production, use and final disposition. Implement reduction, reuse and recycling strategies and the use of environmentally sound products.

2.11.8.4 Special waste and hazardous waste to be removed by trained personnel and disposed of by subcontractors.

2.11.8.5 Designate an area or areas for location of bins and source separation of materials. Keep the area(s) clean and organized. If comingled bins are to be used, ensure that off-site sorting company will remain committed to a required waste diversion rate.

2.11.8.6 Store and dispose of hazardous waste materials in a manner which is in full accordance with all applicable federal and City Standards.

2.11.8.7 Implement waste reduction by reducing or eliminating excessive packaging practices.

2.11.8.8 Use, where appropriate, combination of packaging materials such as re-usable containers, blanket wrap or cushioning material provided that all reasonable requirements of materials handling, transportation and storage are observed.

2.11.9. Adjacent Facilities Interference

2.11.9.1 Construction work and related equipment or machinery will not interfere with normal operations of the operational Facility on site and adjacent existing facilities.

2.11.10. Systems Shut Downs and Interruptions

2.11.10.1 The Design-Builder will provide to the Authority, a submittal schedule of all the required systems shut downs and interruptions.

2.11.10.2 During the construction of the Work the Design-Builder will also notify the Authority of all required systems shut downs and interruptions as follows:

2.11.10.2(1) Major impacts of system shut downs and interruptions will be requested 60 calendar days in advance;

2.11.10.2(2) Medium impacts of systems shut downs and interruptions will be requested 30 calendar days in advance;

2.11.10.2(3) Minor impacts of systems shut downs and interruptions will be requested 14 calendar days in advance

2.12 Move In

2.12.1. As the construction phase nears completion, the Design-Builder will coordinate with the Authority the date for the move of staff personnel and Patients to the Building. The exact timing and sequencing of this phase will involve coordination with the Authority.

2.12.2. The Design-Builder is required to schedule the move in date and agree to this with the Authority at least six months in advance of any move.

2.12.3. As applicable, the Design-Builder will also assist with the planning and coordination of the move of all other equipment, furniture, fixtures and fittings with the Authority's moving company, participating in move planning meetings, keeping the Authority appraised of construction progress and setting firm dates for when the move can occur, relative to the completion of the Facility and Work;

2.12.4. The Facility will have reached Substantial Completion prior to the move. Once the completion dates have been agreed and put in place, the Authority will rely on this information in order to plan and execute the move;

2.12.5. The Design-Builder is responsible for all damages to furniture, equipment and building finishes incurred during the move of any items moved by the Design-Builder.

2.13 Interior Wayfinding and Signage Requirements

2.13.1. Overriding Principles

2.13.1.1 The Design-Builder will:

2.13.1.1(1) Design a wayfinding system and signage to be fully integrated with the design of the Facility and to be site specific;

2.13.1.1(2) Coordinate in consultation with the Authority to determine any additional wayfinding standards and wayfinding language that the Design-Builder will have to follow;

2.13.1.1(3) locate major destinations, such as department entrances, directly off of entry spaces and/or along primary circulation paths for easy access, make waiting areas as open as possible to circulation routes without requiring wayfinders to pass through waiting areas;

2.13.1.1(4) provide significant recognizable, easily named and identified elements in key and easily found locations that will become 'meeting points' for Patients and visitors; and

2.13.1.1(5) provide simple circulation systems and functions so that wayfinding is inherently easy;

2.13.1.1(6) locate major destinations, such as department entrances, along primary circulation paths for easy access;

2.13.1.1(7) make waiting areas as open as possible to build confidence in wayfinding;

2.13.1.1(8) design waiting areas to be distinct from circulation routes;

2.13.1.1(9) design public elevator and stair lobbies and public circulation routes to be distinct from service and from other non-public routes;

2.13.1.1(10) provide all signage required for Facility operations and as required by the BC Building Code;

2.13.1.1(11) design signage such that the materials, colours, letter fonts, sizes and other aesthetic and functional considerations, such as braille, conform to a conceptually coherent overall wayfinding design system and respect the wall finish modules;

2.13.1.1(12) provide signage that is resistant to graffiti and physical damage complete with concealed fasteners;

2.13.1.1(13) provide signage that is easy to replace when necessary;

2.13.1.1(14) use international symbols where required;

2.13.1.1(15) Use universal symbols in healthcare;

2.13.1.1(16) orient all Facility plan directories to reflect the direction from which they are viewed;

2.13.1.1(17) provide signage that directs visitors to departments and rooms within;

2.13.1.1(18) provide signage that is clearly visible day or night;

2.13.1.1(19) avoid multi-layered naming hierarchies and complex numbering systems;

2.13.1.1(20) use a professional signage/wayfinding designer to prepare a unified signage/wayfinding concept submittal as part of the Design review; and

2.13.1.1(21) incorporate signage and wayfinding into the overall exterior and interior Facility design.

2.13.2. Design Requirements

2.13.2.1 The Design-Builder will:

2.13.2.1(1) design the internal directional signs to include:

2.13.2.1(1)(a) a main directory, installed at the main public entrances to the Facility, that indicates the location of every area and department within the Facility that is accessible to the public;

2.13.2.2 Elevator floor directories at all elevator lobbies. They will include floor level listing of departments;

2.13.2.2(1)(a) a continuous 'trail' of signage from the entrances to each of the reception/information points listed on the directories;

2.13.2.2(1)(b) installation of signage at each point at which a directional decision is required;

2.13.2.2(1)(c) consistent terminology;

2.13.2.3 Overhead directional signage, which must either be suspended from a ceiling or bulkhead or be mounted directly over doors. No directional signage will be incorporated into flooring.

2.13.2.3(1)(a) door signage to indicate restrictions on entry and warn of hazards;

2.13.2.3(1)(b) door signage which is not obscured by emergency systems or other functional elements of the Facility;

2.13.2.3(1)(c) door signage that will identify every space (e.g. rooms, alcoves, corridors and stairwells) in the Facility;

2.13.2.3(1)(d) door signage that will be located in a consistent location for every room in the Facility;

2.13.2.3(1)(e) door signage that is consistent with the following room numbering protocol:

(a).25 each room has a unique identifier number;

(a).26 rooms are numbered in a manner that reflects normal movement through the Facility;

(a).27 labelling anticipates a person attempting to follow numbering along corridors in sequence;

(a).28 blocks of numbers are periodically skipped to allow for future flexibility of the numbering system if rooms are added through renovations;

2.13.2.3(1)(f) corridors numbered with unique, two-digit numbers; and

2.13.2.3(1)(g) stairwells numbered with unique, single-digit numbers; and

2.13.2.3(2) design external directional signage to:

2.13.2.3(2)(a) clearly indicate access for the public;

2.13.2.3(2)(b) clearly indicate restrictions to 'after-hours' access and closest accessible entrance;

2.13.2.3(2)(c) be well illuminated, backlit, reflective or high contrast and easily visible at night; and

2.13.2.3(2)(d) ensure that illuminated external Facility signage:

(a).29 clearly identifies the Facility;

(a).30 minimizes light spillage; and

(a).31 indicates the accesses, parking and restrictions for various vehicle types, as required.

2.13.3. Each room requires a number for service reasons and since many rooms will not have formal wall numbering panels, each door frame will be equipped with a lamacoid, or approved equivalent, number plate approximately 25 mm high by 50 mm long, attached to the head of the door frame on the hinge side; and as this numbering system is used for deliveries, repairs, fire alarm notifications, it is important that room numbers be determined early in design. Follow the same numbering system on design and construction documentation for all disciplines.

PART 3. DESIGN PRINCIPLES AND GUIDELINES

3.1 Project Design Principles and Objectives

3.1.1. The Design-Builder will apply the design principles described in this Part 3 of this Schedule (collectively, the "Project Design Principles") in undertaking the Design.

3.1.2. In addition to the descriptions of these principles in this Part 3, specific requirements related to these principles are included in Parts 4 – 6 of this Schedule.

3.1.3. The Project Design Principles are integrated principles and the Design-Builder will apply them on an integrated basis throughout the design and construction.

3.2 Master Planning

3.2.1. The Design-Builder will design the Facility to:

3.2.1.1 have a strong urban presence and a distinctive architectural character, reflecting the Authority's values and role as the major center for health in the community;

3.2.1.2 support community access and include a visible main entry and lobby for the Facility and a direct access route to the emergency department main entry;

3.2.1.3 reflect logical planning and clarity of circulation; and

3.2.1.4 allow for adaptability and flexibility for future expansion.

3.2.2. The Design-Builder will consider all design decisions within the context of enhancing each Site.

3.3 Evidence Based Design

3.3.1. The Design-Builder will apply Evidence Based Design methodologies in undertaking the Design.

3.4 LEAN Design

3.4.1. The Design-Builder will design the Facility:

3.4.1.1 to facilitate the delivery of efficient and effective workflow and processes;

3.4.1.2 to eliminate waste, within both clinical and non-clinical service delivery processes;

3.4.1.3 to recognize the value to the Authority of LEAN healthcare (or equivalent methodologies) in supporting the delivery of Authority activities, and accordingly allow the findings from such methodologies to play a key role in influencing design decisions;

3.4.1.4 to include ergonomic design features throughout all spaces that specifically facilitate the physical activities of staff and patients, including, for example, appropriate millwork, lighting, lift devices, and patient assist or equipment manoeuvring space; and

3.4.1.5 to support innovative and collaborative methods of working, to help incorporate the Authority's new and emerging technologies, to respond to diverse work styles (such as hoteling and job-sharing), and to optimize flexibility and space utilization. A key element to the development of an integrated workplace is the provision of physical environments that support varied workplace strategies. Accordingly, the Design-Builder will design workplaces to:

3.4.1.5(1) include standardized spaces, systems furniture and casework where appropriate;

3.4.1.5(2) provide floor lay-outs that accommodate teams as well as individuals, and that support mobile employees who require flexibility and use portable technology; and

3.4.1.5(3) consider co-location options, space saving strategies, and lay-outs and furniture that facilitate change.

3.5 Healing Environment

3.5.1. The Design-Builder will design the Facility:

3.5.1.1 to promote a healing and wellness environment for patients and their families. The environment will be welcoming for the community of users and provide non- clinical spaces to relax and de-stress;

3.5.1.2 to promote and enhance Patient Centered Care.

3.5.1.3 to provide an environment that supports excellence and innovation in the delivery of safe, high quality healthcare and where employees, physicians and others can work together collaboratively in promoting health and wellness;

3.5.1.4 to include elements that have been proven to create a therapeutic and low stress environment;

3.5.1.5 to create a comfortable, functional environment for employees, physicians, patients, patients' families and others, by including, as tools for creating an environment that will support and distract patients of all ages and their families:

3.5.1.5(1) design elements that minimize noise, maximize natural light while providing light control, and use natural materials;

3.5.1.5(2) design elements that maximize connection to the outdoors, views of the exterior environment in all inpatient rooms, meeting rooms, staff lounges and similar locations;

3.5.1.5(3) design elements that allow for maximum family interaction;

3.5.1.5(4) design features such as sound, color, pattern, air quality, nature; and

3.5.1.5(5) design features such as art and aesthetic forms that reflect indigenous, community history and values, and accommodate the work of local artists.

3.5.1.6 to utilize views to create a visually pleasing environment, including:

3.5.1.6(1) maintaining existing views and encouraging new views where possible through the use of view corridors, the terracing of Building forms and the creation of appropriate public spaces;

3.5.1.6(2) situating Building to utilize "near views" of public spaces, natural and landscaped areas on-Site and off-Site as well as Site specific views such as views of adjacent natural and park settings;

3.5.1.6(3) considering on-Site views as well off-Site views at all stages of the design process; and

3.5.1.6(4) minimizing negative visuals such as blocking views and creating unwanted sun shadows.

3.6 Elderly Friendly

3.6.1. The Design-Builder will design the Facility to create an elderly friendly environment. The Design-Builder will comply with "Code Plus: Physical Design Components for an Elder Friendly Hospital", which identifies components that are known to contribute adverse effects on functional ability and safety in older adults, and additional physical design elements that go beyond industrial building codes and standards together with corresponding recommendations for elderly friendliness.

3.6.2. The Design-Builder will design the medical surgical inpatient units included in the Facility so that they are appropriate for patients with dementia.

3.7 Standardization

3.7.1. The Design-Builder will design the Facility:

3.7.1.1 to, wherever appropriate, apply standardization to reduce errors and improve quality of service delivery (for example to assist caregivers in quickly accessing rooms and equipment, patient treatment modules should contain a number of standard room types and room details, including controls and control locations); and

3.7.1.2 so that rooms in the two Facility that have the same function (for example operating rooms) will be designed and constructed to be as similar as possible, subject to any different requirements set out in Appendix 1A Clinical Specifications.

3.8 Sustainability

3.8.1. In addition to the requirement to achieve LEED Gold Certification in accordance with the provisions in Schedule 2 - Review Procedure, The Design-Builder will:

3.8.1.1 design the Facility:

3.8.1.1(1) using design methods, building materials, operational practices, energy and life cycle considerations that promote environmental quality, social benefits and economic vitality throughout the Construction and Operating Periods, including by minimizing the Authority's operating costs (for example in relation to utilities and carbon taxes);

3.8.1.1(2) to give priority to efficient use of resources, protection of health and indoor environmental quality;

3.8.1.1(3) to take advantage of efficiencies and innovations that may be possible through integration of systems to minimize operational costs for the Authority (for example in relation to utilities and carbon taxes); and

3.8.1.1(4) considering alternative sources of energy, explore opportunities for recovering waste heat;

3.8.1.1(5) to apply a total systems approach to minimize energy consumption and incorporate energy consumption management techniques that are targeted to stabilize and optimize energy flows.

3.9 Technology

3.9.1. The Design-Builder will design the Facility so that they utilize technology to improve cost effectiveness, integrate services and achieve better health outcomes.

3.9.2. Provide infrastructure to support Vocera-type communications devices in all area so the Facility.

3.9.3. Provide Wi-Fi throughout the facility.

3.10 Adaptability, Flexibility, and Expansion

3.10.1. The Design-Builder will design the Facility:

3.10.1.1 to meet the needs of the community now and into the future;

3.10.1.2 to accommodate the rapid cycle of innovation and change to support development and implementation of new clinical and non-clinical work processes and technology change;

3.10.1.3 to accommodate program, service, work and equipment change with minimized utility infrastructure and Facility impact, including down time, and so that clinical areas are acuity adaptable;

3.10.1.4 to support future expansion of components, and capacity as a whole, including planning zones for growth, loose fit design to optimize functionality within a given floor area, and multi-use adaptable space; and

3.10.1.5 with an infrastructure that incorporates excess systems capacity and includes systems and components that support future expansion with minimized disruption and allows for upgrades in Authority technology or technological progression; and

3.10.1.6 utilizing open planning to create soft zones responsive to rapid change and growth

3.11 Accessible Design

3.11.1. The Design-Builder will incorporate the following philosophies in the Design to address barriers to equitable access to healthcare such as cultural diversity, physical capability and gender:

3.11.1.1 Equitable use – the Design will be easy to use by people with diverse abilities;

3.11.1.2 Flexibility in use – the Design will accommodate a wide range of individual preferences and abilities;

3.11.1.3 Simple and intuitive – the Design will be easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level;

3.11.1.4 Perceptible information – the Design will communicate necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities;

3.11.1.5 Tolerance for error – the Design will minimize hazards and the adverse consequences of accidental or unintended actions;

3.11.1.6 Low physical effort – the Design is capable of being used efficiently and comfortably and with a minimum of fatigue; and

3.11.1.7 Size and space for approach and use – the Design will use provide appropriate size and space for approach, reach, manipulation, and use regardless of user's body size, posture or mobility.

3.11.2. Respect for Indigenous Cultural Values

3.11.2.1 The Design-Builder will demonstrate respect for indigenous cultural values represented by indigenous groups of Northwestern British Columbia and the Kitimat-Stikine Region throughout the development and design of the Facility.

3.11.2.2 The Design-Builder will incorporate visible representation of indigenous culture into the design of the Facility and Site.

3.11.2.3 Intentionally deleted.

3.11.2.4 Intentionally deleted.

3.11.2.5 Intentionally deleted.

3.11.2.6 Intentionally deleted.

3.11.2.6(1) Intentionally deleted.

3.11.2.6(2) Intentionally deleted.

3.11.2.6(3) Intentionally deleted.

3.11.2.6(4) Intentionally deleted.

3.11.2.6(5) Intentionally deleted.

3.11.2.6(6) Intentionally deleted.

3.11.2.6(7) Intentionally deleted.

3.11.2.6(8) Intentionally deleted.

3.11.2.6(9) Intentionally deleted.

3.11.2.7 Intentionally deleted.

3.11.3. Intentionally deleted.

3.11.3.1 Intentionally deleted.

3.11.3.1(1) Intentionally deleted.

3.11.3.1(2) Intentionally deleted.

3.12 Infection Prevention and Control

3.12.1. General

3.12.1.1 Design the Building in compliance with all applicable infection control standards.

3.12.1.2 Design the Building to mitigate and prevent, where possible, the spread of infection, movement of dust, debris and moisture into rooms including via contaminated surfaces and airborne pathogens.

3.12.1.3 Select appropriate materials and use simple detailing leading to quality workmanship and ease of accessibility for routine cleaning and maintenance.

3.12.1.4 Design the Building to allow for ease of infection prevention and control in future alterations, modifications and additions.

3.12.2. Walls and ceilings

3.12.2.1 Wall and ceilings will limit the passage of particles from both above the ceiling plane and adjacent non-clinical areas into the clinical environment.

3.12.2.2 Provide smooth, solid surface, non-perforated and scrub-able wall and ceilings surfaces in infection control sensitive areas. Note that there are some micro-perforated materials that may be acceptable for use in these areas and which may also provide useful sound absorption to control noise.

3.12.2.3 Infection Control for Ceilings:

3.12.2.3(1) Ceilings in airborne isolation rooms and procedure rooms will be smooth, solid surface, non-perforated and scrubbable.

3.12.2.3(2) Penetrations must be properly sealed in airborne isolation rooms, procedure rooms and rooms to ensure the ceiling provides an effective pressurized air seal.

3.12.2.3(3) Ceilings in airborne isolations rooms, ante rooms and pressurized rooms must be designed and constructed to meet the specific pressure requirements for such rooms.

3.12.2.3(4) In psychiatric secure rooms and psychiatric intensive care units, provide smooth, solid surface, non-perforated and scrub-able ceiling.

3.12.2.4 Infection Control for Floors:

3.12.2.4(1) Floors in patient care areas must be washable and able to withstand routine low level hospital disinfection

3.12.2.4(2) Penetrations must be properly sealed.

3.12.2.4(3) Floors in clinical areas must be seamless and/or have homogeneous heat welded seams, and integral bases.

3.12.3. Sinks and Hand Hygiene Stations

3.12.3.1 Prepare a workflow pattern and risk assessment in collaboration with the Authority to address placement of hand wash sinks and alcohol-based hand rub dispensers.

3.12.3.1(1) Provide specialized scrub sinks in the following rooms or areas:

3.12.3.1(1)(a) the surgical suite, procedure rooms and all areas where invasive sterile procedures occur; and

3.12.3.1(1)(b) other rooms or areas as indicated in Appendix 1A Clinical Specifications.

3.12.3.2 Provide hand hygiene stations:

3.12.3.2(1) at all entrances to the Building so that visitors stop, take notice, and access them (stations will have at least four antiseptic hand rub dispensers mounted for convenient access for visitors); and

3.12.3.2(2) other rooms or areas as indicated in Appendix 1A Clinical Specifications.

3.12.4. Equipment & Storage

3.12.4.1 Provide storage shelves that are:

3.12.4.1(1) cleanable with Authority approved detergents and disinfectants;

3.12.4.1(2) not located under sinks; and

3.12.4.1(3) minimum 200 mm above the floor to permit routine cleaning;

3.12.4.2 Dedicated storage space with power outlet for charging (e.g. alcove, equipment room) required for large wheeled equipment (e.g. floor lifts).

3.12.4.3 Intentionally deleted.

3.12.5. Furniture and Millwork

3.12.5.1 Organic finish substances (e.g. wood), which will be exposed to a liquid, and upholstered furnishings, will be avoided, or at least minimized, in areas where immunocompromised Patients are present.

3.12.5.2 The use of impermeable and non-shedding upholstery (such as vinyl) is permitted in Patient accessible areas and any area where a healthcare worker goes after providing direct Patient care (including team care station, Staff Lounge, conference rooms and office within Patient care areas). Polyurethane fabrics are preferred, if they meet the requirements of the application.

3.12.5.3 Durable, cleanable fabrics are appropriate in low risk areas. A low level of risk applies to any office areas where staff members are not providing direct Patient care, or return to after providing direct Patient care.

3.12.6. Corner Guards, door and door frame edge protection

3.12.6.1 Provide stainless steel corner guards, door and door frame edge protection.

3.12.6.2 Psychiatric Areas

3.12.6.2(1) Design the Psychiatric Intensive Care Unit, Psychiatric Inpatient Unit and Emergency Seclusion Rooms to the requirements of British Columbia Ministry of Health Standards for Hospital-Based Psychiatric Emergency Services: Observation Units.

3.12.6.2(2) Design all mental health units to have a non-institutional feel and the ability to put a unit in lock-down mode as necessary.

3.12.6.2(3) Provide direct access to an exterior courtyard that meets the requirements of Section 5.6 and is secure.

3.12.6.3 Pharmacy Areas

3.12.6.3(1) Design the Pharmacy areas in accordance with the requirements of USP 797 Guidebooks to Pharmaceutical Compounding – Sterile Preparations and the Canadian Society of Hospital Pharmacists Guidelines for the preparation of sterile products in pharmacies.

3.12.6.3(2) Refer to the Equipment List for the requirements of the Biosafety Cabinet, Laminar Flow Hoods and other equipment in the Pharmacy department.

3.13 Interior Design

3.13.1. Interior Walls and Partitions

3.13.1.1 Use interior walls and partition systems that provide acoustic separations as required for the specific functions to be carried out in the spaces affected, and in accordance with the requirements of Appendix 1C Acoustics and Noise Control Measures.

3.13.1.2 Design and select interior walls and partitions, partition systems and interior finishes to comply with the following criteria as may be relevant for the particular or specific functions enclosed:

3.13.1.2(1) cleaning, maintenance and infection prevention and control;

3.13.1.2(2) permanence and durability including impact resistance; and

3.13.1.2(3) low VOC emissions so as to minimize adverse impact on indoor air quality and indoor environmental quality.

3.13.1.3 Interior partitions to go from floor to a minimum of 100mm above the finished ceiling. Partitions and rooms to meet the acoustic performance as specified and partitions to span from floor to underside of slab where required to meet specific design criteria including building code and acoustic performance.

3.13.1.4 In special areas such as mental health or Psychiatry departments, construct the wall to suit the purposes unique to those areas in compliance with the British Columbia Ministry of Health Standards for Hospital-Based Psychiatric Emergency Services: Observations Units.

3.13.1.5 Interior partition in airborne isolations rooms, ante rooms and pressurized rooms must be designed and constructed to meet the specific pressure requirements for such rooms.

3.13.1.6 Provide wall finishes that are smooth, washable, waterproof, and durable, and provide protection from cart damage in all Food Services areas.

3.13.1.7 Provide fittings, attachments and internal bracing/backup as required to accommodate and support wall mounted equipment.

3.13.2. Ceilings

3.13.2.1 Ceiling systems will comprise a major component of the acoustic or sound attenuation function as required in the spaces in which they are installed and will comply with the requirements in Appendix 1C Acoustics and Noise Control Measures and all other applicable provisions in this Schedule.

3.13.2.2 Ceiling Height will not be less than 2700 mm in all areas of the Building except for the following:

3.13.2.2(1) Secure rooms will have a minimum Ceiling Height of 3000 mm;

3.13.2.2(2) Ceiling Heights in rooms with equipment will be based on specific equipment requirements but no less than 2700 mm;

3.13.2.2(3) Ceilings in mechanical, electrical, plumbing, and telecommunication rooms and in Material Management will be open, unless required otherwise by code to meet fire ratings;

3.13.2.2(4) the public lobby will have a minimum Ceiling Height of 3600 mm;

3.13.2.2(5) the large multipurpose room will have a minimum Ceiling Height of 4200 mm; and

3.13.2.2(6) the ambulance garage will have a minimum Ceiling Height of 3700 mm.

3.13.2.2(7) operating suites, x-ray rooms, and rooms with overhead patient gantry lifts (except inpatient rooms) to have a minimum ceiling height of 3000 mm;

3.13.2.2(8) provide open ceilings in material management and facilities management with open work benches, machine shops, high utility shelving storage areas, and overhead hoists.

3.13.2.2(9) Patient lift gantry and tracks will be flush with ceiling only where they are required to accommodate the movement of other ceiling mounted equipment.

3.13.2.2(10) In special areas such as mental health or Psychiatry departments, construct the ceiling to suit the purposes unique to those areas in compliance with the British Columbia Ministry of Health Standards for Hospital-Based Psychiatric Emergency Services: Observations Units.

3.13.2.2(11) Suspended structure located for overhead equipment will be located above finished ceiling.

3.13.2.2(12) Ceilings will allow access to equipment where necessary, except at those spaces as indicated elsewhere in this Schedule.

3.13.2.2(13) Make voids above suspended ceiling systems inaccessible to Patients.

3.13.2.2(14) Exposed building services are not permitted in lobbies and Patient accessible areas.

3.13.2.2(15) Ceilings in public areas and Patient common areas will be designed to avoid plain and featureless ceilings. Ceilings in these spaces will provide visual interest.

3.13.2.2(16) Provide washable ceilings in the central kitchen facilities and warewashing areas of Food Services.

3.13.3. Floor Finishes

3.13.3.1 The Design-Builder will provide flooring that is complementary and integral to the functional and aesthetic requirements of the interior space.

3.13.3.2 The Design-Builder will select floor finishes to suit types and concentration of pedestrian and/or vehicular/wheel traffic to be anticipated.

3.13.3.3 Continuous cove base is required with all sheet flooring in all patient areas. Base height is minimum 150 mm.

3.13.3.4 The Design-Builder will design and select floor finishes to comply with the following criteria:

3.13.3.4(1) ergonomic comfort, cleaning, maintenance and infection prevention and control including the frequency and quality of joints and also including ease of replacement if and when required;

3.13.3.4(2) imperviousness to concentrations of moisture anticipated to be existing on the floors and for the duration of that moisture;

3.13.3.4(3) permanence and durability and resistance to concentrated service traffic both pedestrian and vehicular;

3.13.3.4(4) low VOC emissions so as to minimize adverse impact on indoor air quality and indoor environmental quality; and

3.13.3.4(5) compatibility of patterns and textures with the requirements for pedestrian safety and elderly friendly design.

3.13.3.5 Non-slip flooring will be used in all wet areas including: central cleaning and sterilizing, wash and change rooms, bathing areas, patient washrooms, laundry, soiled utility and housekeeping rooms.

3.13.3.6 Heavy-duty non-slip flooring, impervious to food acids and oils, suitable for rolling equipment will be used in all food service areas.

3.13.3.7 Provide electrostatic-free, slip resistant flooring material throughout laboratory services.

3.13.3.8 Patient shower floors and floors in Tub rooms will slope to drain and be flush-walk-in without ridges for water retention. Minimum slope will be as indicated in Section 3.13.3.9 and to a maximum slope that allows for comfortable movement of wheeled equipment.

3.13.3.9 All rooms where there is risk of flooding or liquids accumulation on the floors will be provided with floor drainage system and a minimum of 2% slope to drain.

3.13.3.10 Install flooring over materials that contain no more than the maximum percentage of moisture as recommended by the flooring manufacturer.

3.13.4. Corridors

3.13.4.1 All corridors widths to be designed to meet applicable code, minimum dimensions:

3.13.4.1(1) Intentionally deleted.

3.13.4.1(2) Intentionally deleted.

3.13.4.1(3) Intentionally deleted.

3.13.4.1(4) Intentionally deleted.

3.13.4.1(5) Except where noted otherwise within the Clinical Specification.

3.13.4.2 Provide access to the ceiling plenum for building systems maintenance only from corridors. Access will be secure but convenient. If ceiling tiles are used, provide the ceiling tile layout such that access to the plenum requiring a hoarded area in the corridor below will not reduce the clear corridor to less than half its original width.

3.13.4.3 Corridors will have recessed rest areas for Patients to promote mobility and activity.

3.13.4.4 Corridors in patient care areas will have alcoves for storage of equipment. The alcoves will be dispersed between patient rooms allowing corridors to be kept clear of equipment and supplies. Provide the alcoves with power outlets for charging electronics and data ports, each at waist height for ease of access. Corridors will have recessed rest areas for patients to promote mobility and activity. The Design-Builder will identify, for the approval of the Authority, alcoves for portable diagnostic imaging equipment, and install power and data outlets sufficient for such equipment.

3.13.4.5 In patient units, locate lighting fixtures that remain on during the night so that they cannot be seen from bed positions from within the patient bedroom.

3.13.4.6 All access panels located on corridor walls in public and Patient accessible areas will be consistent in form, material, and detail with the rest of the adjacent corridor materials and finishes.

3.13.5. Exit Stairs

3.13.5.1 Locate exit stairs strategically for the convenience of staff moving between related clinical departments.

3.13.5.2 Locate exit stairs conveniently accessible from circulation routes.

3.13.5.3 Avoid stair locations that negatively impact future planning flexibility or constrain desirable views from Patient care and staff work areas.

3.13.5.4 Provide windows with views to the exterior at each level for orientation and amenity, and provide adequate lighting into stairwells for staff security at night.

3.13.6. Convenience Stairs

3.13.6.1 Include convenience stairs where appropriate, located strategically to reduce dependence on elevator use.

3.13.6.2 Provide convenience stairs that may also function as required exit stairs, at all elevator locations. The maximum allowable distance between the convenience stair and the closest elevator is 10 metres.

3.13.6.2(1) Provide metal convenience stairs to mezzanines in Equipment Maintenance.

PART 4. SITE DEVELOPMENT REQUIREMENTS

4.1 Master Site Plan

4.1.1. The Design-Builder will develop and submit to the Authority for its approval a master site plan ("Master Site Plan") for the Site, based on the master planning principles described in Section 3.1 and the Site development requirements described in this Section 4.1.

4.1.2. The Master Site Plan will illustrate the Site context to validate the Facility siting.

4.1.3. The Master Site Plan will:

4.1.3.1 describe in detail the implementation of all phased development at the Site, including describing the demolition of the existing Mills Memorial Hospital Building, and any other buildings or structures on site;

4.1.3.2 ensure that each component of the Facility is an integrated part of its Site, facilitating the delivery of clinical and non-clinical support services (for example though efficient physical links and service connections between Building components), enhancing the ability of these to function in a cohesive manner;

4.1.3.3 indicate the access needed for replacing major components required for the Facility, as well as for adding major components at a future date;

4.1.3.4 provide a Site servicing, parking and traffic master plan to accommodate the expansion capacity described in Section 4.1.2 and

4.1.3.5 illustrate the area capable for use in a mass casualty event as described in Section 5.3.8.

4.1.4. The Master Site Plan for the Mills Memorial Hospital Facility will reflect the redevelopment of the Site currently in use, existing buildings to be retained and the demolition of the Existing Mills Memorial Hospital and Existing Seven Sisters.

4.1.4.1 reflect the development of a greenfield site;

4.1.4.2 define expansion areas on the greenfield site;

4.1.4.3 integrate the pedestrian pathways and emergency access routes;

4.1.4.4 include direct and logical pedestrian connections between the site pathways and the main buildings' entries; and

4.1.4.5 meet and match the grades along the edge of construction and property lines.

4.2 Urban Design and Site Development

4.2.1. General

4.2.1.1 Minimize the impact of Site development and Facility placement on adjacent neighbours and land uses. Preserve visual privacy and sunlight for adjacent properties and buildings, and include features that will give the Facility an appropriate identity in the overall urban context.

4.2.1.2 Retain as many existing trees on the Site as possible to reduce the impact of the Facility on its neighbourhood context and to contribute to the natural healing environment for patients, visitors and staff.

4.2.1.3 Minimize the adverse micro-climatic effects arising from the location and configuration of parking, walkways and buildings, including effects of Building entrance orientation on patient, staff and visitor comfort and safety. Provide smooth transitions between Building green space and public sidewalks.

4.2.1.4 Reinforce the physical relation of the structures with the major streets and create a legible site layout and pattern to foster a strong sense of place and identity and to ease increased vehicular and pedestrian penetration of the Site.

4.2.1.5 Design for maximum access to the Facility. Provide separate and distinct passenger-side drop-off areas at each of the main entrances to the buildings and the emergency department walk-in entrance.

4.2.1.6 Cover passenger-side drop-off areas at each of the main entrances to the buildings and the emergency department walk-in entrance.

4.2.1.7 Mitigate the nearby noise from adjacent roadways through the use of acoustic screening.

4.2.1.8 Create meaningful open spaces both urban and natural for the benefit of patients, visitors and staff which provide opportunities for recreation and contribute to a cohesive, healthy community; capitalize on opportunities for outdoor areas of respite and repose to aid in providing a healing environment.

4.2.1.9 Design landscape and circulation routes to have clear unobstructed views of surrounding areas for safety surveillance.

4.2.1.10 Common Facility and/or areas must be grouped so that each facility and/or area be automatically monitored by the constant presence of users of Facility and/or areas.

4.2.1.11 Screen from view from the street, as much as possible, all refuse/recycling areas, shipping, loading or utility areas, satellite dishes, outdoor vents, mechanical equipment, transformers and other similar structures. Located these visual screening items so that they also serve as noise screens for components that generate outdoor noise including transformers, mechanical equipment and shipping / loading areas. Design the enclosure of the outdoor refuse/recycling areas to coordinate with the overall design of the Site.

4.2.1.12 Provide easy access to garbage and recycling bins, and contained such bins within roofed/walled enclosures, or screen them from public view.

4.2.1.13 Avoid locating the loading areas & garbage bins within view of the main building entries and position them so that the odours from the loading areas & garbage bins will not negatively impact the main building entries or the outdoor gathering areas.

4.2.2. Pedestrian and Vehicular

4.2.2.1 Create a high-quality, vibrant, pedestrian-friendly environment, by tying the sidewalks and pathways to existing sidewalks and pathways adjacent to the Site.

4.2.2.2 Design for the functional separation of traffic for emergency vehicles, visitors, staff and service vehicles, and to minimize public and service vehicle traffic interference with ambulance and other emergency vehicle access to the Site.

4.2.2.3 Integrate vehicular circulation with layout of pedestrian and bicycle zones throughout the Site to provide visible connections, promote safe travel, and to minimize conflict between vehicles and other modes of travel. Design the driveways to provide connections between the surrounding roads and the main entrances to the buildings. Design vehicular service entrances so that they are integrated into the Building design with minimal visual impact.

4.2.2.4 Provide safe pedestrian crossings that are clearly designated using pavement markings and signage. In areas where a high volume of pedestrian crossings is expected, provide for changes in surface material (such as from asphalt to Portland cement, for example).

4.2.2.5 Create access for the mobility impaired (including people with baby strollers) by providing paths of travel with a minimum clear width of 1.5 m connecting all open space areas.

4.2.2.6 Provide pedestrian routes that are fully accessible by the disabled community. The primary pedestrian systems, public open space, walkways and entrances to the Facility must be universally accessible to the physically challenged and be elderly friendly. Design features which segregate circulation / areas / uses for people with disabilities from typical public usage are discouraged, except where required due to reasons of safety or due to space limitations.

4.2.2.7 Provide curb-cuts or curb let-downs in appropriate locations to facilitate convenient and direct access from the parking space(s) to the Building(s) for people with disabilities. This includes all locations where pathways cross parking areas.

4.2.2.8 Provide clear, direct pedestrian routes through parking lots that are unimpeded by parked or moving vehicles.

4.2.2.9 Provide walkway trail / pathway system to keep pedestrian traffic to the front of the facility only (South & East Sides). Surface of walking trails must be wheelchair accessible and capable of being cleared of snow and ice (e.g. concrete, asphalt).

4.2.2.10 Use traffic calming measures (e.g. curb bulges) to minimize roadway pavement width at pedestrian crosswalks.

4.2.2.11 Pedestrian routes within and to/from parking facilities must be clearly delineated and logical in terms of directness.

4.2.2.12 Provide paving and landscape treatments to further identify and enhance the pedestrian movement.

4.2.2.13 The pathway system should incorporate landscape treatments with trees and benches, lighting, and distinct paving where appropriate. The pathway system must also be wide enough for wheelchairs / scooters and should include a tactile strip for the visually impaired wherever possible (especially near main entrances) and wherever the Authority requests.

4.2.2.14 Minimize grade changes for drop curbs and raised crossings. Drop curbs aligned to pedestrian crossings.

4.2.2.15 All walkways and other paved areas must have positive drainage to shed rain water quickly with minimum side slope gradients of 1.0%.

4.2.2.16 Minor walkways must be at least 1.5 m wide.

4.2.2.17 Major walkways must be wide enough to allow for two people walking side by side and someone passing (i.e. minimum 2.5 m wide).

4.2.2.18 Provide lighting on all pathways, including pedestrian-scale lighting at the pedestrian pathways. Light poles, fixtures and electrical service will be provided by The Design-Builder.

4.2.3. Main Building Entry

4.2.3.1 The main building entry shall have a covered area with at least three comfortable benches or chairs to allow protection from the elements while people are waiting outside. Provide seating for at least three groups of three people.

4.2.3.2 Provide and entry garden adjacent to the main building entry.

4.2.4. Public Realm and Open Space

4.2.4.1 Design and construct the Facility with consideration for the legibility, quality and consistency of the overall treatment of the public realm, including public open space, pedestrian corridors and streets, to achieve the urban design objective for a unified and attractive built environment.

4.2.4.2 Provide a hierarchy of open spaces as follows:

4.2.4.2(1) public open spaces;

4.2.4.2(2) private open spaces; and

4.2.4.2(3) private and secure open space for the Tertiary mental health Unit/Psychiatry Unit) as their own Zone.

4.2.4.3 Achieve segregation between different open spaces through landscape barriers such as fencing, walls, hedges and planting.

4.2.4.4 Situate buildings so that they maximize the availability of sunlight in exterior and open spaces and areas of high pedestrian use. Maximize sunlight exposure for private and secure open spaces.

4.2.5. Community Noise Protection

4.2.5.1 Orientate the Facility on the Site so that the noise impact of emergency and service vehicles and new traffic routes will be minimized on the existing residential areas.

4.2.5.2 Strategically locate and / or silence mechanical and electrical equipment, outside air intake and discharge openings and emergency generators' engine exhausts.

4.2.5.3 Design and construct the Facility so that noise levels from mechanical and electrical equipment at the nearest residential property lines do not exceed:

4.2.5.3(1) 35 dBA at night; and

4.2.5.3(2) 45 dBA during the day.

4.2.5.4 Ensure that electrical and mechanical noise levels in outdoor patient lounge areas and public sidewalks do not exceed 50 dBA.

4.2.6. Site Wayfinding and Exterior Signage

4.2.6.1 Provide Site wayfinding and exterior signage in accordance with this Schedule.

4.2.6.2 Provide a signage master-plan for approval by the Authority.

4.2.6.3 Arrange pedestrian pathways to ease wayfinding and create an amenable environment for pedestrians through the use of coordinated methods of wayfinding which inform people of routes through the Sites to specific buildings and entries or to the major street and transit nodes. Encourage pedestrians to avoid unsafe vehicle roads by providing well-signed alternative pedestrian routes. Utilize paving patterns which can easily be differentiated from vehicular paving by pedestrians where they cross vehicular traffic to access the emergency department and main entrance.

4.2.6.4 Provide visually connected pathways and integrated plazas to facilitate wayfinding.

4.2.6.5 Provide external directional signage that:

4.2.6.5(1) clearly identifies the Facility and its components including the emergency department, main entry drop off area, and public and staff parking;

4.2.6.5(2) clearly indicates points of access for the public, parking areas and restrictions for various vehicle types and restrictions to 'after- hours' access; is well illuminated, backlit, reflective or high contrast and easily visible at night; and

4.2.6.5(3) minimizes light spillage.

4.2.6.6 Wayfinding must start at the Site property line with freestanding illuminated exterior signage located at each prominent Site entry location. Supplement these entry signs with free standing signage structures located to give overall direction within the Site. These illuminated exterior signs must have an overall Site plan and have some weather protection for standing viewers.

4.2.6.7 Site banner signs should be located at strategic landscaped locations to advertise hospital events and fundraising campaigns.

4.2.6.8 Overall Site parking signage is required to follow consistent design intent for the Site.

4.2.6.9 Provide all necessary exterior illuminated signage to direct traffic from the access streets. Design and construct such signage so that it is visible for drivers of vehicles to identify at a far enough distance so that they can safely slow down and follow the signage to enter the Facility and the parking areas.

4.2.7. Site Lighting

4.2.7.1 Provide lighting for public outdoor spaces to create an unobtrusive, human scale lighting concept, with a hierarchy of fixture types designed according to functional and security needs (including CPTED), and reflecting the hierarchy of pedestrian corridors.

4.2.7.2 Light fixtures within the reach of pedestrians will be vandal proof.

4.2.7.3 Lighting on pedestrian paths will illuminate not just the path but also the surrounding area adjacent to the path particularly en route to transit connections.

4.2.7.4 Provide lighting to facilitate ease and safety of pedestrian access to public transit.

4.2.7.5 Provide lighting for on and off-site roadways, walkways, drop-off and parking areas within the Site to ensure safe vehicle and pedestrian traffic with respect to collisions, personal safety, and building access and egress. Lighting design considerations should address existing neighbours privacy from all storeys.

4.2.7.5(1) Prevent light trespass into patient rooms and neighbouring yards and windows.

4.2.7.5(2) Prevent lighting glare, shadow or high contrast with surrounding areas

4.2.7.5(3) Screen views into patient rooms and neighbouring yard from upper floor windows.

4.2.7.6 Site lighting will conform to LEED® light spillage requirements and shall comply with CSA and City of Terrace Standards complete with sharp cut-off (dark sky compliant) to meet LEED Certification. Match existing lamp sources on the street.

4.2.8. Landscape

4.2.8.1 Provide landscape for the complete Site that contributes to a liveable, healthy and responsive community.

4.2.8.2 Provide elements including therapeutic gardens, exterior rehabilitation areas, areas of refuge including covered seating, pathways and landscape features for the enjoyment of staff and visitors.

4.2.8.3 Minimize grade changes for drop curbs and raised crossings. Drop curbs aligned to pedestrian crossings.

4.2.8.4 Provide streetscape treatments to City guidelines and standards (as a minimum). Verify streetscape requirements with the local municipality. Reinforce and enhance an image of the city, through the preservation of mature vegetation.

4.2.8.5 Provide an open space for respite and repose dedicated to patient and family use directly accessed from the Facility without needing to cross roads or parking areas.

4.2.8.6 Provide accessible outdoor spaces as outlined in Schedule 1 Statement of Requirements Section 5 Building Design Requirements and Section 8 Site, Infrastructure and Landscape.

4.2.8.7 Use coniferous trees that provide seasonal interest in association with ground covering shrub plantings.

4.2.8.8 Use similar plant material to what can be found on the site.

4.2.8.9 Design planting to be low maintenance. Use of indigenous flora will be considered a priority, in terms of minimizing maintenance and expressing an attitude about the local forest context.

4.2.8.10 The Design-Builder shall design the Site also considering:

4.2.8.10(1) The requirement for snow and ice removal and storage on soft landscaping: and

4.2.8.10(2) Safety.

4.2.8.11 Use large numbers of single species, in groups, to help unify the urban character, create recognizable spaces, contribute to Site orientation, and create a strong sense of place. Group plants to minimize the use of water, chemicals and fossil fuel for routine maintenance and to promote a healthy local ecosystem using sustainable measures.

4.2.8.12 Unify the ground plane treatment through the use of common paving materials, tree grates, lighting and other landscape furniture items.

4.2.8.13 Provide and coordinate Design for Site furniture, including benches provided at regular intervals for ease of use particularly for the infirm. Select products on the basis of safety, comfort, Design, and materials that relate to the Facility architecture and landscape design, durability and required maintenance.

4.2.8.14 Provide pedestrian surfaces that are suitable for use by wheelchairs, double-wide strollers, and small wheeled medical devices. Except where noted otherwise, crushed rock surfaces will not be suitable for any outdoor spaces surfaces. Asphalt surfaces will not be suitable for outdoor spaces surfaces in courtyards.

4.2.8.15 Design leveling strips at the point of access to the Facility to ensure ongoing barrier free access. The leveling strips should be designed to be barrier free and paved and allow for simple adjustment if required by building settlement.

4.2.8.16 Design landscape features and provide furniture that does not encourage the use of skateboards.

4.2.8.17 Where possible use landscape features for the enjoyment of patients, visitors and staff.

4.2.8.18 Minimize grade changes for drop curbs and raised crossings. Drop curbs will be aligned to pedestrian crossings and used in all curb conditions to greatest extent possible.

4.2.8.19 Provide landscape site plans for the complete Site. Landscape plans to be prepared by a BCSLA registered landscape architect.

4.2.8.20 Installation of the landscape to be supervised and approved by a BCSLA registered landscape architect.

4.2.8.20(1) The landscape irrigation system:

4.2.8.20(2) must be designed by a certified IIABC irrigation designer; and

4.2.8.21 the installation of the system must be supervised and approved by a certified IIABC irrigation designer.

4.2.8.22 Maximize the amount of landscape areas on the Site and minimize the amount of impervious surfaces to increase the natural absorption rate of storm water to have soft landscape, including trees, shrubs, groundcover and grass.

4.2.8.23 See 8.4.2 and 8.4.5 for detailed descriptions of planting and street furniture suggestions and requirements.

4.2.9. Landscape Maintenance

4.2.9.1 Landscape Maintenance shall begin upon installation as ‘Establishment Maintenance’ as per the CLS. Establishment Maintenance shall continue until all of the landscaping is completed.

4.2.9.2 Lawn areas of the Project will be mowed a minimum of 4 times before handing over the lawn maintenance to the Authority.

4.2.9.3 All landscape areas other than lawn will be maintained by the Design-Builder for 2 years following Substantial Completion. This includes all planted areas (e.g. courtyards, buffer areas). Snow removal is excluded from the landscape maintenance obligations.

4.2.9.4 Landscape Maintenance shall be level 'Well Groomed' as per the CLS (Canadian Landscape Standard).

4.2.9.5 The Design-Builder shall warrantee the plant material for the duration of the Landscape Maintenance period. 100% of the installed plants shall be alive and thriving at the end of the maintenance period.

4.2.9.6 The Authority has the ultimate decision on the health or replacement of the plant material. All plants deemed dead or showing decline shall be replaced immediately at the cost of the Design-Builder. All replaced plants shall have a 2-year warranty starting from the time of accepted replacement.

4.2.9.7 The Design-Builder shall provide a monthly 'Site Maintenance Inspection Form' as per the CLS from April through October. Failure to provide the form shall have a direct bearing on payments.

4.2.10. Site Safety Through Design

4.2.10.1 Public spaces should be distinguishable from private spaces. Symbolic barriers should be designed throughout the Site and should include landscaping (such as changes in paving, vegetation or grade) and/or architectural features (such as low walls, bollards and raised planters) rather than continuous solid fences or walls.

4.2.10.2 Design the exteriors of the Site so that there are opportunities for people to easily view what is happening around them during the course of their everyday activities.

4.2.10.3 Eliminate entrapment spots. Incorporate barriers that permit visual access without loss of privacy such as glazing in lobby doors and stairwells.

4.2.10.4 Promote the "eyes on the street" concept by using windows, doors, and activity generators such as seating. Windows should be visible from the street and not hidden by vegetation or other items.

4.2.10.5 Incorporate CPTED principles in the design of all exterior areas of the Sites.

4.2.10.6 Reduce opportunities for graffiti through the use of anti-graffiti coatings;

4.2.10.7 Reduce opportunities for hiding spaces; and

4.2.10.8 Provide a method for users to readily summon for help if in distress or danger.

4.3 Parking

4.3.1. General

4.3.1.1 The Design-Builder will provide parking for the Facility in accordance with the requirements of this Schedule and all applicable standards.

4.3.2. Facility Specific Requirements

4.3.2.1 For Mills Memorial Hospital and Seven Sisters Tertiary Psychiatric Facility

4.3.2.1(1) Provide 300 vehicle parking stalls as follows;

4.3.2.1(1)(a) 270 stalls for physicians and staff;

4.3.2.1(1)(b) 30 stalls for visitors,

4.3.2.1(1)(c) including at least 13 accessible parking stalls;

4.3.2.1(1)(d) Included in the 300 vehicle parking stalls, provide the following:

(d)..1.1 28 stalls adjacent to the emergency department entrance; and

(d)..1.2 49 stalls adjacent to the Ambulatory Care entrance;

4.3.2.1(2) In addition to the 300 parking stalls required above, provide:

4.3.2.1(2)(a) 2 handy DART bus transit stops, drop off spaces and 1 taxi stand;

4.3.2.1(2)(b) 2 dedicated parking stalls for ambulances and 1 dedicated stall for police, adjacent to the emergency department;

4.3.2.1(2)(c) 2 emergency department patient drop off spaces;

4.3.2.1(2)(d) 10 motorcycle parking stalls and any additional motorcycle parking stalls as may be required by the City;

4.3.2.1(2)(e) secured, long-term bicycle parking for 40 employee bicycles as described in Section 4.3.5; and

4.3.2.1(2)(f) requires unsecured, short-term bicycle parking for 30 bicycles as described in Section 4.3.5.

4.3.2.1(2)(g) 2 dedicated parking stalls for passenger and vans near entry for Seven Sisters Tertiary Psychiatric Facility.

4.3.2.2 Provide 70 temporary vehicle parking stalls to be used during construction. Area of temporary parking shall be removed to accommodate site work upon completion of the permanent parking.

4.3.3. Parking Stall Sizes

4.3.3.1 Parking stalls will comply with the following:

4.3.3.1(1) minimum parking stall dimensions will be 6.0 m x 3.0 m, provided that:

4.3.3.1(1)(a) a maximum 5% of the total stalls may be for small cars and have minimum dimensions of 5.0 m x 2.4 m;

4.3.3.1(1)(b) pick up and drop off areas, minimum stall dimensions will be 6.0 m x 3.5 m; and

4.3.3.1(1)(c) minimum dimensions for accessible stalls will be per the City of Terrace Parking bylaw; and

4.3.3.1(2) minimum drive aisle widths will be 7.0 m.

4.3.4. Parking Design Principles

4.3.4.1 Noise attenuation must be provided for parking within 200 meters from residential developments.

4.3.4.2 The design and operation of surface parking facilities should create convenient and safe usage. Refer to Section 8.

4.3.4.3 Design and construct a surface parking in accordance with the following:

4.3.4.3(1) provide adequate provision for ingress and egress to all parking spaces to ensure ease of mobility, ample manoeuvring clearances, and safety of vehicles and pedestrians;

4.3.4.3(2) apply CPTED principles and the following principles:

4.3.4.3(2)(a) reduce opportunities for graffiti through the use anti-graffiti coatings;

4.3.4.3(2)(b) ensure the parking is well-lit while minimizing light spillage into adjacent properties; and

4.3.4.3(3) clearly mark all parking spaces as directed by the Authority;

4.3.4.3(4) use wayfinding strategies, including signage, to allow each parking zone to be identifiable and to assist in orientation and ease of finding/identifying parking stalls;

4.3.4.3(5) set parking lot layouts in an orderly and logical design to minimize confusion and excessive internal circulation;

4.3.4.3(6) employee parking must not be located in visually remote areas of parking lots, behind blank walls, or within service or loading areas; and

4.3.4.4 Provide all parking lots with the following landscape requirements:

4.3.4.4(1) screen surface parking by plant material, and where surface parking is behind buildings, screen such surface parking from adjacent properties with landscape planting or trellis strips;

4.3.4.4(2) screen the view of the bumpers of parked cars from all perimeter roadways, residences, and pathways;

4.3.4.4(3) incorporate safety and security measures into the landscape design;

4.3.4.4(4) surface parking must contribute to the continuity of the street landscaping edge without compromising the safety and security of the public inside the lot and on the public street;

4.3.4.4(5) reduce the visual impacts of large surface parking lot areas by dividing the parking area into smaller 0.6 ha parking lots defined at the boundaries by drive aisles, sidewalks, trees and landscape planting; plant shrubs and small trees to define circulation routes for pedestrians and vehicles;

4.3.4.4(6) multiple surface parking lots must provide a direct pedestrian pathway system through the parking area to provide convenient and safe pedestrian access between Building entrances, parked cars, and sidewalks of adjoining streets.

4.3.4.4(7) see Schedule 1 Statement of Requirements Section 8 for detailed description of landscape requirements for parking lots.

4.3.5. Bicycle Parking

4.3.5.1 Provide bicycle parking facilities that are at-grade, have uniform lighting and are safe and secure. Lighting design for the bicycle storage area shall take into account the Facility Risk Assessment and the lighting design shall be in accordance with CEPTED guidelines, but shall be no less than 100 lumens throughout.

4.3.5.2 Provide secured, long term bicycle parking for employees. Such bicycle parking may be integrated into parking structures located close to Building access points.

4.3.5.3 Provide unsecured, short-term bicycle parking in the form of bicycle racks located within 15 m of a principal building entry. Such bicycle parking must be situated in well-lit locations, clearly visible from principal building entries and/or public roads.

4.3.5.4 Bicycle rack must be made of sturdy, theft-resistant material and should be secured to the floor or ground. Bicycle racks should be designed to secure the bicycle frame, not the wheels, and allow both the frame and front wheel to be locked to the rack with a U-style lock.

4.4 Utility Infrastructure

4.4.1. The Design-Builder will provide, as necessary, adequate and reliable infrastructure and necessary municipal services to the Facility.

4.4.2. Municipal Off-Site Services Infrastructure

4.4.2.1 General

4.4.2.1(1) Design-Builder will confirm and comply with any required off-site services as directed by the City.

4.4.2.1(2) Design and construct all municipal off-Site services, connections or upgrading of municipal systems as needed or as required by the City such that the off-Site municipal infrastructure is adequate to support the Facility, to the satisfaction of the City and other Governmental Authorities. Refer to the applicable City documents for land development and municipal servicing engineering standards.

4.4.2.1(3) All works required for excavation, exposing, backfill and surface restoration of all proposed water, sanitary sewer and storm service connections, as well as the connection of each service to the municipal system, will be the responsibility of the Design-Builder.

4.4.2.1(4) The Design-Builder will only perform work outside site boundaries if required by the City of Terrace. Design-Builder will carry a Cash Allowance of $1.5m for off-site costs incurred by the City or other utility providers for remedial work.

4.4.2.2 Potable Water – Off-Site

4.4.2.2(1) The Facility requires a water system connection, including metering and backflow prevention. The primary water main service is to be a 200mm diameter main connected to the 200mm diameter water main on Keith Avenue to supply domestic/fire flow services. A secondary 200mm diameter water service is required for redundancy from either Haughland Ave or Tetrault Street.

4.4.2.2(2) The Design-Builder will ensure that City access to municipal fire hydrants is not encumbered at any time. All existing hydrants must remain active during the Construction.

4.4.2.2(3) To provide sufficient fire flows the primary water main service is to be connected to the 200mm diameter main on Keith Avenue. The system cannot be looped within the site as this will not allow for backflow prevention from the City of Terrace water supply system. The secondary service can be connected to Tetrault or Haughland without municipal upgrades as this is only supplying domestic water.

4.4.2.3 Sanitary Sewer

4.4.2.3(1) The connection point for the sanitary sewer will be to the existing municipal sanitary sewer on Haugland Avenue.

4.4.2.3(2) The 150mm diameter sanitary sewer main on Haugland Avenue is currently only receiving flows from the existing hospital and a residential housing unit at the corner of Haughland and Eby street. The main then connects to a 200mm diameter on Eby Street and flows south. The 150mm diameter main on Haugland will only be receiving the new hospital flows plus the existing residential unit.

4.4.2.4 Storm Drainage

4.4.2.4(1) The Design-Builder must employ on-Site storm water management strategies which result in no net increase in peak storm water discharge rates up to the 10 year recurrence interval event. Flows in excess of the 10 year storm event are to be directed via overland flows to the municipal road network. In no circumstances are flows to be directed to adjacent private parcels.

4.4.2.5 On-Site Services Infrastructure

4.4.2.5(1) General

4.4.2.5(1)(a) Design and construct all on-Site servicing to meet or exceed the design and quality requirements for the corresponding municipal off-Site services, and to meet the needs of the Facility.

4.4.2.6 Sanitary Sewers – On-Site

4.4.2.6(1) Provide sanitary sewers of a diameter, grade and depth to safely convey all effluent from the Facility. The sanitary sewer system will include the pipes, manholes and all other required appurtenances to comply with applicable municipal and provincial standards.

4.4.2.7 Storm Sewers and Drainage – On-Site

4.4.2.7(1) Provide storm sewers, storm sewer management strategies and drainage network:

4.4.2.7(1)(a) of a size, grade and depth to safely manage and convey all storm water on-Site to the receiving system;

4.4.2.7(1)(b) which, at minimum, maintains the pre-Construction discharge rates after Substantial Completion;

4.4.2.7(1)(c) which includes storm water/oil and grit separation devices or other water quality treatment devices as required, capturing and treating runoff from all road and parking area surfaces; and

4.4.2.7(1)(d) where roof water run-off will receive grit separation treatment before entering the piped off-Site conveyance network. Oil/water separation is not required for roof water.

4.4.2.7(2) Provide an on-site storm water management system designed to meet the municipality's goals for storm water attenuation and runoff / recharge water quality.

4.4.2.7(3) Storm water quality: Comply with the federal/provincial land-development guidelines and Stormwater Planning: A Guidebook for British Columbia (2011).

4.4.2.7(4) The Design-Builder will ensure that neighbouring properties are protected from flooding and nuisance runoff issues and existing municipal system capacities are not exceeded.

4.4.2.7(5) Provide adequately sized water quality/sediment control components for both the surface parking and underground parking lots, before discharging to the on-Site retention systems, groundwater recharge facilities or the off-Site drainage system.

4.4.2.7(6) The 150mm diameter sanitary sewer main on Haugland Avenue is currently only receiving flows from the existing hospital and a residential housing unit at the corner of Haughland and Eby street. The main then connects to a 200mm diameter on Eby Street and flows south. The 150mm diameter main on Haugland will only be receiving the new hospital flows plus the existing residential unit.

4.4.2.7(7) Sewer back up tank is to have a capacity of 160,000 liters.

4.4.2.8 Water Main and Appurtenances – On-Site

4.4.2.8(1) Provide a water main service (water main and ancillary components) from the municipal system to provide all required institutional demands and firefighting capacity and redundancy for the Facility. The extent to which provision for on-site pumping may be required (to suit either domestic demand or fire-fighting demand, or both) will be determined, in part, by the available system pressures, the final building floor area and building height.

4.4.2.8(2) The primary and secondary 200mm diameter water services (for redundancy) shall enter the building separately before they are combined into one main. Each service shall have its own backflow prevention device as required by the City of Terrace.

4.4.2.8(3) Firefighting volumetric demands are to be calculated using the Fire Underwriters Survey (FUS) method, unless alternates are otherwise approved by the municipal authorities.

4.4.2.8(4) If required to meet the Fire Underwriters Survey fire flow demands, The Design-Builder will provide back-up, permanent fire-fighting equipment.

4.4.2.8(5) The water main systems will include approved backflow preventers necessary to protect the municipal system and on-Site Facility from contaminants based on the hazard level of the Facility.

4.5 Site Infrastructure

4.5.1.1 Road Work – Off- Site

4.5.1.1(1) The Design-Builder shall coordinate and is responsible for all off-site roadworks as identified by the City of Terrace.

4.5.1.1(1)(a) Keith Avenue/Hall Street Intersection

(a)..1 Install a 30 metre westbound left turn slot with a bay taper.

(a)..2 Install an eastbound right turn direct taper deceleration lane 54 metres in length.

4.5.1.1(1)(b) Keith Avenue/Tetrault Street

(b)..1 Upgrade the existing eastbound right turn direct taper to a 35m long parallel lane with a 40m taper.

(b)..2 Install a 30 metre westbound left turn slot with a bay taper.

4.5.1.2 Street lighting – Off- Site

4.5.1.2(1) Off- Site street lighting illumination levels and other related operations characteristics will conform to the respective municipal standards. In order to achieve this, relocation of existing lighting and additional off-Site lighting are both expected to be required.

4.5.1.3 Road Works – On-Site

4.5.1.3(1) Design and construct on-Site roadways, including the pavement, curbs and gutters, sidewalks, walkways, signage, pavement markings, and traffic calming devices, that are handicapped accessible and wheel-chair friendly, and provide safe passage between parking areas, loading areas, emergency vehicle areas and drop off areas without requiring the driver to enter the municipal roadway.

4.5.1.3(2) All roadways will accommodate fire truck access in accordance with the requirements of the respective municipality‘s fire department or by municipal bylaw requirements.

4.5.1.3(3) Design vehicle for loading access to be WB20. All other internal roadways must safely accommodate the typical fire truck in use by the respective municipal authorities.

4.5.1.3(4) Internal site truck movements will be designed such that loading bays are easily accessible, limiting the requirement for truck manoeuvring into and out of loading bay areas.

4.5.1.3(5) Use site surfacing materials which will meet intended use and minimize the 'heat island' effect, where possible.

4.5.1.4 Street Lighting – On-Site

4.5.1.4(1) Provide lighting for on-Site roadways, walkways and parking areas to ensure safe vehicle and pedestrian traffic with respect to collisions, personal safety, and Building access/egress. Lighting will be sympathetic to any existing or future buildings at each Site, as well as all neighbouring properties. Wherever possible, all Site lighting to be 'dark skies' compliant, per municipal definitions.

4.5.1.4(2) Detailed on-Site lighting specifications are carried elsewhere, under electrical specifications section.

4.5.1.5 Electrical, Telecommunications, Gas Services

4.5.1.5(1) Provide adequate and redundant electrical and telecommunication services to the Facility. Provide an interruptible and non-interruptible gas metering system.

4.5.1.6 As required by Section 3 – Design Principles and Guidelines and the general requirements as denoted in Section 2.9, Construction Documents, the Design-Builder will, after Facility Completion of the Mills Memorial Hospital Facility, demolish and remove from the Site all buildings and structures of the Mill Memorial Site in accordance with the reviewed Demolition Plan. After the demolition work is complete, the Design-Builder will construct surface parking and related landscaping of the Mills Memorial Site in accordance with the standards set out in this Agreement.

PART 5. BUILDING DESIGN REQUIREMENTS

5.1 Adaptability and Flexibility

5.1.1. The Design-Builder will:

5.1.1.1 locate permanent Building elements, such as stairs, elevators and duct shafts, to minimize constraints on changes to the Facility;

5.1.1.2 minimize interior columns for ease of planning and re-planning of care areas;

5.1.1.3 avoid interior shear walls if possible;

5.1.1.4 accommodate the vertical and horizontal distribution of electrical and mechanical services to allow maintenance and changes to occur with the least disruption to clinical service delivery;

5.1.1.5 provide access points to Building service systems in critical locations so that service disruption is minimized; and

5.1.1.6 No cabling shall be directly embedded within the concrete slab, unless cabling requires a fire rating to satisfy code requirements. Ensure that conduit/cable routing is accurately recorded (with gridline offsets) within "as-built" drawings. Provide a system or strategy to support equipment where cabling is imbedded into the slab, to allow for easy servicing to control rooms and medical equipment. Do not provide raised access flooring.

5.2 Expandability

5.2.1. The Design-Builder will:

5.2.1.1 locate primary circulation corridors to allow expansion without increasing the complexity of the circulation system as a whole; and

5.2.1.2 provide floor zoning that allows for expansion of programs or services, for example by locating administrative and other non-clinical ‘soft’ functions adjacent to clinical areas that are likely to need to expand.

5.3 Disaster Planning Requirements

5.3.1. In undertaking the Design, The Design-Builder will consider the need to protect the life and safety of all Facility occupants and the need for continuing services following an earthquake or other disaster, including epidemic, chemical spill, extended power interruption and contamination of water supply. Particular attention should be paid to the buildings, generators, transformers and service connections.

5.3.2. Design and construct the buildings’, generators’, transformers’ and service connections’ structure, structural components, non-structural components, anchorages, and equipment to post disaster standards

5.3.3. Design and construct essential services servicing the Facility including the electrical system, steam, domestic water and medical gases to post disaster standards as defined in the BC Building Code. Locate these services in utilities enclosures that meet post disaster standards as defined in the BC Building Code.

5.3.4. Design and construct the Acute Care Facility so that it is capable of meeting its functional requirements, (lights, power, water and sewer) for a minimum period of 72 hours following a natural disaster or other incident (except that additional storage tanks are not required for potable water – assume water will be pumped in). The sanitary tank shall have a capacity of 160,000 liters.

5.3.5. Intentionally deleted.

5.3.6. See Section 5.10.3 for mechanical post disaster requirements.

5.3.7. See Section 7.5.5.3 for electrical post disaster requirements.

5.3.8. Design and construct each Facility so that it includes an exterior area that is of a size capable of accommodating temporary tents in case of a mass casualty event requiring the decontamination and treatment of up to 150 patients (the "Mass Casualty Tent Area"). This area must be adjacent to the emergency department and the exterior water, gas, power, and communication hookups. Refer to Section 5.10.3.10.

5.3.9. Design and construct the Facility to support a Design-Builder supplied and installed roof-top emergency communications antennae tower (the "Communications Tower") including all structural supports and fasteners, all electrical, lighting, and lightning grounding requirements, and all enclosures, entrances, ducting, pathways, and cabling between the Communications Tower antennae locations and the Emergency Operations Centre (the "EOC") communication equipment room. The Communications Tower will be sized to support all Authority emergency communications antennae plus capacity for an additional antennae of each type as required by the Authority.

5.3.10. The Design-Builder will design and construct the Facility so that it includes space that is capable of being used as an EOC during an emergency. The EOC will be located in the Mills Memorial Acute Care Facility as applicable. The EOC will:

5.3.10.1 be located in a post-disaster structure;

5.3.10.2 be located so that it is accessible directly from the exterior;

5.3.10.3 include a communication centre with a minimum of 30 seats, a locked supply storage area (complete with power and network capability), a communication equipment room capable of supporting the Communications Tower systems and equipment, a food preparation/storage area and at least two bathrooms, each with a shower;

5.3.10.4 be connected to vital power, have data connections supplied from two separate network rooms and have two separate Telus 1B feeds that will support at least 12 Telus 1B phone and satellite communications, as described below;

5.3.10.5 be designed so that the communications centre has the potential to be segregated from the main EOC operational area to minimize noise;

5.3.10.6 be capable of supporting the emergency communication systems described in Section 5.3.9, including all required cabling, conduit paths and other infrastructure;

5.3.10.7 have six operable station areas, and each station will have:

5.3.10.7(1) 2 network connections (laptop and VOIP);

5.3.10.7(2) 2 voice over internet phone lines, each with a network connection, and 2 Telus 1B phone lines;

5.3.10.7(3) satellite phone capability for each of the Telus 1B phone lines, including the infrastructure for specialized antennae to the Communications Tower and a switching box/device that allows automatic switching from Telus 1B phone line to satellite phone communications for all phones; and

5.3.10.7(4) 2 power outlets;

5.3.10.8 Provide a minimum of 20Kw of 120/208v, 3 Phase, power for the EOC, via a UPS panel board to be located adjacent the EOC. The EOC UPS panel feeder to be protected with a 2hr fire rating..

5.3.10.8(1) Include in the communications centre a suitable area and infrastructure for amateur radio operations that meet the following specifications:

5.3.10.8(1)(a) on vital power;

5.3.10.8(1)(b) minimum 32 channel programming capability;

5.3.10.8(1)(c) 5 specialized satellite antennae on the Communications Tower for satellite communications (specific locations for these antennae will require consultation with communication specialists);

5.3.10.8(1)(d) storage room for amateur radio equipment;

5.3.10.8(1)(e) 2 power outlets and a network drop in the radio room;

5.3.10.8(1)(f) in addition to the 5 specialized satellite antennae, the following antennae are required (specific locations for these antennae will require consultation with communication specialists):

(a).32 1 commercial antenna;

(a).33 2 VHF antennae, consisting of 1 digital antenna and 1 voice antenna; and

(a).34 2 HF antennae, consisting of 1 digital antenna and 1 voice antenna;

5.3.10.9 have commercial radio capability for interoperability with Site security;

5.3.10.10 have a multifunction printer/scanner/fax that has:

5.3.10.10(1) a network connection, with complimentary electrical connections, on vital power; and

5.3.10.10(2) 2 fax lines (one for outgoing messages and one for incoming messages) that are both Telus 1B lines (which are in addition to the Telus 1B lines described in Section 5.3.10.7)

5.3.10.11 throughout the EOC, have an additional 24 network connections and 24 power connections on vital power (which are in addition to the network and power connections described in Section 5.3.10.7);

5.3.10.12 have 5 display/whiteboards and capability to support an electronic whiteboard on vital power;

5.3.10.13 be capable of supporting teleconferencing and videoconferencing; and

5.3.10.14 have 4 wall-mounted screens with cabling to support viewing and monitoring of local, regional, provincial and national news.

5.4 Architecture

5.4.1. Building Form and Character

5.4.1.1 General

5.4.1.1(1) The Building will be articulated, yet be detailed to ensure the buildings' envelopes are robust.

5.4.1.1(2) Utilize glazing to optimize views and daylight penetration, and to reduce energy consumption.

5.4.1.1(3) Roof top mechanical / electrical equipment to be either enclosed within a mechanical penthouse, or screened and incorporated in architectural elements, and consistent in form, material, and detail with the rest of the Building. Roof top mechanical / electrical equipment will be provided with noise attenuation.

5.4.1.1(4) Intentionally deleted.

5.4.1.1(5) As contemplated by the Wood First Act (British Columbia), The Design-Builder will incorporate wood products into the Design as required by Appendix 1E Wood First Matrix.

5.4.1.2 Exterior Building Materials and Colour

5.4.1.2(1) Exterior materials will include high quality finish materials and robust detailing. Cladding materials to be durable and applied in a rain-screen fashion. Cladding materials may be architectural concrete, brick or stone masonry, glass, phenolic panels, metal cladding, wood, and profiled metal siding.

5.4.1.2(2) Stucco will not be a principal building material and its use is prohibited.

5.4.1.2(3) The Design-Builder will minimize the number of exterior cladding materials to reduce the number of envelope joints.

5.4.1.2(4) Wood used on the exterior is to be selected, located and treated to minimize maintenance and optimize its life span.

5.4.1.2(5) Provide a sample board indicating exterior material finishes submittal by the Authority.

5.4.1.3 Roofs

5.4.1.3(1) No requirement for landscaping or other “green” treatments of roof areas.

5.4.1.3(2) Roof areas will be designed to be attractive when in view.

5.4.1.3(3) Provide stair access to all major roof areas larger than 100 m2 with ladder access to smaller roof areas only.

5.4.1.3(4) Use of roof hatch accesses will be minimized.

5.4.1.3(5) Provide elevator access to the mechanical penthouse.

5.4.1.3(6) No requirement for high parapets or guardrails for regular roof access for maintenance by operational staff.

5.4.2. Building Configuration and Internal Circulation

5.4.2.1 Building Entrances

5.4.2.1(1) All direct entries into the buildings from the exterior will be protected from snow and rain by canopies or building overhangs. Weather protection must be implemented where Building entrances front a sidewalk or open space. Weather protection must not extend into public street rights-of-way.

5.4.2.1(2) Ensure that areas protected from weather still receive daylight using appropriate measures such as height to depth proportions and the use of glass roof panels.

5.4.2.1(3) Orient Building entrances away from direct prevailing winds. Provide wind protection at Building entrances exposed to prevailing winds. Orient buildings generally to minimize wind induced by buildings. Provide wind mitigating measures and areas that are protected from the wind so as to extend the seasonal duration of outdoor activities such as convalescing or socializing.

5.4.2.1(4) Entrance vestibules will provide complete transparency from the exterior, from the interior immediately in front of the vestibule, and from habited spaces adjacent to at least one long side of the vestibule.

5.4.2.1(5) Entrance vestibules will be configured and sized in order to preserve the airlock effect for climate control. Ensure a minimum 5 metre distance between the sets of doors to allow stretchers and wheelchairs to fit lengthwise into the vestibule. Provide a heated air curtain system over the exterior doors to control the temperature loss during winter months.

5.4.2.1(6) Use sliding doors at all public entrances, except that where sliding doors are not feasible, use swinging doors. Use doors that can be activated by handicapped accessible push-button controls located on the inside and outside of both sets of doors or revolving doors with a swing door. Doors will be configured for push-pull manual operation in addition to automatic operation.

5.4.2.1(7) Entrance doors to the emergency department and doors to patient care areas will be sufficiently wide to allow access for stretchers surrounded by medical staff.

5.4.2.1(8) Pedestrian interest and comfort at entries will be provided through specifically designed seating, signage, lighting and features that signal the Facility's use.

5.4.2.1(9) Provide wheelchair alcoves visible and accessible to the main entry vestibules. Provide easy access to wheelchairs/stretchers close to the entrance of the Building.

5.4.2.1(10) If the Facility has a large open entrance or atrium, the space must be acoustically treated to control excessive noise or sound reverberation that can prevent effective space communication, facilitate the spread of noise from the atrium to adjacent noise sensitive interior spaces and / or make spending time in the atrium uncomfortable.

5.4.2.1(11) Entryways and doors must be illuminated using light levels that are comfortable when entering and exiting.

5.4.2.2 Access

5.4.2.2(1) The Design-Builder will design and construct the Facility to ensure that all patient-occupied spaces are designed for disabled access and assistance by nursing staff.

5.4.3. Building Envelope

5.4.3.1 Utilize a building envelope professional (whose credentials as a building envelope professional are recognized by the Architectural Institute of British Columbia or the Association of Professional Engineers and Geoscientists of British Columbia) to advise on building envelope design and construction.

5.4.3.2 Complete the design and construction so as to prevent the accumulation and stagnation of rain, snow, ice and dirt on the horizontal and vertical surfaces of the Building envelope(s) appropriate for the climate the Facility is situated in.

5.4.3.3 Complete the design and construction so as to prevent both the ingress of exterior moisture and the trapping of condensation from infiltrating humid air within the envelope.

5.4.3.4 Design exterior walls in accordance with the 'rain-screen principle'.

5.4.3.5 Ensure that materials and systems of the wall and roof assemblies contribute to reducing heat gains and losses with minimal decline in performance over their expected lifespan.

5.4.3.6 Ensure continuity of the air barrier, vapour barrier, thermal barrier and rain barrier across the entire envelope.

5.4.3.7 Design Building envelope details to avoid thermal bridging.

5.4.3.8 Design Building envelope so that the inside of patient rooms exposed to noise from hospital related equipment, delivery / loading bays, emergency intake areas, and busy road traffic areas are exposed to noise levels less than 30 dBA from steady sources of noise such as HVAC equipment and transformers and to less than 45 dB A for noises associated with brief intermittent events (helicopter, sirens, loading bay noise events).

5.4.3.9 Virtual Skylight Ceiling Systems

5.4.3.9(1) Provide virtual skylight ceiling systems in internal rooms that would provide a positive distraction for patients undergoing treatment; Diagnostic Imaging patient imaging rooms for Spec CT Suite, CT Suite, MRI Suite and Fluoroscopy/Multi-Purpose.

5.5 Interior Environment

5.5.1. Ergonomic Design

5.5.1.1 The Design-Builder will provide:

5.5.1.1(1) detailed design features, which expressly facilitate the physical activities of the staff and patients to increase their safety, efficiency and general well-being, and assist in eliminating ergonomic risk factors;

5.5.1.1(2) for all inpatient care rooms (including washrooms) to accommodate lifting and transfer devices;

5.5.1.1(3) ergonomic design, consistent with good industry practice, of all work spaces including millwork, furniture, lighting, and finishes to eliminate strain and injury to health care workers; and

5.5.1.1(4) adjustable work surfaces and shelves to allow for flexibility of use in team care stations.

5.5.2. Colour

5.5.2.1 The Design-Builder will:

5.5.2.1(1) provide departmental color palettes appropriate for the emotional and psychological needs of patients;

5.5.2.1(2) provide color palettes that contribute to the creation of a healing environment;

5.5.2.1(3) provide distribution of ambient full-spectral color within typical staff and patient environments;

5.5.2.1(4) avoid glare-creating finishes; and

5.5.2.1(5) provide a master colour sample palette and sample board of interior finishes for approval by the Authority.

5.5.3. Art Works

5.5.3.1 The Authority intends to procure various art works for display within the Facility. The Design should allow for the display of art work as follows:

5.5.3.1(1) in the interior allow for wall surfaces to display art;

5.5.3.1(2) in the exterior allow for sculpture to be placed at grade;

5.5.3.1(3) allow for the development of local community art projects to be included as part of Project design; and

5.5.3.1(4) provide specific corridors and display spaces for art for approval by the Authority.

5.5.3.2 The Design-Builder will:

5.5.3.2(1) Design the Facility to support the Authority's art program by providing and identifying for the Authority effective and appropriate locations for major and minor art works throughout the Facility;

5.5.3.2(2) coordinate the procurement and delivery (including timing of delivery), of art works with the Authority and install all art works procured by the Authority;

5.5.3.2(3) provide lighting to enhance the display of all art works; and

5.5.3.2(4) provide all necessary structural support, seismic restraint, vandal- proof mounting and other protective measures required for particular art works.

5.5.4. Interior Signage and Wayfinding

5.5.4.1 The Design-Builder will:

5.5.4.1(1) provide a simple configuration of the Facility circulation systems and functions so that wayfinding is inherently easy;

5.5.4.1(2) locate major destinations, such as department entrances, directly off of entry spaces and/or along primary circulation paths for easy access, make waiting areas as open as possible to circulation routes without requiring wayfinders to pass through waiting areas;

5.5.4.1(3) provide significant recognizable, easily named and identified elements in key and easily found locations that can become 'meeting points' for patients and visitors;

5.5.4.1(4) design public elevator and stair lobbies and public circulation routes to be distinct from service routes and other non-public routes; and

5.5.4.1(5) orient all building plan directories to reflect the direction from which they are viewed.

5.5.4.2 The Design-Builder will provide all signage required for the Facility in accordance with the following:

5.5.4.2(1) design signage in consultation with the Authority such that the materials, colours, letter fonts, sizes and other aesthetic and functional considerations, such as Braille, conform to the overall wayfinding design system and are coordinated and consistent with those used by the Authority in other facilities. Materials for signs include: aluminum, acrylic, vinyl and stainless steel materials;

5.5.4.2(2) signage will be highly visible (day and night), clear, concise, and well-differentiated from surrounding information, notices, advertising.

5.5.4.2(3) signage will be resistant to graffiti and physical damage;

5.5.4.2(4) use international symbols where and as applicable;

5.5.4.2(5) provide signage that directs visitors to all patient destinations and all other departments and rooms within. Prioritize patient destinations over non-patient destinations;

5.5.4.2(6) orient all important signs, including all patient destination signs, to be perpendicular to the line of patient travel on approach; and

5.5.4.2(7) avoid multi-layered naming hierarchies and complex numbering systems.

5.5.4.3 The Design-Builder will provide the following interior signage at the Facility:

5.5.4.3(1) building directories at all entrances, major corridor junctions and at elevator lobbies. They should include a Site plan highlighting the buildings as well as floor level listings of departments;

5.5.4.3(2) a digital interactive kiosk signage system in lobby of the Facility;

5.5.4.3(3) elevator floor directories at all elevator lobbies. They should include floor level listing of departments;

5.5.4.3(4) room signage for all rooms. Room signage is to be of several types distinguishing room functions. Administrative space signage requires a pocket to insert specific information such as name of occupant. Room signage for utility rooms should be designed to be less evident than general room signage. Blade signs may be used to identify vending areas and waiting areas;

5.5.4.3(5) "**Care Aware Room Link**" electronic signage by Cerner in areas selected by the Authority, including patient rooms, outpatient procedure rooms and examination rooms. The Design-Builder will confirm all locations of such signage with the Authority. If "Care Aware Room Link" electronic signage is used, typical room identification signage is not required.

5.5.4.3(6) small door tags for all door frames;

5.5.4.3(7) patient room signage and patient care department directories. Signs should incorporate art imagery, such as local scenery, to designate different departments and patient rooms;

5.5.4.3(8) overhead directional signage, which must either be suspended from a ceiling or bulkhead or be mounted directly over doors. No directional signage will be incorporated into flooring; and

5.5.4.3(9) feature signs and information panels at various locations throughout the hospital (for example signs to locate information desk).

5.5.4.4 Design internal directional signs to include:

5.5.4.4(1) a main directory, installed at or near the main public entrance to the Building that indicates the Building in relation to the overall Site and the location of every area and department within the Building that is accessible to the public;

5.5.4.4(2) a continuous 'trail' of signage from the entrances to each of the reception/information points listed on the directories;

5.5.4.4(3) installation of signage at each point at which a directional decision is required;

5.5.4.4(4) consistent terminology;

5.5.4.4(5) door signage to identify every space (e.g. rooms, alcoves, corridors and stairwells) in the Facility. Door signage will:

5.5.4.4(5)(a) be developed in consultation with the Authority;

5.5.4.4(5)(b) be located in a consistent location for every space in the Facility;

5.5.4.4(5)(c) indicate restrictions on entry and warn of hazards, including "Laser in use" and "Radiology in use" signage; and

5.5.4.4(5)(d) not be obscured by the emergency systems and code blue system call.

5.5.4.5 Provide a room numbering system that is consistent with the following protocol:

5.5.4.5(1) each room and any space with walls and a door require a unique identifier number. In addition any space such as a patient cubicle, alcove or recess of significant size must be numbered as a room. This identifies spaces for labelling of fire alarm, electrical and data outlets and for ongoing maintenance purposes;

5.5.4.5(2) rooms are numbered in a manner that reflects normal movement through the Facility;

5.5.4.5(3) labelling anticipates a person attempting to follow numbering along corridors in sequence;

5.5.4.5(4) blocks of numbers are periodically skipped to allow for future expansion of the numbering system if rooms are added through renovations;

5.5.4.5(5) each room and space requires a unique number for service reasons. It is important that room numbers be determined early in design and maintained following occupancy. Follow the same numbering system on design and construction documentation for all disciplines (architectural, mechanical, electrical);

5.5.4.5(6) numbering should be according to an Authority standard. Building identification letters are first. Use “MMH” for Mills Memorial Hospital;

5.5.4.5(7) the Building identification letters are followed by three or four digits, beginning with the first digit: 0 for basement rooms, 1 for ground floor, 2 for second floor on up the Building floors. Four digits may be required in a large Building due to the number of rooms on the floor, and if this is the case, the four digits should extend to all floors;

5.5.4.5(8) the second digit identifies the department. The third and / or fourth digit identifies the room. For example, MMH1234 is Room 34 in the Diagnostic Imaging Department identified as Department 2, on the first floor in the Mills Memorial Hospital. MMH1334 is Room 34 in the emergency department, identified as Department 3, on the first floor of the Mills Memorial Hospital Facility;

5.5.4.5(9) if a room is only accessed from within another room, for example a large closet, the closet room number should be the room number in which it is located followed by a small letter a, b, c depending on the number of additional rooms that exist within the room;

5.5.4.5(10) stair numbering should follow the sequence: Building name first, then 1, 2, 3, 4 depending on the number of stairs (for example MMH1, MMH2, and MMH3);

5.5.4.5(11) corridor numbering should follow the sequence: Building name first, then two numbers. The first number identifies the floor, the second number identifies the corridor. For example, MMH 02, MMH 12, MMH 22 and MMH 32; and

5.5.4.5(12) elevators should follow the sequence: Elevator 1, Elevator 2 and Elevator 3.

5.5.4.6 See Section 4.2.6 for exterior signage and wayfinding.

5.6 Courtyards

5.6.1. Courtyard Design Principles

5.6.1.1 Courtyards shall have a height-to-width ratio (h:w) between 1:3 and 1:2.

5.6.1.2 The majority of the primary use area of the courtyards shall receive a minimum of 6 hours of direct sunlight on June 21st. Provide a sun/shade analysis during the preliminary and detailed design stages to support this.

5.6.1.3 Building height should maximize solar access to the courtyards.

5.6.1.4 Building materials in the courtyards should maximize solar access to the courtyards.

5.6.1.5 Courtyards shall be fully accessible.

5.6.1.6 Courtyards shall have appropriate access for maintenance.

5.6.1.7 Courtyards shall have a minimum clear dimension of 2.4 metres.

5.6.1.8 Courtyards shall have minimum sizes of 40 m^2.

5.6.1.9 The hospital facility shall have at least one courtyard.

5.6.1.10 Courtyards shall have landscape treatments as identified in Section 8.4 herein.

5.7 Structural Design

5.7.1. Structural Design Principles

5.7.1.1 The Design-Builder structural engineer of record will be a professional engineer and a designated structural engineer with "Struct. Eng." Standing with APEGBC and licensed to practice in the Province of British Columbia with demonstrated experience in undertaking the structural design of buildings similar in size and complexity to the building.

5.7.1.2 Prior to starting construction of the building, the Design-Builder's structural engineer of record will have a qualified second Professional Engineer licenced in the Province of British Columbia perform a concept review satisfying the requirement of the Association of Professional Engineers and Geo-Scientists of British Columbia Quality Management By-Law.

5.7.1.3 Carry out the Construction so that construction-caused settlement of existing buildings and structures does not exceed 6 mm at any location.

5.7.1.4 The foundation system shall be designed so that the long term settlement under serviceability loading conditions shall not exceed 25mm. Similarly the differential settlement shall not exceed 19mm over a span of 9m. Foundation will be designed by the Design-Builder structural engineer together with the Design-Builder geotechnical engineer. Design-Builder will cause its structural and geotechnical engineers to be jointly responsible for foundation design (including causing both to sign the appropriate sections of Schedules B & C of Design-Builder building permit submission).

5.7.1.5 Refer to Appendix 1C(I) - Control of Vibration and Noise During Construction for requirements regarding vibration from Construction activities.

5.7.1.6 Design-Builder's structural engineer of record and geotechnical engineer will perform filed reviews of the construction at sufficient frequency and review the reports of the applicable inspection and testing agencies to verify that the building structure has been built in substantial conformance to the approved issued for construction structural drawings and any authorized amendments thereto.

5.7.1.7 The structural design of the Mills Memorial Hospital will be to "post disaster" standards and the Seven Sisters Facility to normal importance standard. Related Importance Factors will be applied.

5.7.1.8 Design-Builder will provide copies of structural and geotechnical field reviews on a bi-weekly basis to the Authority.

5.7.2. Structural Analysis Methods

5.7.2.1 The structural analysis of the building will include a three dimensional analysis accounting for all vertical and lateral loads together with all applicable load combinations, carried out using a computer program consistent with Good Industry Practice.

5.7.3. Site Preparation and Substructures

5.7.3.1 Building foundation systems will provide adequate support to the superstructure while limiting overall and differential settlement to acceptable amounts for the building structure and serviceability over the term of the contact.

5.7.3.2 Building foundation system and site preparation design will be in accordance with recommendations from a qualified geotechnical engineer registered in the Province of British Columbia. Building foundation to be designated by the building engineer-of-record.

5.7.4. Structural Systems

5.7.4.1 For the Mills Memorial Hospital the preferred structural system for the suspended floors consists of cast-in-place concrete flat slab construction. Seven Sisters Facility could be of wood frame construction. Any other proposed system shall provide similar performance for flexibility or change, vibration resistance, fire rating, acoustic separation, ceiling space available for services, and overall building height.

5.7.4.2 Mills Memorial Hospital lateral seismic and wind loads will be resisted by strategically placed reinforced concrete sheer walls that encompass both stair wells and elevator shafts. Shear walls within interior spaces are not permitted in order to leave flexibility for future changes. Concrete masonry or wood frame / plywood shears walls will resist lateral seismic and wind loads for Seven Sisters Facility located to provide maximum flexibility for future changes.

5.7.4.3 Roofs may be structural steel or concrete slab construction. Structural steel roofs can be part of the Building design and massing strategy to reduce settlements of adjacent buildings. Structural steel open web joists may be used at roof areas directly above mechanical rooms only. They are not permitted in areas containing Clinical Spaces or storage of materials related to functions. Mechanical Penthouse floor, if applicable, must be concrete.

5.7.4.4 The Building foundations are to be founded a minimum of 1700mm below finish grade to provide for frost protection.

5.7.4.5 A minimum bury of 1500 mm for frost protection is acceptable, based on the Geotechnical Report, but Special frost protection measures may be required for footings constructed directly within the sandy silt to silt , located close to the perimeter of the building or those which will be unprotected for long periods during construction.

5.7.5. Design Loads

5.7.5.1 Performance criteria

5.7.5.1(1) Use the following minimum floor design specified live loads except where the specific use and occupancy of a space requires a higher live load:

5.7.5.1(1)(a) Main (ground) floor and Assembly Areas: 4.8 kPa (100 psf);

5.7.5.1(1)(b) Upper Floors 4.8 kPa (100 psf);and

5.7.5.1(1)(c) Mechanical/electrical service rooms: 6.0 kPa (125 psf).

5.7.5.1(2) Design upper floors to accommodate concentrated loads from equipment, fixtures, and machinery, whether floor, wall, or ceiling-mounted, including medical equipment and patient lifting devices.

5.7.5.1(3) Design floors for a minimum superimposed specified dead load allowance of 1.0 kPa to allow for partitions, and 0.5 kPa to allow for ceiling and mechanical equipment (other than medical equipment).

5.7.5.1(4) Design roofs for a minimum net uplift wind load of 1.5kPa and for the minimum snow and rain loads required by the BCBC and referenced standards. Notwithstanding other requirements, the minimum specified live load for design of roofs will be 4.92 kPa (103psf) and roofs will be designed to accommodate concentrated loads from equipment, machinery and features, whether roof or ceiling-mounted, including medical equipment and patient lifting devices.

5.7.5.1(5) Design roofs for the superimposed specified dead load of roofing materials, ceilings, mechanical equipment, but not less than 1.5 kPa (30 psf) to allow for future re-roofing alternatives.

5.7.5.1(6) Design floors and roofs above mechanical and electrical service rooms for a superimposed suspended equipment specified dead load of 2.0 kPa (40 psf) in addition to the minimum dead load allowances specified above.

5.7.5.1(7) Design floors for rooms designated for medical records storage or compact mobile shelving for a minimum 12.0 kPa (250 psf) specified live load.

5.7.5.1(8) Design-Builder shall provide a detailed shoring and re-shoring of formwork proposal submittal to the Authority. Surveys of top of formwork prior to pour and top of slab immediately following finishing of the slab as well as immediately following the initial release of the shoring under the slab prior to re-shore shall be provided by Design-Builder to the Authority as the work progresses. A further survey using the same survey points should be provided 3 months following the removal of shoring for the slab.

5.7.5.1(9) No in-floor conduit is permitted in suspended concrete floor systems.

5.7.6. Flexibility for Future Change

5.7.6.1 Design the floor structure to be able to accommodate one 130 mm diameter cored hole per structural bay at almost any location in the floor plate and the design for the concrete floors will assume at least one reinforcing bar in each direction at each core location is cut.

5.7.6.2 Design the floor structure with a minimum of one 150 mm diameter knock-out opening on two sides of each column for future use and the knock-out openings will be in addition to any openings required for current services; additionally the floor structure will be capable of having a minimum of six additional core holes (100 mm diameter) per bay without additional reinforcing.

5.7.6.3 See Section 3.10 for additional flexibility requirements.

5.7.7. Deflection Limitations

5.7.7.1 Design the structure to meet the deflection limits of the BC Building Code, and in accordance with the applicable materials design standards listed in Section 2.7.1 as a minimum and as appropriate for the non-structural components of the Facility. Notwithstanding the above, the deflection limit will not exceed the levels specified in this Section.

5.7.7.1(1) For concrete floor or roof construction, the maximum deflection occurring after the installation of non-structural elements, including long-term creep deflection and live load deflection, will not exceed span/480 and total short and long-term deflection will not exceed span/360;

5.7.7.1(2) for steel floor construction, the maximum live load deflection will not exceed span/480 with the total load deflection not exceeding span/360. The total load deflection is to include effects of shrinkage of concrete topping slabs; and

5.7.7.1(3) for steel roof construction, the maximum live load deflection will not exceed span/360 and the total load deflection will not exceed span/240.

5.7.7.1(4) The floor and roof perimeter edge will be designated to limit combined short and long term deflection occurring after the installation of exterior wall components, including effects of creep, to a maximum of 16 mm.

5.7.8. Vibration Limitations

5.7.8.1 Design the structural system to minimize the effects of floor vibration due to use, occupancy and equipment. Vibration is to be limited to acceptable levels for the use and occupancy of the floors. Refer to Appendix 1C Acoustics and Noise Control Measures.

5.7.8.2 Performance Criteria

5.7.8.2(1) Select and design floor structural systems to have a vibration acceleration maximum limit of 0.5%g with a damping ratio of 0.02 when an excitation force of 0.29 kN is applied.

5.7.8.2(2) Machinery that could be a source of vibration is to be mounted using vibration isolation techniques.

5.7.8.2(3) In areas supporting sensitive equipment and occupancies, design the structure for the vibration limitations specified by the manufacturer of the specified equipment or required by the planned use and occupancy of the floor space and in-situ measurement verification of floor vibration characteristics is to be carried out where specified by the equipment manufacturer.

5.7.8.2(4) Consult with users about the locations of sensitive equipment and design the structure to support the equipment per the equipment specifications.

5.7.8.2(5) To verify compliance with the vibration requirements, an independent testing firm may be retained by the Authority for the purposes of ensuring that the Quality Management plan is robust and being followed. The testing firm will measure the vibration using instrumentation which may include transducers, accelerometers, signal-conditioning equipment, data recorders, and analysis systems. Measured vibration performance characteristics for the structure must meet the requirements set out in these specifications. The following table indicates acceptable vibration levels for various typical medical and non-medical Facility spaces.

Occupancy or Equipment Requirements	Vibrational Velocity (1) µm/s
Mechanical rooms on an unoccupied floor above or below an occupied floor	1,000
Office areas, waiting rooms and corridors	400
Mechanical Rooms on the same floor as an occupied area	300
Computer areas; patient care areas (daytime) – threshold of human perception	200
Patient rooms and other sleep areas	140
Operating rooms and critical work areas; bench microscopes up to 100 x magnification	100

Bench microscopes up to 400 x magnification; optical and other precision balances; optical comparators	50
Microsurgery, eye surgery; Bench microscopes at magnification greater than 400x; optical equipment on isolation tables	25
Magnetic resonance imagers	12
Mass spectrometers	6
(1) Value of constant velocity regions measured in one-third octave bands of frequency range 8 to 100 Hz. Based on ASHRAE, AISC and ISO Criteria. Vibration velocity at 4 Hz is to be limited to 2 times the allowable vibration at 8 Hz. Vibration level depends on walker weight and gait. Appropriate footfall conditions must be applied for the space type under consideration.	

5.7.9. Durability

5.7.9.1 Design the structure and structural components of the Facility for a minimum 50-year life span.

5.7.9.2 Design the structure and structural components of the Facility to minimize the effects of corrosion and deterioration due to the environment and use in accordance with the following:

5.7.9.2(1) adequate concrete crack control joints and expansion / contraction joints. Caulk exposed joints;

5.7.9.2(2) high strength concrete mixes proportioned to CSA A23.1/A23.2 durability requirements for exposure class;

5.7.9.2(3) hot-dip galvanize or powder-coat exterior exposed steel; and

5.7.9.2(4) hot-dip galvanize embedded steel protection angles and skid plates for loading docks and garbage compactors.

5.7.10. Medical equipment supports

5.7.10.1 Design and provide for support/anchorage of all supplied equipment. Medical equipment will be supported, anchored, and braced to resist gravity, operational, and seismic loads in a manner appropriate for the functional and service requirements for the specific equipment.

5.7.10.2 The design for medical equipment supports, anchorage, and bracing will be carried out by a qualified professional engineer registered in the Province of British Columbia. Installations will be field reviewed by the design engineer.

5.7.10.3 Provide overhead monorail lifting beams (of a length suitable for the purpose of the space) that are attached to the ceiling, complete with trolley and hoists, each rated for a safe working load of 1000 lbs or 454 kg in the following areas.

5.7.10.3(1) Biomedical Engineering Tech Workroom; and

5.7.10.3(2) Workshop area testing station

5.7.10.4 Performance criteria

5.7.10.4(1) Design floor and roof assemblies to support the gravity and seismic loads for floor, wall, or ceiling-mounted medical equipment. Ensure that steel content of structural members is compatible with equipment which is sensitive to steel content of the surrounding structure.

5.7.10.4(2) Design the structure for the vibration limitations specified by the manufacturer of the specified equipment or required by the planned use and occupancy of the floor space and carry out in-situ vibration testing when specified by the equipment manufacturer.

5.7.10.4(3) Design the supports for ceiling-mounted equipment, such as radiology gantries, to be universal so that the supports may be used for various types of equipment.

5.7.10.4(4) Drilled insert-type anchors for medical equipment supports and anchorage are to be rated by the insert manufacturer for seismic and cyclic loading applications.

5.7.11. Member Design Criteria

5.7.11.1 Design all floor and roof structural framing members to have sufficient strength and stability so that the factored member resistance is equal to or greater than the effects of the factored loads.

5.7.11.2 Design all floor and roof structural framing members to have sufficient stiffness so as to remain serviceable under the specified gravity loads.

5.8 Commercial Opportunity

5.8.1. As a means of increasing the participation rate and targeting a wider clientele, the café will stand alone and will be visible and an accessible area from the Lobby. Potential partnerships with local operators will be explored for the Café. As an added incentive, catering business within the Facility will be offered to potential partners. Refer to Appendix 1A Clinical Specifications.

5.9 Mechanical Systems Design

5.9.1. General Mechanical Requirements

5.9.1.1 The Design-Builder will provide HVAC, Plumbing, Fire Protection, Specialty and Medical Gas Systems that:

5.9.1.1(1) Comply with all Codes, Standards, and References as outlined in this Statement of Requirements.

5.9.1.1(2) Are designed to provide a healing, comfortable and productive environment for the Facility Users and to meet the required environmental conditions for all equipment and meet the requirements set out in the Agreement including all Standards;

5.9.1.1(3) Are located and designed to meet the requirements set out in Appendix 1C Acoustics and Noise Control Measures from outdoor spaces / places of respite intended for occupant use; and from adjacent properties surrounding the Site;

5.9.1.1(4) Systems are developed to provide reliability of continual operation. Adequate standby capacity and redundancy will be included in system design;

5.9.1.1(5) Systems will comply with acoustical requirements of referenced codes and standards and all acoustical requirements of Appendix 1C Acoustics and Noise Control Measures;

5.9.1.1(6) Are located and designed to be sound attenuated from outdoor spaces/ places of respite for patient / staff use and from adjacent residential properties surrounding the Facility;

5.9.1.1(7) Systems will be vibration isolated to minimize noise and vibration through the structure and other components of the Facility;

5.9.1.1(8) Systems will minimize impact on the natural and physical environment, through energy efficiency, optimization of resource use, and simplification of the systems;

5.9.1.1(9) Systems will be configured and located in such a way to minimize disruption to clinical areas for the performance of maintenance and repairs. Mechanical Services will be configured and located in such a way that maintenance and repair can be performed without impacting type I spaces. Use space above corridor ceiling to run the main distribution services, locate all service valves in the corridor ceiling or within the space that it serves (type II and type III spaces only);

5.9.1.1(10) Systems will be configured and located such that all components which require maintenance are positioned to be accessible from standing or when using a maximum 2500mm tall ladder. When this is not possible provide access by means of a mobile scissor lift (or similar);

5.9.1.1(11) Systems will be configured and located to provide sufficient clearance around equipment and components for servicing and replacement including:

5.9.1.1(11)(a) Comply with manufacturers service clearance requirements;

5.9.1.1(11)(b) Allow a minimum of 1500 mm floor space clearance at all locations where maintenance will be preformed. This applies to All floor-mounted major mechanical equipment, including boilers, chillers, air handlers, pumps, fans, heat exchangers, sprinkler zone valves, medical gas equipment/skids, and tanks;

5.9.1.1(11)(c) Pathways for service personnel and maintenance carts, equipment removal and replacement sized to accommodate the largest piece of equipment designated will be moved along this pathway with a clear space not less than designed corridor width and height;

5.9.1.1(11)(d) Access to roof-mounted AHUs can be accessed via crane via perimeter of the building;

5.9.1.1(11)(e) Built-up air handling units and each individual component is removable/replaceable; and

5.9.1.1(12) Incorporate flexibility and adaptability for future changes without major disruption or alteration to the Facility operations or infrastructure. All systems will be designed and sized to suit the consumption and discharge needs of the Facility at peak operational requirements, with the ability to further increase the flow or capacity as follows:

5.9.1.1(12)(a) Size branch piping and ducting to meet the requirements of current demand. For perimeter zones, size ventilation rate to the greater requirement of CSA Z317.2 air change rates or the air change rate to meet the cooling requirement;

5.9.1.1(12)(b) No requirement for additional capacity for sizing distribution piping and ducting systems;

5.9.1.1(12)(c) Size all VAV box reheat coils with an additional 20% heating capacity to provide flexibility to heat spaces over the highest room temperature indicated by CSA Z317.2. Provide reheat coils serving ORs with the capability to heat the rooms to 26°C or 20% additional heating capacity, whichever is greater;

5.9.1.1(12)(d) No requirement for additional/increased capacity for shafts and pipe risers. No requirement for additional space for duct shaft areas for future services installation. Provide permanent personnel access doors at top and bottom of shaft and on alternating floors in between;

5.9.1.1(12)(e) Air handling equipment, exhaust fans, and pumps will be sized for additional capacity. Sizing fans and pumps with the capacity to deliver 10% additional flow through installed distribution systems without changing motors and with the capability to deliver 20% additional capacity through existing distribution systems by changing motors; and

5.9.1.1(12)(f) Air handling and chilled water plant equipment installed for Substantial Completion will be capable of meeting the anticipated cooling requirement, plus the spare capacity as noted above.

5.9.1.1(12)(g) Making all provisions necessary to accommodate space and equipment requirements including all related capped ductwork and piping for future potential spaces.

5.9.1.1(12)(h) Medical gas air compressor, vacuum pump and AGSS vacuum pump systems will be designed to accommodate an additional 20% capacity. Control panels for this equipment will be sized to accommodate the present demand plus the additional 20% control and power requirements.

5.9.1.1(12)(i) Design piping, ductwork, heating/cooling/heat recovery coils, control valves, air filters, and louvres to meet the following minimum parameters, while accounting for the spare capacities as noted above:

Hydronic pressure drop – maximum piping friction loss: 4 m/100m;

Hydronic velocity – maximum velocity based on pipe manufacturer's recommendations;

Supply and return ductwork will be sized within the ASHRAE Fundamentals upper and lower limits for duct air velocities and pressure drop, but with upper limit capped at 7.6 m/s [1500 fpm] at Substantial Completion. Duct velocity will be limited to achieve an acoustical design criteria of RC(N) 35 or better if called for in Appendix 1C Acoustics and Noise Control Measures Heating/ cooling/heat recovery coil face velocity – maximum velocity 2.0 m/s;

Control valve and hydronic coil pressure drop – maximum 21 kPa each;

Air filter face velocity – maximum velocity 2.0 m/s; and

Ventilation system air intake louvre free area face velocity – maximum velocity 2.5 m/s

5.9.1.2 All pipes, ducts and fittings will be insulated to conserve energy, prevent condensation, attenuate noise, and prevent accidental burns. All insulation will have coverings applied that are appropriate for the location and service involved.

5.9.1.3 Coordinate all mechanical systems with requirements of equipment supplied by the Authority, and provide all necessary connections required from mechanical systems to allow for a fully functioning system that meets the applicable codes, standards and equipment manufacturer's requirements. Make allowances within the mechanical systems' designs so all equipment can be removed or replaced without disrupting the operation of other equipment connected to the mechanical systems. Valved connection points will be provided to connect future equipment to the associated systems. Review Appendix 1A Clinical Specifications to ensure that all equipment, rough in for equipment and support systems have been accounted for and provided. Design-Builder will include for procurement, design integration, storage, delivery to site, setting in place, making mechanical service connections, providing mechanical service connections for future equipment, installation, commissioning.

5.9.1.4 Refer to Appendix 1A Clinical Specifications to ensure that all equipment, rough-in of equipment and support systems have been accounted for and provided. All equipment noted as future equipment which require plumbing or mechanical services are to be roughed in by Design-Builder.

5.9.1.5 Size water, sanitary, storm and gas utilities as required to suit the consumption and discharge need of the Facility occupancy, plus an additional 20% spare capacity to allow for future flexibility.

5.9.1.6 Systems will be designed to provide reliability of uninterrupted continual operation. The Facility will be a Class A-2 Health Care Facility (HCF) as defined by CSA Z317.2. Redundancy will be provided in accordance with CSA Z317.2 with the following exceptions:

5.9.1.6(1) Type I spaces will maintain 100% redundancy. Type II and Type III spaces will maintain 50% redundancy.

5.9.1.6(2) Specialty areas such as Laboratories and Pharmacies will be designed in accordance with Industry Standards for these speciality areas. The redundancy requirements of these Standards may be greater than the requirements of CSA and those requirements will apply.

5.9.1.7 Provide specialty mechanical systems as required by the Authority based on Appendix 1A Clinical Specifications.

5.9.1.8 Medical gas compressors and vacuum pumps will be located in a designated room. Medical gas cylinders will be stored in designated areas near the loading dock, with a direct connection to the outdoors.

5.9.1.9 The domestic hot water and hot water recirculation systems will be designed to prevent the growth of Legionella within the water systems.

5.9.1.10 Provide premium efficiency motors for all mechanical equipment.

5.9.1.11 Where motors are controlled by VFD, provide motors with shaft grounding rings wired to the VFD. VFD installations for motors 5HP and over will incorporate both line and load reactors. VFDs will control no more than one motor.

5.9.1.12 Where a single pump, or a pair of pumps in an N+1 arrangement for redundancy, would result in each pump having a motor exceeding 25HP, provide instead multiple pumps at 50% of design flow piped in parallel.

5.9.1.13 Mechanical services within Communication, IT, Electrical and UPS rooms will be limited to minor intrusions to allow mechanical cooling and ventilation. Refer to Divisions 26 and 27 for further details. All mechanical services installed within Electrical and UPS rooms must maintain a minimum clear height of 3000 mm above finished floor. Do not install any equipment requiring a water connection in the ceiling of the Communication, Electrical, or UPS rooms. Do not route plumbing, drain pipes or hydronic distribution piping in the ceiling of the above noted spaces.

5.9.1.14 Coordinate with the electrical and communications specification for all mechanical systems that must maintain operation during an expected or unexpected shut down of the Facility's main electrical service. UPS power provided to mechanical equipment will not be provided from the UPS dedicated for low voltage and communications systems. Where mechanical equipment and devices are required to be served by emergency power, provide UPS, vital, delayed vital, or conditional power.

5.9.1.15 Equipment, pipes, ducts and fittings will be insulated to conserve energy, prevent condensation, attenuate noise and prevent accidental burns. All services requiring insulation that are exposed exterior of the Facility are to be covered and painted as per exposed services requirements. All services in the central plant will be painted or finished as required for exposed services.

5.9.1.16 Equipment, pipes and ducts will be clearly labelled.

5.9.1.17 Coordinate all mechanical systems with requirements of all equipment, and provide all connections required from mechanical systems. Provide dielectric isolation between pipes of dissimilar metals.

5.9.1.18 For all spaces designated for commercial and retail usage, design all mechanical systems so that the work required to modify the systems for the fit - out will not affect the operation of the main Facility's systems.

5.9.1.19 For rooms that will incorporate a differential pressure monitor and/or rooms that require a specific differential pressure as required by this agreement and applicable standards, the Design-Builder will construct the rooms to be air tight. Construction features for Divisions 21, 22, 23 and 25 include gasketed sprinkler escutcheons and gaskets around diffusers, grilles and radiant panels (where applicable). Provide seals around medical gas outlets, headwalls, valve boxes, extinguisher cabinets, sensor junction boxes, fixture drains and water supplies and other components that are recessed within walls that form part of the air seal. Seal ends of controls conduits that terminate within pressurized rooms. Refer to other Sections for sealing required by other Divisions.

5.9.1.20 Manual valves larger than 150mm [6"] will be gear operated type.

5.9.1.21 Wet services including but not limited to: water supply maintenance, water heating systems, rain and stormwater management, water efficiency management systems, sewage treatment, water storage and pumping systems shall be located in a mechanical room in the basement of the building. Perimeter drainage sumps may be located in the general maintenance shop.

5.9.2. Central Plant

5.9.2.1 The stand-alone Tertiary mental health Component (Seven Sisters) may have it's own heating/cooling plant or be connected to main Facility's Central Plant.

5.9.2.2 The central plant must be sized to serve the Facility with heating hot water, steam chilled water.

5.9.2.3 Hot water heating and chilled water cooling plants will be designed based on meeting the required plant capacity per Section 7.3.1.1. and equipment redundancy per the referenced standards.

5.9.2.4 Steam boiler plant will be designed based on meeting the required plant capacity. Redundancy will be based on meeting the required plant capacity with the largest boiler out of service.

5.9.2.5 The central plant and all systems/equipment installed in the Facility will require a plant operator as determined by the total plant size, as defined in the BC Safety Standards Act: Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation.

5.9.2.6 Each fuel storage system will be complete with a redundant fuel polishing system to ensure the stored fuel remains clean and available for its intended use at any time.

5.9.2.7 The central plant design will accommodate seasonal part load demands to avoid frequent cycling of equipment or forced shutdown of equipment due to light loads.

5.9.3. Post-Disaster Design

5.9.3.1 The requirements for post-disaster do not apply to the Tertiary mental health Component (Seven Sisters).

5.9.3.2 Design all mechanical piping, ductwork, equipment, and system seismic restraints in accordance with the requirements for post disaster buildings, as outlined in Section 5.

5.9.3.3 Equipment will have sufficient redundancy, structural integrity, and seismic restraint to assure the Facility remains operational after a disaster event.

5.9.3.4 The heating plant and emergency generators will each have sufficient back-up fuel storage for a minimum period of 72 hours. If the heating plant and generators use the same fuel, the supplies will be stored in separate tanks.

5.9.3.5 The medical gas systems will be capable of maintaining a sufficient supply of all medical gases to provide the requirements of the Facility's Post Disaster Operational Areas for a minimum period of 72 hours.

5.9.3.6 Provide the following emergency service connections:

5.9.3.6(1) Domestic Water

5.9.3.6(1)(a) Provide a minimum 100 mm diameter Camlock connection on the exterior of the Facility to allow for a potable water tanker truck to make connection to the Facility domestic water services. The connection will be valved and capped and be provided in a locked secure non-corrosive cabinet near to where parking has been designated for the water tanker truck. The domestic water inlet connection from the exterior will be connected to the domestic water entry station with appropriate valves and safety controls;

5.9.3.6(1)(b) The pump-out connection will be located near the designated parking for the sewage pumper truck. The sanitary pump out connection will be located in a free standing heavy duty, non-corrosive kiosk and will have permanent signage affixed to the kiosk to identify the service and function.

5.9.3.6(2) Medical Gases

5.9.3.6(2)(a) Provide medical gas connections on the exterior of the Facility for supplying oxygen, medical air, and medical vacuum into/out of the Facility from external bulk storage tanks or truck. The emergency gas connections will be mounted in a tamperproof and weatherproof lockable recessed wall mounted enclosure complete with valves regulator in an area accessible to supply vehicles but not in the vicinity of the exterior central bulk oxygen plant. The exterior of the enclosure door will be factory labelled to indicate emergency gas connections. The interior of the enclosure will be clearly labelled with instructions for the connection to and operation of the emergency gas connections. The connection to the oxygen pipeline system will be downstream of the bulk oxygen supply system shut off valve inside the Facility.

5.9.3.7 Unless otherwise stated, all connections will be secure terminations (valved, capped and locked) to protect from tampering and vandalism.

5.9.3.8 All external connections will be located in service areas away from general circulation routes, and where they can be readily accessible by the individual service vehicles. The design will take into account the size of the service vehicle and maintaining clear access for all emergency vehicles.

5.9.3.9 Mass Casualty - Tent Area

5.9.3.9(1) The Mass Casualty Tent Area will be located outside of the Facility adjacent to the emergency department/ambulance garage. To support this function the follow services are required:

5.9.3.9(1)(a) Domestic water services connection will be provided from the external 65 mm fire hydrant outlets on the face of the facility using 65 mm fire hoses between the Hospital and the Mass Casualty Facility. At the Mass Casualty Tent Area a water manifold assembly will be required to allow for distribution of the hot and cold water. The water manifold will be a heavy duty wheeled wagon, that can be anchored into position, and will contain 65 mm hose connections, valves, pressure reducing valves, and a manifold that will have 10 - 20 mm hose connections on each of the hot and cold manifolds. In addition there will be a 40 mm institutional grade thermostatic mixing valve, complete with thermometers that will be connected to the hot and cold manifold to provide tempered water to shower stations. Provide a total of 10 - 20mm hose connections to the tempered water manifold.

5.9.3.9(1)(b) No additional storm water facilities will be provided for this other than surface water to the local catch basins.

5.9.3.10 Mass Casualty - Ambulance Garage

5.9.3.10(1) A mass casualty facility will be established inside of the ambulance garage.

To support this facility the following services are required.

5.9.3.10(1)(a) Medical Gases

(a)..1 A total of 16 outlets shall be provide in concealed enclosures around the perimeter of the ambulance garage. The 16 outlets shall be divided between 4 patient units/stations, each unit receiving 2 vacuum outlets, 1 oxygen outlet and 1 medical air outlet.

5.9.3.10(1)(b) Water Services

(b)..1 A total of 3 wall mounted tempered water shower assemblies are to be mounted within the ambulance bay to allow for wash-down of incoming patients. Each of the shower assemblies will be housed in a stainless steel surface mounted enclosure with a shower head and shut off valve.

(b)..2 In addition to the showers, one tempered water hose reel is to be mounted on the wall in the same location as the shower stations. The hose reel will hold a 15 meter hose with a fine spray nozzle attached.

(b)..3 The shower assembly is to be fed by tempered water from the central mixing valve.

(b)..4 The entire tempered water system will be totally drainable and blown out after each use.

(b)..5 The tempered water system will be fed from a central thermostatic mixing valve located in a secure location within the building.

(b)..6 An electrically operated solenoid valve will be located upstream of the mixing valve with a mushroom style activation switch located near the shower location.

5.9.3.10(2) The shower areas will be serviced by a continuous trench drain which will be separate from the ambulance garage drains but the discharge will connect upstream of the oil interceptor serving the ambulance garage.The Ambulance Garage heating system will be capable of heating interior space to 22°C at any time of year.

5.9.4. Decontamination Room

5.9.4.1 The decontamination room located near the emergency department is to have the following services:

5.9.4.1(1) Provide surface mounted shower assemblies containing a hand held shower, and a pressure balanced mixing valve to provide individual temperature control to each shower. The shower areas will have trench drains to service each of the shower areas to ensure that water is contained within the area. All water from the shower trench drains will be directed to the decontamination water storage tank.

5.9.4.1(2) The general area of the decontamination room will also contain additional floor drains and the water from these drains will also be taken to the decontamination tank.

5.9.4.1(3) In addition there will two emergency eyewash station complete with mixing valves and drainage to the decontamination tank.

5.9.4.1(4) Provide a separate decontamination waste storage system to serve the decontamination room, with sufficient capacity to contain all flow from this area during a decontamination event.

5.9.4.1(5) Design the drain system as a sanitary system complete with P traps, trap primer, and vents so that no noxious fumes return back into the building.

5.9.4.1(6) Decontamination tank will be minimum 20,000 L.

5.9.4.1(7) The decontamination tank (buried or above ground) will have appropriate ULC listings and be equipped with inlet port(s), vent(s) and suction outlet port(s) to allow for pumper truck suction at a remote suction port external to the building.

5.9.4.1(8) The tank will have drain valves, and liquid level sensors that will initiate alarm conditions to a local alarm panel to the BMS at 50% full condition.

5.10 Electrical Systems Design

5.10.1. Design-Builder will comply with the following design principles for electrical, communications and security systems.

5.10.1.1 All electrical systems, materials and equipment will be of a type and quality intended for use in a health care facility. Configure electrical systems to meet requirements of the identified program and patient care needs in an efficient manner, with optimal utilization of space, staff and equipment resources.

5.10.1.2 Provide electrical systems that: allow the Authority to deliver the program described in Appendix 1A Clinical Specifications; and provide redundancy, protection, continuity of service, serviceability of equipment; and a comfortable and safe working environment for patients, visitors, and staff.

5.10.1.3 Implement the latest proven technologies in the design of the electrical systems and equipment.

5.10.1.4 Integrate systems where integration provides efficiency, operational and cost advantage.

5.10.1.5 All electrical, communication, security, medical and life safety systems will be fully compatible with existing Authority regional based systems. Provide all infrastructure, interfaces, modifications, programming, testing and commissioning to local and off-Site systems to ensure that there is seamless integration with remote facilities.

5.10.1.6 Incorporate into the design and construction the principle that change will be a constant and inevitable fact within the Facility. Completed electrical systems will permit change while minimizing the cost of change and the amount of interruption to the regular Facility activities. Utilize a combination of natural light, luminaries and controls to optimize daylight.

5.10.1.7 Provide lighting schemes that support staff activities and provide enhance safety for staff, patients and visitors.

5.10.1.8 Design lighting with the objective of creating a comfortable working environment and an environment conducive to healing and recovery.

5.10.1.9 Include systems and equipment coordinated to provide synergy and reliable electrical performance for the various Facility functions.

5.10.1.10 All electrical systems for the Psychiatric Inpatient Unit shall be tamper proof, tamper resistant and be of a type and quality intended for use in a mental health care facility.

5.10.1.11 All systems for the Psychiatric Inpatient Unit shall adhere to all relevant mental health standards including but not limited to the CSA Psychological Health and Safety in the Workplace, and Design Guide for the Built Environment of Behavioral Health Facilities.

5.10.2. Provide devices and systems to minimize the noise and vibrations of electrical equipment/ components (transformers, luminaries, cables) to below an acceptable level as required in a health care facility.

5.10.2.1 Locate electrical rooms and power distribution equipment in order to minimize the distances for feeder runs, to provide easy access for equipment moves and to avoid interference with other services and equipment. Where electrical equipment is located below grade, provide adequate protection against the risk of flooding.

5.10.2.2 Install electrical systems and equipment in a fixed and permanent manner, seismically restrained to meet post-disaster building standards.

5.10.2.3 Locate electrical equipment and feeder routes to minimise the risk to service continuity resulting from fire, flood, adverse weather, seismic events, construction activities and vandalism.

5.10.2.4 Incorporate energy management systems to minimize demand pressures on the Building systems and minimize the anticipated increase to energy costs.

5.10.3. Design-Builder will comply with the following electrical design requirements for electrical systems.

5.10.3.1 No requirement for additional capacity of the 25kV system for increased electrical demand.

5.10.3.2 No requirement for spare capacity for increased site electrical demand.

5.10.3.3 No requirement for additional physical space to facilitate the installation of future feeders.

5.10.3.4 Plan installation of equipment to facilitate easy access to equipment which may require inspection or maintenance.

5.10.3.5 Provide a complete essential electrical system which meets or exceeds all relevant standards.

5.10.3.6 Provide electrical distribution schemes which are sized and configured to achieve service continuity in the event of equipment failure. Failure of any electrical equipment or feeder will not impair Facility operation or leave any patient treatment room or area of the Facility without at least one active light and one active receptacle.

5.10.3.7 Install electrical systems and equipment in a fixed and permanent manner, seismically restrained to meet post-disaster building.

5.10.3.8 The following equipment will be designed, certified and installed in accordance with all relevant standards:

5.10.3.8(1) emergency power generator;

5.10.3.8(2) automatic transfer switch;

5.10.3.8(3) UPS system;

5.10.3.8(4) main distribution boards;

5.10.3.8(5) utility transformers; and

5.10.3.8(6) distribution transformers 112.5kVA and larger.

5.10.3.9 Size and configure equipment to permit routine testing and servicing of power generation and distribution equipment with minimal loss of service continuity.

5.10.3.10 Coordinate the electrical and systems design with other disciplines to support the service continuity and redundancy requirements for mechanical and building systems.

5.10.3.11 Design and construct all systems with protection, grounding, isolation and control to address the functional requirements where they are located.

5.10.3.12 Power throughout the Building will comprise of a combination of 347/600V and 120/208V for all power, lighting and equipment loads.

5.10.3.13 Provide capacity in distribution equipment to serve any shelled spaces in the Facility. Allow 40watts/sq.m for lights and receptacles in shelled space, if applicable, with 50% of load on emergency power. Indicate on floor plans all assumed locations of future Vital and Conditional 120/208 volt panelboards that will serve the shelled spaces. Indicate future panelboards such that no point in the shelled space is more than 15 metres away either Vital or Conditional panelboard. Provide independently metered electrical services with enough panelboard and breaker capacity to serve the shelled space. Indicate on drawings all provisions allowed for shelled spaces, if applicable, including the transformers from which panels will be fed.

5.11 Food Services

5.11.1. Refer to Section 6.11 Equipment (Division 11)

5.12 Laundry Services

5.12.1. Refer to Section 6.11 Equipment (Division 11)

PART 6. FACILITY CONSTRUCTION SUBGROUP SPECIFICATIONS

6.1 Existing Conditions (Division 2)

6.1.1. Refer to Schedule 2 - Review Procedure regarding available Site reports.

6.2 Concrete (Division 3)

6.2.1. Overriding Principles

6.2.1.1 Design and construction cast in place or precast concrete of appropriate properties for the intended use.

6.2.1.2 Design for the applicable concrete exposure class and provide high sulphate resistant performance where applicable.

6.2.1.3 Maximize the fly ash content of the mix.

6.2.1.4 Use wood formwork for cast in place concrete.

6.2.2. Quality Requirements

6.2.2.1 Cause cast in place concrete and concrete materials to be inspected and tested by a CSA certified testing laboratory.

6.2.2.2 Cause precast concrete materials and workmanship to be inspected and tested by the precast concrete contractor as part of its quality control program.

6.2.3. Performance Criteria

6.2.3.1 Finish concrete floors with a smooth, dense, steel trowel finish to a floor flatness of FF = 25, except where more strict requirements are needed to suit the proposed occupancy or equipment that will be located in the space. Overlay toppings to level floors will not be used.

6.2.3.2 Repair cracks in concrete floors and walls to suit the floor finish and long-term serviceability requirements of the floor.

6.2.3.3 Water proof all foundation walls for below-grade occupied spaces and crawl spaces to prevent groundwater ingress, including any below-grade structured parking. Construction joints will have purpose-made water stops. A perimeter draining system will be installed around the exterior of earth-retained foundations.

6.2.3.4 Exposed architectural concrete will comply with CAN/CSA A23.1/A23.2-09 to minimize honey combing or patching.

6.2.3.5 All concrete exposed in areas used by staff, patients or public will be architectural concrete.

6.2.3.6 Provide vapour barrier under slabs-on-grade in the form of continuous, cross- linked, minimum 10 mil polyethylene sheet.

6.2.3.7 See Section 6.4.2.4 for concrete topping on metal deck requirements.

6.2.3.8 Provide weeping tile as required to ensure proper drainage of the sub surface foundations and walls.

6.2.4. Related Requirements

6.2.4.1 Concrete Reinforcing - Section 03 20 00

6.2.4.2 Cast in Place Concrete – Section 03 30 00

6.2.5. Reference Standards

6.2.5.1 LEED V4/V4.1 (USGBC) in Canada

6.2.5.2 LEED Reference Guide for Green Building Design and Construction – Healthcare Supplement 2009 Edition

6.2.5.3 CSA Group (CSA)

6.2.5.4 CSA-A23.1 /A23.2 , Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.

6.2.5.5 CAN/CSA-O86, Engineering Design in Wood (Limit States design)

6.2.5.6 CSA O121, Douglas Fir Plywood.

6.2.5.7 CSA O151 , Canadian Softwood Plywood.

6.2.5.8 CAN/CSA-O325.0, Construction Sheathing.

6.2.5.9 CSA O437 Series, Standards for OSB and Waferboard.

6.2.5.10 CSA S269.1, Falsework and Formwork.

6.2.5.11 CAN/CSA-S269.3, Concrete Formwork.

6.2.5.12 Underwriters' Laboratories of Canada (ULC)

6.2.5.13 CAN/ULC-S701, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.

6.2.6. Administrative Requirements

6.2.6.1 Pre-installation Meetings: in accordance with Section 01 31 19- Project Meetings, convene pre-installation meeting one week prior to beginning concrete works .

6.2.6.2 Ensure key personnel, site supervisor, and concrete producer specialty contractor - finishing, forming attend.

6.2.6.2(1) Verify Project requirements.

6.2.7. Action and Informational Submittal

6.2.7.1 Submittal in accordance with Section 01 33 00- Submittal Procedures .

6.2.7.2 Product Data:

6.2.7.2(1) Submit manufacturer's instructions, printed product literature and data sheets for proprietary materials used in formwork liners and coatings and include product characteristics, performance criteria, physical size, finish, and limitations.

6.2.7.2(2) Submit shop drawings for formwork and falsework .

6.2.7.2(3) Submit drawings stamped and signed by professional engineer registered or licensed in British Columbia, Canada.

6.2.7.2(4) Prepare Shop Drawings in accordance with CSA S269.1 for formwork and falsework .

6.2.7.2(5) Indicate formwork design data: permissible rate of concrete placement, and temperature of concrete, in forms.

6.2.7.2(6) Indicate sequence of erection and removal of formwork/falsework as directed by structural Engineer of Record.

6.2.7.2(7) When flying forms are used, the Structural Engineer for the formwork subtrade is to submit details of equipment and procedures to the Structural Engineer of Record.

6.2.7.2(8) Indicate method and schedule of construction, shoring, stripping and re-shoring procedures, materials, arrangement of joints, special architectural exposed finishes, ties, liners, and locations of temporary embedded parts.

6.2.7.2(9) Indicate sequence of erection and removal of formwork and falsework .

6.2.7.2(10) Include the following information on falsework Shop Drawings:

6.2.7.2(10)(a) Longitudinal, lateral, vertical, dead, live and impact loads used in design.

6.2.7.2(10)(b) Safe bearing capacity of soil underneath mud sills.

6.2.7.2(10)(c) Maximum column, post and support loads.

6.2.7.2(10)(d) Deflection diagrams for beams with deflection of 10 mm or more.

6.2.7.2(10)(e) Deflection diagrams indicating initial and final elevation of deck surfaces, roofs and soffits.

6.2.7.2(10)(f) Grade of structural steel.

6.2.7.2(10)(g) Indicate steel posts, girders, beams, connections, bracing and welding, providing sufficient detail for safe performance of falsework.

6.2.7.2(10)(h) Fully detailed steel frame shoring.

6.2.7.2(10)(i) Species, grades and sizes of wood.

6.2.7.2(10)(j) Type and weight of equipment (moving or stationary) supported by falsework.

6.2.7.2(10)(k) Sequence, methods and rate of concrete placement.

6.2.7.2(10)(l) Proprietary equipment, adequately identified for checking purposes.

6.2.7.2(10)(m) Full details and locations of splices.

6.2.7.3 Sustainable Design Submittal:

6.2.7.3(1) LEED Canada Submittal: in accordance with Section 01 35 21- LEED Requirements .

6.2.7.3(2) Construction Waste Management:

(a)..1 Submit Project Waste Management Plan highlighting recycling and salvage requirements.

6.2.7.3(3) Low-Emitting Materials:

(a)..1 Submit listing of for release agents used in building, comply with VOC and chemical component limits or restriction requirements.

6.2.8. Quality Assurance

6.2.8.1 Quality Assurance: in accordance with Section 01 45 00- Quality Control.

6.2.8.2 Retain a professional engineer registered or licensed in British Columbia, Canada, with experience in formwork and falsework design of comparable complexity and scope, to perform following services as part of Work of this Section:

6.2.8.2(1) Design of formwork and falsework:

6.2.8.2(2) Review, stamp, and sign fabrication and erection Shop Drawings, design calculations and amendments.

6.2.8.2(3) Conduct on-site inspections and prepare and submit inspection reports verifying this part of Work is in accordance with Contract Documents and reviewed Shop Drawings.

6.2.9. Delivery, Storage, and Handling

6.2.9.1 Deliver, store, and handle materials in accordance with manufacturer's written instructions or 01 61 00 - Common Product Requirements.

6.2.9.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

6.2.9.3 Storage and Handling Requirements:

6.2.9.3(1) Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

6.2.9.3(2) Store and protect formwork from damages.

6.2.9.3(3) Replace defective or damaged materials with new.

6.2.9.4 Develop Construction Waste Management Plan related to Work of this Section and in accordance with LEED Requirements.

6.2.9.5 Packaging Waste Management: remove for reuse and return of pallets, crates, padding, packaging materials as specified in Construction Waste Management Plan and LEED Requirements.

6.2.10. Materials

6.2.10.1 Materials and resources in accordance with Section 01 47 15- Sustainable Requirements: Construction .

6.2.10.2 Do verification requirements in accordance with Section 01 33 29- Sustainable design reporting .

6.2.10.3 Formwork materials:

6.2.10.3(1) For concrete without special architectural features, use wood and wood product formwork materials to CAN/CSA-O86, CSA-O121, CSA O437 Series.

6.2.10.3(2) For concrete with special architectural features, use formwork materials to CSA-A23.1.

6.2.10.3(3) Rigid insulation board: to CAN/ULC-S701 .

6.2.10.4 Pan forms: removable steel, permanent, aluminum, reinforced plastic free of bends, dents, and residual concrete; having a high potential for reuse as indicated.

6.2.10.5 Tubular column forms: round, steel or spirally wound, polyethylene impregnated virgin kraft interior layer and a waxed exterior , internally treated with release material.

6.2.10.6 Spiral pattern not to show in hardened concrete .

6.2.10.7 Form ties:

6.2.10.7(1) For concrete not designated 'Architectural': removable or snap-off metal ties, fixed or adjustable length, free of devices leaving holes minimum 25 mm diameter in concrete surface.

6.2.10.7(2) For Architectural concrete; snap ties complete with plastic cones and light grey concrete plugs.

6.2.10.8 Form liner:

6.2.10.8(1) Plywood: Douglas Fir to CSA O121, Canadian Softwood Plywood to CSA O151 medium density overlay

6.2.10.8(2) Waferboard: to CAN/CSA-O325.0

6.2.10.9 Form release agent: Proprietary, non volatile material not to stain concrete or impair subsequent application of finishes or coatings to surface of concrete, derived from agricultural sources, non petroleum containing, low VOC, non-toxic, biodegradable.

6.2.10.10 Falsework materials: to CSA-S269.1.

6.2.10.11 Sealant: to Section 07 92 00- Joint Sealants.

6.2.11. Fabrication and Erection

6.2.11.1 Verify lines, levels, and centres before proceeding with formwork/falsework and ensure dimensions agree with drawings.

6.2.11.2 Obtain Engineer of Record’sapproval for use of earth forms framing openings not indicated on drawings.

6.2.11.3 Hand trim sides and bottoms and remove loose earth from earth forms before placing concrete.

6.2.11.4 Fabricate and erect falsework in accordance with CSA S269.1 .

6.2.11.5 Refer to architectural drawings for concrete members requiring architectural exposed finishes.

6.2.11.6 Do not place shores and mud sills on frozen ground.

6.2.11.7 Provide site drainage to prevent washout of soil supporting mud sills and shores.

6.2.11.8 Fabricate and erect formwork in accordance with CAN/CSA-S269.3 to produce finished concrete conforming to shape, dimensions, locations and levels indicated within tolerances required by CSA-A23.1/A23.2.

6.2.11.9 Align form joints and make watertight.

6.2.11.9(1) Keep form joints to minimum.

6.2.11.10 Locate horizontal form joints for exposed columns 2400 mm above finished floor elevation.

6.2.11.11 Use 25 mm chamfer strips on external corners and 25 mm fillets at interior corners, joints, unless specified otherwise.

6.2.11.12 Form chases, slots, openings, drips, recesses, expansion and control joints as indicated.

6.2.11.13 Construct forms for architectural concrete, and place ties as indicated.

6.2.11.13(1) Joint pattern not necessarily based on using standard size panels or maximum permissible spacing of ties.

6.2.11.14 Build in anchors, sleeves, and other inserts required to accommodate Work specified in other sections.

6.2.11.14(1) Ensure that anchors and inserts will not protrude beyond surfaces designated to receive applied finishes, including painting.

6.2.11.15 Intentionally deleted.

6.2.11.15(1) Intentionally deleted.

6.2.11.15(2) Intentionally deleted.

6.2.11.15(3) Intentionally deleted.

6.2.11.15(4) Intentionally deleted.

6.2.11.15(5) Intentionally deleted.

6.2.11.15(6) Intentionally deleted.

6.2.11.15(7) Intentionally deleted.

6.2.11.15(8) Intentionally deleted.

6.2.11.15(9) Intentionally deleted.

6.2.11.16 Clean formwork in accordance with CSA-A23.1/A23.2, before placing concrete.

6.2.11.17 When flying forms are used, submit details as indicated in PART 1 - SUBMITTAL.

6.2.12. Removal and Reshoring

6.2.12.1 Leave formwork in place for following minimum periods of time after placing concrete.

6.2.12.1(1) 2 days for walls and sides of beams.

6.2.12.1(2) 2 days for columns.

6.2.12.1(3) No slab or beam forms shall be removed before the concrete has reached a minimum of the larger of 75% of the concrete 28 day strength or 75% of the mix design strength. This is to be confirmed through the use of site cast cylinders kept in a protected enclosure under the same ambient conditions as the referenced structural elements.

6.2.12.1(3)(a) Re-shores are to be replaced in sections as the stripping occurs but must be replaced no later than the same day as stripped.

6.2.12.1(3)(b) Maintain a minimum of three levels of re-shore.

6.2.12.1(3)(c) All slabs, beams and girders must be shored until the concrete has attained the full design strength but not less than 28 days.

6.2.12.1(4) 2 days for footings and abutments.

6.2.12.2 Space reshoring in each principal direction at not more than 3000 mm apart.

6.2.12.3 Re-use formwork and falsework subject to requirements of CSA-A23.1/A23.2.

6.2.13. Cleaning

6.2.13.1 Progress Cleaning: clean in accordance with Section 01 74 00- Cleaning .

6.2.13.1(1) Leave Work area clean at end of each day.

6.2.13.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 77 00- Closeout Procedures.

6.2.13.3 Waste Management: per LEED Requirements.

6.2.13.3(1) Remove recycling containers and bins from site and dispose of materials at appropriate facility.

6.2.14. Related Requirements

6.2.14.1 Concrete Forming and Accessories – Section 03 10 00

6.2.14.2 Cast in Place Concrete – Section 03 30 00

6.2.15. Reference Standards

6.2.15.1 Canadian Standards Association (CSA)

6.2.15.1(1) SP-66-, ACI Detailing Manual 2004.

6.2.15.2 ASTM International (ASTM)

6.2.15.2(1) CSA G164 Hot Dip Galvanizing of irregularly shaped Articles.

6.2.15.2(2) CSA G164 Hot Dip Galvanizing of irregularly shaped Articles.

6.2.15.2(3) ASTM A641/A641M, Standard Specification for Zinc–Coated (Galvanized) Carbon Steel Wire.

6.2.15.2(4) ASTM A775/A775M, Standard Specification for Epoxy-Coated Reinforcing Steel Bars.

6.2.15.2(5) ASTM A 884/A 884M Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement.

6.2.15.2(6) ASTM A 1064/A 1064M, Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.

6.2.15.3 LEED V4/V4.1 (USGBC) in Canada

6.2.15.3(1) LEED Reference Guide for Green Building Design and Construction – Healthcare Supplement 2009 Edition

6.2.15.4 CSA Group (CSA)

6.2.15.4(1) CSA-A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.

6.2.15.4(2) CAN/CSA-A23.3, Design of Concrete Structures.

6.2.15.4(3) CSA-G30.18, Carbon Steel Bars for Concrete Reinforcement.

6.2.15.4(4) CSA-G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

6.2.15.4(5) CSA-G164, Hot Dip Galvanizing of Irregularly Shaped Articles.

6.2.15.4(6) CSA W186, Welding of Reinforcing Bars in Reinforced Concrete Construction.

6.2.15.5 Reinforcing Steel Institute of Canada (RSIC)

6.2.15.5(1) Manual of Standard Practice.

6.2.16. Administrative Requirements

6.2.16.1 Pre-installation Meetings: in accordance with Section 01 31 19- Project Meetings, convene pre-installation meeting one week prior to beginning concrete works.

6.2.16.1(1) Ensure key personnel, testing laboratories, Engineer of Record, specialty contractor – finishing & forming, concrete producer and site supervisor attend.

6.2.16.1(1)(a) Verify Project requirements.

6.2.17. Action and Informational Submittal

6.2.17.1 Submit in accordance with Section 01 33 00- Submittal Procedures.

6.2.17.2 Product Data:

6.2.17.2(1) Submit manufacturer's instructions, printed product literature and data sheets for proprietary materials used in Cast-In-Place Concrete and additives and include product characteristics, performance criteria, physical size, finish, and limitations.

6.2.17.2(2) When Chromate solution used as replacement for galvanizing non-prestressed reinforcement, provide product description submittal by Engineer of Record prior to its use.

6.2.17.2(3) Intentionally deleted.

6.2.17.2(3)(a) Intentionally deleted.

(a)..1 Intentionally deleted.

(a)..2 Intentionally deleted.

(a)..2.1 Intentionally deleted.

(a)..2.2 Intentionally deleted.

(a)..2.3 Intentionally deleted.

(a)..2.4 Intentionally deleted.

(a)..2.5 Intentionally deleted.

(a)..3 Intentionally deleted.

(a)..4 Intentionally deleted.

6.2.17.2(4) Sustainable Design Submittal:

6.2.17.2(4)(a) LEED Canada Submittal: in accordance with LEED Requirements.

6.2.17.2(4)(b) Construction Waste Management:

(b)..1 Submit Project Waste Management Plan highlighting recycling and salvage requirements.

6.2.17.2(5) Quality Assurance Submittal:

6.2.17.2(5)(a) Submit in accordance with Section 01 45 00- Quality Control and as described in PART 2 - SOURCE QUALITY CONTROL.

6.2.17.2(5)(b) Mill Test Report: submit to Engineer of Record certified copy of mill test report of reinforcing steel, minimum 4 weeks prior to beginning reinforcing work.

6.2.17.2(5)(c) Upon request submit in writing to Engineer of Record proposed source of reinforcement material.

6.2.17.2(5)(d) Submit to Engineer of Record epoxy coating applicator certificates identified in Quality Assurance.

6.2.18. Delivery, Storage And Handling

6.2.18.1 Deliver, store and handle materials in accordance with Product Requirements or with manufacturer's written instructions.

6.2.18.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

6.2.18.3 Storage and Handling Requirements:

6.2.18.3(1) Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

6.2.18.3(2) Replace defective or damaged materials with new.

6.2.18.4 Handle, transport, store and install epoxy coated reinforcing steel bars to prevent damage to coating. Prevent bar-to-bar abrasion and excessive sagging. Do not drop or drag bars. Store on suitable non-metallic supports. For lifting use nylon lifting slings, padded slings, separators or other means recommended by epoxy coated reinforcing steel supplier.

6.2.18.5 Develop Construction Waste Management Plan related to Work of this Section and in accordance with LEED Requirements.

6.2.19. Materials

6.2.19.1 Substitute different size bars only if permitted in writing by Engineer of Record.

6.2.19.2 Reinforcing steel: billet steel, grade 400 , deformed bars to CSA-G30.18, unless indicated otherwise.

6.2.19.3 Reinforcing steel: weldable low alloy steel deformed bars to CSA-G30.18.

6.2.19.4 Cold-drawn annealed steel wire ties: to ASTM 1064/A 1064M .

6.2.19.5 Deformed steel wire for concrete reinforcement: to ASTM 1064/A 1064M .

6.2.19.6 Welded steel wire fabric:

6.2.19.6(1) Plain in accordance ASTM A 1064/A 1064M, fabricated from as drawn steel wire into flat sheets; sizes as indicated on Drawings.

6.2.19.6(2) Provide in flat sheets only .

6.2.19.7 Epoxy Coating of non-prestressed reinforcement: to ASTM A 775/A 775M.

6.2.19.8 Galvanizing of non-prestressed reinforcement: to CAN/CSA-G164, minimum zinc coating 610 g/m

6.2.19.8(1) Protect galvanized reinforcing steel with chromate treatment to prevent reaction with Portland cement paste.

6.2.19.8(2) If chromate treatment carried out immediately after galvanizing, soak steel in aqueous solution containing minimum 0.2% by weight sodium dichromate or 0.2% chromic acid.

6.2.19.8(2)(a) Temperature of solution minimum 32 degrees and galvanized steels immersed for minimum 20 seconds.

6.2.19.8(3) If galvanized steels at ambient temperature, add sulphuric acid as bonding agent at concentration of 0.5% to 1%.

6.2.19.8(3)(a) No restriction applies to temperature of solution.

6.2.19.8(4) Chromate solution sold for this purpose may replace solution described above, provided if of equivalent effectiveness.

6.2.19.8(4)(a) Provide product description as described in PART 1 - ACTION AND INFORMATIONAL SUBMITTAL.

6.2.19.9 Chairs, bolsters, bar supports, spacers: to CSA-A23.1/A23.2.

6.2.19.10 Tie wire: 1.5 mm diameter annealed wire.

6.2.19.11 Mechanical splices: subject to approval of Engineer of Record.

6.2.19.12 Plain round bars: to CSA-G40.20/G40.21.

6.2.20. Fabrication

6.2.20.1 Fabricate reinforcing steel in accordance with CSA-A23.1/A23.2 / Reinforcing Steel Manual of Standard Practice by the Reinforcing Steel Institute of Canada .

6.2.20.2 Obtain Engineer of Record 's written approval for locations of reinforcement splices other than those shown on placing drawings.

6.2.20.3 Upon approval of Engineer of Record, weld reinforcement in accordance with CSA W186.

6.2.20.4 Ship bundles of bar reinforcement, clearly identified in accordance with bar bending details and lists.

6.2.20.4(1) Ship epoxy coated bars in accordance with ASTM A775A/A775M .

6.2.21. Source Quality Control

6.2.21.1 Provide Engineer of Record with certified copy of mill test report of reinforcing steel, showing physical and chemical analysis, minimum 4 weeks prior to beginning reinforcing work.

6.2.21.2 Upon request inform Engineer of Record of proposed source of supplied material.

6.2.22. Preparation

6.2.22.1 Galvanizing to include chromate treatment.

6.2.22.1(1) Duration of treatment 1 hour per 25 mm of bar diameter.

6.2.22.2 Conduct bending tests to verify galvanized bar fragility in accordance with ASTM A143/A143M.

6.2.23. Field Bending

6.2.23.1 Do not field bend or field weld reinforcement except where indicated or authorized by Engineer of Record.

6.2.23.2 When field bending authorized, bend without heat, applying slow and steady pressure.

6.2.23.3 Replace bars, which develop cracks or splits.

6.2.24. Placing Reinforcement

6.2.24.1 Cutting or puncturing vapour retarder is not permitted; repair damage and reseal vapour retarder before placing concrete.

6.2.24.2 Place reinforcing steel as indicated on placing drawings in accordance with CSA-A23.1/A23.2 .

6.2.24.3 Use plain round bars as slip dowels in concrete.

6.2.24.3(1) Paint portion of dowel intended to move within hardened concrete with one coat of asphalt paint .

6.2.24.3(2) Apply thick even film of mineral lubricating grease when paint is dry.

6.2.24.4 Prior to placing concrete, obtain Engineer of Record's approval of reinforcing material and placement.

6.2.24.5 Maintain cover to reinforcement during concrete pour.

6.2.24.6 Protect epoxy coated portions of bars with covering during transportation and handling.

6.2.25. Field Touch-Up

6.2.25.1 Touch up damaged and cut ends of epoxy coated or galvanized reinforcing steel with compatible finish to provide continuous coating.

6.2.26. Field Quality Control

6.2.26.1 Inspection or testing by Engineer of Record not to augment or replace Contractor quality control nor relieve Contractor of contractual responsibility.

6.2.27. Cleaning

6.2.27.1 Progress Cleaning:

6.2.27.1(1) Leave Work area clean at end of each day.

6.2.27.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 7700-Closeout Procedures.

6.2.27.3 Waste Management: separate waste materials for recycling in accordance with Requirements.

6.2.27.3(1) Remove recycling containers and bins from site and dispose of materials at appropriate facility.

6.2.28. Related Requirements

6.2.28.1 Concrete Forming and Accessories – Section 03 10 00

6.2.28.2 Concrete Reinforcing – Section 03 20 00

6.2.29. Reference Standards

6.2.29.1 ASTM International

6.2.29.1(1) ASTM C260/C260M, Standard Specification for Air-Entraining Admixtures for Concrete.

6.2.29.1(2) ASTM C309, Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.

6.2.29.1(3) ASTM C494/C494M, Standard Specification for Chemical Admixtures for Concrete.

6.2.29.1(4) ASTM C 881/C881M, Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete.

6.2.29.1(5) ASTM C1017/C1017M, Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete.

6.2.29.1(6) ASTM C1059/C1059M, Standard Specification for Latex Agents for Bonding Fresh To Hardened Concrete.

6.2.29.1(7) ASTM D412, Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.

6.2.29.1(8) ASTM D624, Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomer.

6.2.29.1(9) ASTM D1751, Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).

6.2.29.1(10) ASTM D1752, Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction.

6.2.29.2 Canadian General Standards Board (CGSB)

6.2.29.2(1) CAN/CGSB-51.34, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.

6.2.29.3 LEED V4/V4.1 (USGBC) in Canada

6.2.29.3(1) LEED Reference Guide for Green Building Design and Construction – Healthcare Supplement 2009 Edition

6.2.29.4 CSA Group

6.2.29.4(1) CSA A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.

6.2.29.4(2) CSA A283, Qualification Code for Concrete Testing Laboratories.

6.2.29.4(3) CSA A3001 – Cementitiuos Materials for Use in Concrete

6.2.30. Abbreviations And Acronyms

6.2.30.1 Portland Cement: hydraulic cement, blended hydraulic cement (XXb - b denotes blended) and Portland-limestone cement types:

6.2.30.1(1) GU, GUb and GUL - General use cement.

6.2.30.1(2) MS and MSb - Moderate sulphate-resistant cement.

6.2.30.1(3) MH, MHb and MHL - Moderate heat of hydration cement.

6.2.30.1(4) HE, HEb and HEL - High early-strength cement.

6.2.30.1(5) LH, LHb and LHL - Low heat of hydration cement.

6.2.30.1(6) HS and HSb - High sulphate-resistant cement.

6.2.30.2 Fly ash types:

6.2.30.2(1) F - with CaO content maximum 8%.

6.2.30.2(2) CI - with CaO content 15 to 20%.

6.2.30.2(3) CH - with CaO minimum 20%.

6.2.30.3 GGBFS - Ground, granulated blast-furnace slag.

6.2.31. Administrative Requirements

6.2.31.1 Pre-installation Meetings: convene pre-installation meeting one week prior to beginning concrete works .

6.2.31.1(1) Ensure Engineer of Record, site supervisor, testing laboratory, key personnel, speciality contractor - finishing, forming, concrete producer attend.

6.2.31.1(1)(a) Verify Project requirements.

6.2.32. Action And Informational Submittal

6.2.32.1 Provide Submittal in accordance with Section 01 33 00- Submittal Procedures .

6.2.32.2 Product Data:

6.2.32.2(1) Submit manufacturer's instructions, printed product literature and data sheets for proprietary materials used in Cast-In-Place Concrete and additives and include product characteristics, performance criteria, physical size, finish and limitations.

6.2.32.3 Site Quality Control Submittal:

6.2.32.3(1) Provide testing results / reports submittal by Engineer of Record and do not proceed without written approval when deviations from mix design or parameters found.

6.2.32.3(2) Concrete pours: provide accurate records of poured concrete items indicating date and location of pour, quality, air temperature and test samples taken as described in PART 3 - FIELD QUALITY CONTROL.

6.2.32.3(3) Concrete hauling time: provide submittal by Engineer of Record deviations exceeding maximum allowable time of 120 minutes for concrete delivered to site of Work and discharged after batching.

6.2.32.3(4) Samples:

6.2.32.3(4)(a) Minimum 4 weeks prior to beginning Work, provide submittal of 2 samples of materials proposed for use as follows:

(a)..1 curing compound.

(a)..2 each type of joint filler.

6.2.32.3(4)(b) Intentionally deleted.

6.2.32.3(5) Sustainable Design Submittal:

6.2.32.3(5)(a) LEED Canada Submittal: in accordance with LEED Requirements.

6.2.32.3(5)(b) Construction Waste Management:

(b)..1 Submit Project Waste Reduction Workplan / Waste Management Plan highlighting recycling and salvage requirements.

6.2.32.3(5)(c) Recycled Content:

(c)..1 Submit listing of recycled content products used, including details of required percentages or recycled content materials and products, When Supplementary Cementing Materials (SCMs) used, provide evidence to certify reduction in cement from Base Mix to Actual SCMs Mix, as percentage.

6.2.33. Quality Assurance

6.2.33.1 Provide Engineer of Record, minimum 4 weeks prior to starting concrete work, with valid and recognized certificate from plant delivering concrete.

6.2.33.1(1) Provide test data and certification by qualified independent inspection and testing laboratory that materials and mix designs used in concrete mixture meet specified requirements.

6.2.33.2 At least 4 weeks prior to beginning Work, inform Engineer of Record of source of fly ash.

6.2.33.2(1) Changing source of fly ash without written approval of Engineer of Record is prohibited.

6.2.33.3 Minimum 4 weeks prior to starting concrete work, provide proposed quality control procedures submittal by Engineer of Record on following items:

6.2.33.3(1) Falsework erection.

6.2.33.3(2) Hot weather concrete.

6.2.33.3(3) Cold weather concrete.

6.2.33.3(4) Curing.

6.2.33.3(5) Finishes.

6.2.33.3(6) Formwork removal.

6.2.33.3(7) Joints.

6.2.33.4 Quality Control Plan: provide written report to Engineer of Record verifying compliance that concrete in place meets performance requirements of concrete as established in PART 2 - PRODUCTS.

6.2.33.5 Mock-Ups:

6.2.33.5(1) Provide site mock-up for architectural finished concrete indicating forming methods and materials, and procedures proposed to achieve architectural and to comply with following requirements, using materials indicated for completed work:

6.2.33.5(1)(a) Build mock-ups in location and of size as directed by Engineer of Record.

6.2.33.5(2) Obtain Engineer of Record 's acceptance of mock-ups before starting construction; mock-up used throughout construction period and used as standard of acceptance for subsequent architectural concrete work.

6.2.33.5(3) Mock-up may form part of permanent structure when accepted by Engineer of Record; repair or replace unacceptable mock-ups at no additional cost to the Authority.

6.2.33.5(4) In presence of Engineer of Record, damage part of exposed face for each finish, colour, and texture, and demonstrate materials and techniques proposed for repairs to match adjacent undamaged surfaces.

6.2.34. Delivery, Storage And Handling

6.2.34.1 Delivery and Acceptance Requirements:

6.2.34.2 Concrete hauling time: deliver to site of Work and discharged within 120 minutes maximum after batching.

6.2.34.2(1) Modifying maximum time limit without receipt of prior written agreement from Engineer of Record, laboratory representative and concrete producer as described in CSA A23.1/A23.2. is prohibited.

6.2.34.2(2) Deviations submittal by Engineer of Record.

6.2.34.2(3) Concrete delivery: ensure continuous concrete delivery from plant meets CSA A23.1/A23.2.

6.2.34.3 Packaging Waste Management: remove for reuse and return of crates, packaging materials, padding and pallets in accordance with Section 01 74 19- Waste Management and Disposal .

6.2.35. Site Conditions

6.2.35.1 Concrete should not be placed during rain and or weather events that could damage concrete unless adequate measure have been undertaken to preclude concrete damage.

6.2.35.2 Protect newly placed concrete from rain or weather events in accordance with CSA A23.1/A23.2.

6.2.35.3 Cold weather protection:

6.2.35.3(1) Maintain protection equipment, in readiness on Site.

6.2.35.3(2) Use such equipment when ambient temperature below 5°C, or when temperature may fall below 5°C before concrete cured.

6.2.35.3(3) Placing concrete upon or against surface at temperature below 5°C is prohibited.

6.2.35.3(4) Hot weather protection:

6.2.35.3(4)(a) Protect concrete from direct sunlight when ambient temperature above 27°C.

6.2.35.3(4)(b) Prevent forms of getting too hot before concrete placed. Apply accepted methods of cooling not to affect concrete adversely.

6.2.35.3(5) Protect from drying.

6.2.36. Design Criteria

6.2.36.1 Alternative 1 - Performance: to CSA A23.1/A23.2 , and as described in MIXES of PART 2 - PRODUCTS.

6.2.37. Performance Criteria

6.2.37.1 Quality Control Plan: ensure concrete supplier meets performance criteria of concrete as established by Engineer of Record and provide verification of compliance as described in PART 1 - QUALITY ASSURANCE.

6.2.38. Materials

6.2.38.1 Portland Cement: GU.

6.2.38.1(1) Recycled content: per LEED Requirements.

6.2.38.1(2) Blended hydraulic cement: Type GUb to CSA A3001.

6.2.38.1(3) Supplementary cementing materials: by mass of total cementitious materials to CSA A3001.

6.2.38.1(4) Water: to CSA A23.1.

6.2.38.1(5) Aggregates: to CSA A23.1/A23.2.

6.2.38.1(6) Admixtures:

6.2.38.1(6)(a) Air entraining admixture: to ASTM C260.

6.2.38.1(6)(b) Chemical admixture: to ASTM C1017 / ASTM C494. Engineer of Record to approve accelerating or set retarding admixtures during cold and hot weather placing.

6.2.38.1(7) Shrinkage compensating grout: premixed compound consisting of non-metallic aggregate, Portland cement, water reducing and plasticizing agents to CSA A23.1/A23.2.

6.2.38.1(7)(a) Compressive strength: 50 MPa at 28 days

6.2.38.1(8) Non premixed dry pack grout: composition of non metallic aggregate Portland cement with sufficient water for mixture to retain its shape when made into ball by hand and capable of developing compressive strength of 50 MPa at 28 days.

6.2.38.1(9) Post-Tensioning Ducts: to CSA A23.1/A23.2.

6.2.38.1(10) Curing compound: to CSA A23.1/A23.and to ASTM C309, Type 1-chlorinated rubber.

6.2.38.1(11) Mechanical water stops: ribbed extruded PVC Arctic Grade of sizes indicated with shop welded corner and intersecting pieces:

6.2.38.1(11)(a) Tensile strength: to ASTM D412, method A, Die "C", minimum 11.4 MPa

6.2.38.1(11)(b) Elongation: to ASTM D412, method A, Die "C", minimum 275 %.

6.2.38.1(11)(c) Tear resistance: to ASTM D624, method A, Die "B", minimum 48 kN/m.

6.2.38.1(12) Premoulded joint fillers:

6.2.38.1(12)(a) Bituminous impregnated fibre board: to ASTM D1751.

6.2.38.1(13) Weep hole tubes: plastic.

6.2.38.1(14) Dovetail anchor slots: minimum 0.6 mm thick galvanized steel with insulation filled slots.

6.2.38.1(15) Dampproof membrane:

6.2.38.1(15)(a) Kraft/polyethylene membrane:

(a)..1 Plain: .05 mm thick polyethylene film bonded to asphalt treated creped kraft.

(a)..2 Reinforced: two .05 mm thick polyethylene films bonded each side of asphalt treated creped kraft paper, reinforced with 13 x 13 mm fibreglass scrim.

(a)..3 Membrane adhesive: as recommended by membrane manufacturer.

6.2.38.1(16) Dampproofing:

6.2.38.1(16)(a) Emulsified asphalt, mineral colloid type, unfilled: to Section 07 11 13- Bituminous Dampproofing.

6.2.38.1(17) Polyethylene film: 10 mil thickness to CAN/CGSB-51.34

6.2.38.1(18) Concrete Bonding Agents: Epoxy to ASTM C881/C881M, Type V or Latex to ASTM C1059/C1059M.

6.2.39. Mixes

6.2.39.1 Alternative 1 - Performance Method for specifying concrete: to meet Engineer of Record performance criteria to CSA A23.1/A23.2.

6.2.39.1(1) Ensure concrete supplier meets performance criteria as established below and provide verification of compliance as in Quality Control Plan.

6.2.39.1(2) Provide concrete mix to meet following plastic state requirements:

6.2.39.1(2)(a) Workability: free of surface blemishes, loss of mortar, segregation and colour variations .

6.2.39.2 Alternative 2 - Prescriptive Method for specifying concrete: Engineer of Record's concrete mix to CSA A23.1.

6.2.39.2(1) Ensure materials used in concrete mix have been submitted for testing and meet requirements of CSA A23.1.

6.2.39.2(2) Co-ordinate construction methods to suit Engineer of Record’sconcrete mix proportions and parameters.

6.2.39.2(3) Identify and report immediately to Engineer of Record when concrete mix design and parameters pose anticipated problems or deficiencies related to construction.

6.2.40. Preparation

6.2.40.1 Obtain Engineer of Record's written approval before placing concrete.

6.2.40.1(1) Provide 24 hours minimum notice prior to placing of concrete.

6.2.40.2 Place concrete reinforcing in accordance with Section 03 20 00- Concrete Reinforcing .

6.2.40.3 During concreting operations:

6.2.40.3(1) Development of cold joints not allowed.

6.2.40.3(2) Ensure concrete delivery and handling facilitate placing with minimum of re-handling, and without damage to existing structure or Work.

6.2.40.4 Pumping of concrete permitted only after approval of equipment and mix .

6.2.40.5 Disturbing reinforcement and inserts during concrete placement is prohibited.

6.2.40.6 Prior to placing of concrete obtain Engineer of Record's approval of proposed method for protection of concrete during placing and curing in adverse weather.

6.2.40.7 Protect previous Work from staining.

6.2.40.8 Clean and remove stains prior to application for concrete finishes.

6.2.40.9 Maintain accurate records of poured concrete items to indicate date, location of pour, quality, workability, air content, temperature and test samples taken.

6.2.40.10 In locations where new concrete dowelled to existing work, drill holes in existing concrete.

6.2.40.10(1) Place steel dowels of deformed steel reinforcing bars and pack solidly with epoxy grout to anchor and hold dowels in positions as indicated.

6.2.40.11 Do not place load upon new concrete until authorized by Engineer of Record.

6.2.41. Installation/Application

6.2.41.1 Do cast-in-place concrete work to CSA A23.1/A23.2.

6.2.41.2 Sleeves and inserts:

6.2.41.2(1) Do not permit penetrations, sleeves, ducts, pipes or other openings to pass through joists, beams, column capitals or columns, except where indicated or approved by Engineer of Record.

6.2.41.2(2) Where approved by Engineer of Record, set sleeves, ties, pipe hangers and other inserts and openings as indicated or specified elsewhere.

6.2.41.2(3) Sleeves and openings greater than 100 x 100 mm not indicated reviewed by Engineer of Record.

6.2.41.2(4) Do not eliminate or displace reinforcement to accommodate hardware. If inserts cannot be located as specified, obtain written approval of modifications from Engineer of Record before placing of concrete.

6.2.41.2(5) Confirm locations and sizes of sleeves and openings shown on drawings.

6.2.41.2(6) Set special inserts for strength testing as indicated and as required by non-destructive method of testing concrete.

6.2.41.3 Anchor bolts:

6.2.41.3(1) Set anchor bolts to templates in co-ordination with appropriate trade prior to placing concrete.

6.2.41.3(2) Grout anchor bolts in preformed holes or holes drilled after concrete has set only after receipt of written approval from Engineer of Record.

6.2.41.3(3) Protect anchor bolt holes from water accumulations, snow and ice build-ups.

6.2.41.3(4) Set bolts and fill holes with epoxy grout.

6.2.41.3(5) Locate anchor bolts used in connection with expansion shoes, rollers and rockers with due regard to ambient temperature at time of erection.

6.2.41.4 Drainage holes and weep holes:

6.2.41.4(1) Form weep holes and drainage holes in accordance with Section 03 10 00- Concrete Forming and Accessories . If wood forms used, remove them after concrete has set.

6.2.41.4(2) Install weep hole tubes and drains as indicated.

6.2.41.5 Dovetail anchor slots: in accordance with Section 04 05 00- Common Work Results for Masonry .

6.2.41.5(1) Install continuous vertical anchor slot to forms where masonry abuts concrete wall or columns.

6.2.41.5(2) Install continuous vertical anchor slots at 800 mm on centre where concrete walls are masonry faced.

6.2.41.6 Grout under base plates and machinery using procedures in accordance with manufacturer's recommendations which result in 100 % contact over grouted area.

6.2.41.7 Finishing and curing:

6.2.41.7(1) Finish concrete to CSA A23.1/A23.2.

6.2.41.7(2) Use procedures as noted in CSA A23.1/A23.2to remove excess bleed water. Ensure surface not damaged.

6.2.41.7(3) Use curing compounds compatible with applied finish on concrete surfaces.

6.2.41.7(4) Finish concrete floor to CSA A23.1/A23.2. Class A .

6.2.41.7(5) Provide swirl-trowelled finish unless otherwise indicated .

6.2.41.7(6) Rub exposed sharp edges of concrete with Carborundrum to produce 3 mm minimum radius edges unless otherwise indicated.

6.2.41.8 Toppings:

6.2.41.8(1) Topping mixture to meet minimum requirements as follows: Bonded overlay / Monolithic, Make allowance for monolithic / bonded overlay topping thickness when pouring base course.

6.2.41.8(2) Apply epoxy bonding agent / latex bonding agent modified cement/sand grout to base course to CSA A23.1/A23.2.

6.2.41.8(3) Place monolithic / bonded topping to CSA A23.1/A23.2 and topping manufacturer's recommendations.

6.2.41.8(4) Ensure joints in topping of same material as those in base course. Ensure their locations precisely match those in base course.

6.2.41.9 Waterstops:

6.2.41.9(1) Install waterstops to provide continuous water seal.

6.2.41.9(2) Do not distort or pierce waterstop in way as to hamper performance.

6.2.41.9(3) Do not displace reinforcement when installing waterstops.

6.2.41.9(4) Use equipment to manufacturer's requirements to field splice waterstops.

6.2.41.9(5) Tie waterstops rigidly in place.

6.2.41.9(6) Use only straight heat sealed butt joints in field.

6.2.41.9(7) Use factory welded corners and intersections unless otherwise approved by Engineer of Record.

6.2.41.10 Joint fillers:

6.2.41.10(1) Furnish filler for each joint in single piece for depth and width required for joint, unless otherwise authorized by Engineer of Record.

6.2.41.10(2) When more than one piece required for joint, fasten abutting ends and hold securely to shape by stapling or other positive fastening.

6.2.41.10(3) Locate and form isolation, expansion, construction joints as indicated.

6.2.41.10(4) Install joint filler.

6.2.41.10(5) Use 12 mm thick joint filler to separate slabs-on-grade from vertical surfaces and extend joint filler from bottom of slab to within 12mm of finished slab surface unless indicated otherwise.

6.2.41.11 Dampproof membrane:

6.2.41.11(1) Install dampproof membrane under concrete slabs-on-grade inside building.

6.2.41.11(2) Lap dampproof membrane minimum 150 mm at joints and seal.

6.2.41.11(3) Seal punctures in dampproof membrane before placing concrete.

6.2.41.11(4) Use patching material minimum 150 mm larger than puncture and seal.

6.2.42. Surface Tolerance

6.2.42.1 Concrete tolerance to CSA A23.1 Straight edge Method to Class A Table 21 .

6.2.43. Field Quality Control

6.2.43.1 Site tests: conduct tests as follows in accordance with Section 01 45 00- Quality Control and submit report as described in PART 1 - ACTION AND INFORMATIONAL SUBMITTAL.

6.2.43.1(1) Concrete pours.

6.2.43.1(2) Slump.

6.2.43.1(3) Air content.

6.2.43.1(4) Compressive strength at 7 and 28 days.

6.2.43.1(5) Air and concrete temperature.

6.2.43.2 Inspection and testing of concrete and concrete materials carried out by testing laboratory designated by Consultant submittal to CSA A23.1/A23.2 .

6.2.43.2(1) Ensure testing laboratory certified to CSA A283 .

6.2.43.3 Ensure test results are distributed for discussion at pre-pouring concrete meeting between testing laboratory and Engineer of Record.

6.2.43.4 Non-Destructive Methods for Testing Concrete: to CSA A23.1/A23.2.

6.2.43.5 Inspection or testing by Engineer of Record not to augment or replace Contractor quality control nor relieve Contractor of contractual responsibility.

6.2.44. Cleaning

6.2.44.1 Clean in accordance with Section 01 77 00- Closeout Procedures.

6.2.44.2 Waste Management: per - LEED Requirements.

6.2.44.2(1) Provide appropriate area on job site where concrete trucks and be safely washed.

6.2.44.2(2) Divert unused admixtures and additive materials (pigments, fibres) from landfill to official hazardous material collections site as approved by Engineer of Record.

6.2.44.2(3) Disposal of unused admixtures and additive materials into sewer systems, into lakes, streams, onto ground or in other location to pose health or environmental hazard is prohibited.

6.2.44.2(4) Prevent admixtures and additive materials from entering drinking water supplies or streams.

6.2.44.2(5) Using appropriate safety precautions, collect liquid or solidify liquid with inert, non-combustible material and remove for disposal.

6.2.44.2(6) Dispose of waste in accordance with applicable local, Provincial/Territorial and National regulations.

6.3 Masonry (Division 4)

6.3.1. Basic Requirements

6.3.1.1 Masonry construction may be considered for exterior walls and walls systems where permanence of finishes, both visually and functionally, and ease of maintenance are primary considerations in the exterior fabric of the Facility.

6.3.1.2 Masonry construction may be considered for interior walls and wall systems when priorities include permanence and maintenance, sound transmission control, fire resistance and separation requirements and security.

6.3.2. Concrete Masonry Units

6.3.2.1 Concrete unit masonry may be considered for both independent exterior walls and in exterior wall systems as a structural backing to other finish materials or systems.

6.3.2.2 Concrete unit masonry for interior applications may be considered as an integrally finished material, as a base for applied finish and as a structural backing to other finish systems.

6.3.2.3 Unpainted concrete unit masonry will not be used as an exposed finish in clinical or public areas.

6.3.2.4 Where concrete unit masonry is used as the exposed finish, all exposed corners will have rounded or chamfered corners.

6.3.2.5 In special areas such as mental health /Psychiatry, construct the wall as required by British Columbia Ministry of Health Standards for Hospital-Based Psychiatric Emergency Services: Observation Units.

6.3.2.6 Masonry design and construction will comply with Canadian Masonry Contractors Association (CMCA) Masonry Practices Manual and all applicable standards.

6.3.3. Brick Masonry

6.3.3.1 Exterior wall systems comprising brick masonry as a finish veneer to concrete, concrete masonry or metal framing will be a rain-screen or cavity wall system.

6.3.3.2 Brick masonry below grade for exterior applications is not permitted.

6.3.3.3 Brick masonry in interior applications is to have integral finish and construction compatible with the Authority's infection prevention and control requirements.

6.3.4. Stone Masonry

6.3.4.1 Stone masonry may be considered as a finish veneer to concrete walls or concrete masonry walls. Exterior wall systems in such applications will be a rain screen or cavity wall system.

6.3.4.2 Stone will be sound, hard and durable, well-seasoned and of uniform strength, colour and texture, and free of quarry sap, flaws, seams, sand holes, iron pyrites or other mineral or organic defects.

6.3.5. Related Requirements

6.3.5.1 Concrete Unit Masonry – Section 04 22 00

6.3.6. References

6.3.6.1 LEED V4/V4.1 (USGBC) in Canada

6.3.6.1(1) LEED Reference Guide for Green Building Design and Construction – Healthcare Supplement 2009 Edition

6.3.6.2 CSA Group

6.3.6.2(1) CSA A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.

6.3.6.2(2) CAN/CSA-A179, Mortar and Grout for Unit Masonry.

6.3.6.2(3) CAN/CSA-A371, Masonry Construction for Buildings.

6.3.6.2(4) CAN/CSA-A3000, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).

6.3.6.3 International Masonry Industry All-Weather Council (IMIAC)

6.3.6.3(1) Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.

6.3.6.4 South Coast Air Quality Management District (SCAQMD)

6.3.6.4(1) SCAQMD Rule 1168, Adhesive and Sealant Applications.

6.3.7. Action And Informational Submittal

6.3.7.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

6.3.7.2 Product Data:

6.3.7.2(1) Submit manufacturer's instructions, printed product literature and data sheets for masonry mortar and grout and include product characteristics, performance criteria, physical size, finish and limitations.

6.3.7.2(2) Indicate VOC's mortar, grout, parging, colour additives and admixtures. Expressed as grams per litre (g/L).

6.3.7.2(3) Samples:

6.3.7.2(3)(a) Samples: submit unit samples for Masonry, supplemented as follows:

(a)..1 Submit two samples of mortar.

(a)..2 Submit confirmation of source or product data sheet, prior to mixing or preparation of mortars, to Engineer of Record of:

(a)..2.1 Aggregate: course aggregate & sand.

(a)..2.2 Cement.

(a)..2.3 Lime.

(a)..2.4 Colour pigment samples.

6.3.7.2(4) Manufacturers' Instructions: submit manufacturer's installation instructions.

6.3.7.2(5) Sustainable Design Submittal:

6.3.7.2(5)(a) LEED Canada Submittal: in accordance with LEED Requirements.

6.3.7.2(5)(b) Construction Waste Management:

(b)..1 Submit Project Waste Management Plan highlighting recycling and salvage requirements.

6.3.7.2(5)(c) Recycled Content:

(c)..1 Submit listing of recycled content products used, including details of required percentages or recycled content materials and products, showing their costs and percentages of post-consumer content, and total cost of materials for Project.

6.3.8. Quality Assurance

6.3.8.1 Test Reports: submit certified test reports including sand gradation tests in accordance with CAN/CSA-A179 showing compliance with specified performance characteristics and physical properties. Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

6.3.9. Delivery, Storage And Handling

6.3.9.1 Deliver, store and handle materials in accordance with Product Requirements or with manufacturer's written instructions.

6.3.9.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

6.3.9.3 Storage and Handling Requirements:

6.3.9.3(1) Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

6.3.9.3(2) Store and protect masonry mortar and grout from nicks, scratches, and blemishes.

6.3.9.3(3) Replace defective or damaged materials with new.

6.3.9.4 Develop Construction Waste Management Plan related to Work of this Section and in accordance with LEED Requirements.

6.3.9.5 Packaging Waste Management: remove for reuse and return of pallets, crates, padding, packaging materials in accordance with LEED Requirements.

6.3.10. Site Conditions

6.3.10.1 Ambient Conditions: maintain materials and surrounding air temperature to:

6.3.10.1(1) Minimum 10 degrees C prior to, during, and 48 hours after completion of masonry work.

6.3.10.1(2) Maximum 32 degrees C prior to, during, and 48 hours after completion of masonry work.

6.3.10.2 Weather Requirements: CAN/CSA-A371 / International Masonry Industry All-Weather Council (IMIAC) - Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.

6.3.11. Materials

6.3.11.1 Use same brands of materials and source of aggregate for entire Project.

6.3.11.2 Cement:

6.3.11.2(1) Portland Cement: to CAN/CSA-A3000, Type GU - General use hydraulic cement (Type 10) / HE - High-early-strength hydraulic cement (Type 30) / MH-Moderate heat of hydration hydraulic cement (Type 40) gray colour.

6.3.11.2(1)(a) Use low VOC products in compliance with SCAQMD Rule 1168.

6.3.11.2(2) Masonry Cement: to CAN/CSA-A3002 and CAN/CSA-A179, Type S.

6.3.11.2(3) Mortar Cement: to CAN/CSA-A3002 and CAN/CSA-A179, Type S with integral water repellents.

6.3.11.2(3)(a) Use low VOC products in compliance with SCAQMD Rule 1168.

6.3.11.2(4) Packaged Dry Combined Materials for mortar: to CAN/CSA-A179, Type S, using gray colour cement.

6.3.11.3 Aggregate: supplied by one supplier.

6.3.11.3(1) Fine Aggregate: to CAN/CSA-A179, natural sand / manufactured sand / silica sand].

6.3.11.3(2) Course Aggregate: to CAN/CSA-A179.

6.3.11.4 Water: clean and potable.

6.3.11.5 Lime:

6.3.11.5(1) Quick Lime: to CAN/CSA-A179, Type S.

6.3.11.5(2) Hydrated Lime: to CAN/CSA-A179, Type S.

6.3.11.6 Bonding Agent: latex / epoxy type.

6.3.11.7 Polymer Latex: organic polymer latex admixture of butadiene-styrene type non-emulsifiable bonding admixture.

6.3.12. Colour Additives

6.3.12.1 Use colouring admixture not exceeding 10% of cement content by mass, or integrally coloured masonry cement, to produce coloured mortar to match approved sample. Admixtures to be approved prior to use. Use in accordance with the specific manufacturer's recommendations.

6.3.12.2 White mortar: use white masonry cement to produce mortar type specified.

6.3.13. Admixtures

6.3.13.1 Water Repellent Agents: powdered / liquid / polymeric.

6.3.13.1(1) Use low VOC products in compliance with SCAQMD Rule 1168

6.3.13.1(2) Use hydrated lime if possible, and avoid adding air entrainment agents due to difficulty in maintaining site quality control.

6.3.13.2 Air Entrainment Agents:

6.3.13.2(1) Use low VOC products in compliance with SCAQMD Rule 1168

6.3.13.3 Plasticizer Agents:

6.3.13.3(1) Use low VOC products in compliance with SCAQMD Rule 1168

6.3.13.4 Accelerator Agents:

6.3.13.4(1) Use low VOC products in compliance with SCAQMD Rule 1168

6.3.13.5 Extended life mortar: to CAN/CSA-A179, factory and batch mixed, set controlling admixtures

6.3.13.5(1) Use low VOC products in compliance with SCAQMD Rule 1168

6.3.14. Mortar Mixes

6.3.14.1 Mortar for exterior masonry above grade:

6.3.14.1(1) Load Bearing: type S based on property / proportion specifications.

6.3.14.1(2) Non-Load Bearing: S based on property / proportion specifications.

6.3.14.2 Mortar for interior masonry:

6.3.14.2(1) Load Bearing: type S based on property / proportion specifications.

6.3.14.2(2) Non-Load Bearing: N based on property / proportion specifications.

6.3.14.2(3) Mortar for Parapet walls, chimneys, unprotected walls: type S based on property / proportion specifications, CAN/CSA-A179

6.3.14.2(4) Pointing Mortar: CAN/CSA-A179, Type S using property specification with maximum 2 percent ammonium stearate or calcium stearate per cement weight.

6.3.14.2(5) Stain Resistant Pointing Mortar: one part Portland cement, 1/8 part hydrated lime, and two parts graded (80 mesh) aggregate, proportioned by volume. Add aluminum tristearate, calcium stearate, or ammonium stearate to 2 percent of Portland cement by weight.

6.3.14.2(6) Mortar For Glass Block Masonry: CAN/CSA-A179, Type S, using the property specification.

6.3.14.2(7) Pointing Mortar For Glass Block Masonry: CAN/CSA-A179, Type S, using the property specification; with maximum 2 percent ammonium stearate or calcium stearate per cement weight

6.3.14.2(8) Parging Mortar: to CAN/CSA-A179.

6.3.14.2(9) Mortar for foundation walls, manholes, sewers, pavements, walks, patios and other exterior masonry at or below grade: type M based on property / proportion specifications, CAN/CSA-A179

6.3.14.2(10) Following applies regardless of mortar types and uses specified above:

6.3.14.2(10)(a) Mortar for calcium silicate brick and concrete brick: type O based on proportion specifications.

6.3.14.2(10)(b) Mortar for grouted reinforced masonry: type S based on property / proportion specifications.

6.3.15. Mortar Mixing

6.3.15.1 Use pre-blended, pre-coloured mortar prepackaged under controlled factory conditions. Ingredients batching limitations to be within 1% accuracy.

6.3.15.2 Mix mortar ingredients in accordance with CAN/CSA-A179 in quantities needed for immediate use.

6.3.15.3 Maintain sand uniformly damp immediately before mixing process.

6.3.15.4 Add mortar colour / admixtures in accordance with manufacturer's instructions. Provide uniformity of mix and colouration.

6.3.15.5 Do not use anti-freeze compounds including calcium chloride or chloride based compounds.

6.3.15.6 Do not add air entraining admixture to mortar mix.

6.3.15.7 Use a batch type mixer in accordance with CAN/CSA-A179.

6.3.15.8 Pointing mortar: prehydrate pointing mortar by mixing ingredients dry, then mix again adding just enough water to produce damp unworkable mix that will retain its form when pressed into ball. Allow to stand for not less than 1 hour no more than 2 hours then remix with sufficient water to produce mortar of proper consistency for pointing.

6.3.15.9 Re-temper mortar only within two hours of mixing, when water is lost by evaporation.

6.3.15.10 Use mortar within 2 hours after mixing at temperatures of 32 degrees C, or 2-1/2 hours at temperatures under 10 degrees C.

6.3.16. Grout Mixes

6.3.16.1 Bond Beams: grout mix 10 to 12.5 MPa strength at 28 days; 200-250 mm slump; premixed type in accordance with CSA A23.1/A23.2 ; mixed in accordance with CAN/CSA-A179 coarse grout.

6.3.16.2 Lintels: grout mix 10 to 12.5 MPa strength at 28 days; 200-250 mm slump; premixed type in accordance with CSA A23.1/A23.2; mixed in accordance with CAN/CSA-A179 coarse grout.

6.3.16.3 Grout: Minimum compressive strength of 12.5 MPa at 28 days. Maximum aggregate size and grout slump: CAN/CSA-A179.

6.3.17. Grout Mixing

6.3.17.1 Mix batched and delivered grout in accordance with CSA A23.1/A23.2 transit mixed.

6.3.17.2 Mix grout ingredients in quantities needed for immediate use in accordance with CAN/CSA-A179 coarse grout.

6.3.17.3 Add admixtures in accordance with manufacturer's instructions; mix uniformly.

6.3.17.4 Do not use calcium chloride or chloride based admixtures.

6.3.18. Mix Tests

6.3.18.1 Testing Mortar Mix:

6.3.18.1(1) Test mortar to requirements of Section 01 45 00 - Quality Control, and in accordance with CAN/CSA-A179, for mortar based on property specification / proportion specification. Test during construction for:

6.3.18.1(1)(a) Compressive strength.

6.3.18.1(1)(b) Consistency.

6.3.18.1(2) Mortar aggregate ratio.

6.3.18.1(3) Sand/cement ratio.

6.3.18.1(4) Water content and water/cement ratio.

6.3.18.1(5) Air content.

6.3.18.1(6) Splitting tensile strength.

6.3.18.2 Testing Grout Mix:

6.3.18.2(1) Test grout to requirements of Section 01 45 00 - Quality Control, and in accordance with CAN/CSA-A179, for grout based on property specification / proportion specification. Test during construction for:

6.3.18.2(1)(a) Compressive strength.

6.3.18.2(1)(b) Sand/cement ratio.

6.3.18.2(1)(c) Water content and water/cement ratio.

6.3.18.2(1)(d) Slump.

6.3.19. Examination

6.3.19.1 Verification of Conditions: verify that conditions of substrate previously installed under other sections or contracts are acceptable for masonry installation in accordance with manufacturer's written instructions.

6.3.19.1(1) Visually inspect substrate in presence of Engineer of Record.

6.3.19.1(2) Inform Engineer of Record of unacceptable conditions immediately upon discovery.

6.3.19.1(3) Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Engineer of Record.

6.3.20. Preparation

6.3.20.1 Apply bonding agent to existing [concrete] surfaces.

6.3.20.2 Plug clean-out holes with masonry units. Brace masonry for wet grout pressure.

6.3.21. Construction

6.3.21.1 Do masonry mortar and grout work in accordance with CAN/CSA-A179 except where specified otherwise.

6.3.21.2 Apply parging in uniform coating not less than total 10 mm thick , where indicated.

6.3.22. Mixing

6.3.22.1 All pointing mortar can be mixed using a regular paddle mixer. Only electric motor mixers are permissible. Mixers run on hydrocarbons are not permitted, due to fumes. Mixing by hand must be pre-approved by the Engineer of Record.

6.3.22.2 Clean all mixing boards and mechanical mixing machine between batches.

6.3.22.3 Mortar must be weaker than the units it is binding.

6.3.22.4 No requirement for appointing one individual to mix mortar for duration of Project.

6.3.23. Mortar Placement

6.3.23.1 Install mortar / premix mortar to manufacturer's instructions.

6.3.23.2 Install mortar to requirements of CAN/CSA-A179.

6.3.23.3 Remove excess mortar from grout spaces.

6.3.24. Grout Placement

6.3.24.1 Install grout in accordance with manufacturer's instructions.

6.3.24.2 Install grout in accordance with CAN/CSA-A179.

6.3.24.3 Work grout into masonry cores and cavities to eliminate voids.

6.3.24.4 Do not install grout in lifts greater than 400 mm, without consolidating grout by rodding.

6.3.24.5 Do not displace reinforcement while placing grout.

6.3.25. FIeld Quality Control

6.3.25.1 Site Tests, Inspection:

6.3.25.1(1) Test and evaluate mortar during construction in accordance with CAN/CSA-A179.

6.3.25.2 Test and evaluate grout during construction to CAN/CSA-A179; test in conjunction with masonry unit sections specified.

6.3.26. Cleaning

6.3.26.1 Progress Cleaning:

6.3.26.1(1) Leave Work area clean at end of each day.

6.3.26.1(2) Remove droppings and splashings using clean sponge and water.

6.3.26.1(3) Clean masonry with low pressure clean water and soft natural bristle brush.

6.3.26.1(4) Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 77 00 –Closeout Procedures.

6.3.26.1(5) Waste Management: in accordance with LEED Requirements.

6.3.26.1(5)(a) Remove recycling containers and bins from site and dispose of materials at appropriate facility.

6.3.27. Protection

6.3.27.1 Cover completed and partially completed work not enclosed or sheltered with waterproof covering at end of each work day. Anchor securely in position.

6.3.28. Related Requirements

6.3.28.1 Masonry Mortar and Grout – Section 04 05 12

6.3.28.2 Concrete Masonry Unit – Section 04 22 00

6.3.29. Reference Standards

6.3.29.1 American Society for Testing and Materials (ASTM)

6.3.29.1(1) ASTM A36/A36M , Standard Specification for Carbon Structural Steel.

6.3.29.1(2) ASTM A167 , Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

6.3.29.1(3) A307 , Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength.

6.3.29.1(4) ASTM A580/A580M , Standard Specification for Stainless Steel Wire.

6.3.29.1(5) ASTM A641/A641M, Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.

6.3.29.1(6) ASTM A666 , Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.

6.3.29.1(7) ASTM A1022 16B , Standard Specification for Deformed and Plain Stainless Steel Wire and Welded Wire for Concrete Reinforcement.

6.3.29.2 LEED V4/V4.1 (USGBC) in Canada

6.3.29.2(1) LEED Reference Guide for Green Building Design and Construction – Healthcare Supplement 2009 Edition

6.3.29.3 Canadian Standards Association (CSA)

6.3.29.3(1) CSA A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.

6.3.29.3(2) CAN/CSA-A179 , Mortar and Grout for Unit Masonry.

6.3.29.3(3) CAN/CSA-A370 , Connectors for Masonry.

6.3.29.3(4) CAN/CSA-A371, Masonry Construction for Buildings.

6.3.29.3(5) CSA G30.18, Carbon Steel Bars for Concrete Reinforcement.

6.3.29.3(6) CSA S304, Design of Masonry Structures.

6.3.29.3(7) CSA W186 , Welding of Reinforcing Bars in Reinforced Concrete Construction.

6.3.29.4 Reinforcing Steel Institute of Canada (RSIC)

6.3.29.4(1) Reinforcing Steel Manual of Standard Practice.

6.3.30. Action And Informational Submittal

6.3.30.1 Submit in accordance with Section 01 33 00- Submittal Procedures .

6.3.30.2 Product Data:

6.3.30.2(1) Submit manufacturer's instructions, printed product literature and data sheets for anchorage and reinforcing materials and include product characteristics, performance criteria, physical size, finish and limitations.

6.3.30.3 Shop Drawings:

6.3.30.3(1) Submit drawings stamped and signed by professional engineer registered or licensed in British Columbia, Canada.

6.3.30.3(2) Submit drawings detailing bar bending details, lists and placement drawings

6.3.30.3(3) On placement drawings, indicate sizes, spacing, location and quantities of reinforcement and connectors.

6.3.30.3(4) Manufacturers' Instructions: submit manufacturer's installation instructions.

6.3.30.3(5) Sustainable Design Submittal:

6.3.30.3(5)(a) LEED Canada Submittal: in accordance with LEED Requirements.

6.3.30.3(5)(b) Construction Waste Management:

(b)..1 Submit Project Waste Management Plan highlighting recycling and salvage requirements.

6.3.30.3(5)(c) Recycled Content:

(c)..1 Submit listing of recycled content products used, including details of required percentages or recycled content materials and products, showing their costs and percentages of post-consumer content, and total cost of materials for Project.

6.3.30.3(5)(d) Regional Materials: submit evidence that Project incorporates required percentage

6.3.31. Quality Assurance

6.3.31.1 Test Reports: submit certified test reports including sand gradation tests in accordance with CAN/CSA-A179 showing compliance with specified performance characteristics and physical properties, and in accordance with Section 04 05 00- Common Work Results for Masonry .

6.3.31.2 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

6.3.32. Site Measurements

6.3.32.1 Make site measurements necessary for proper fit of members.

6.3.33. Delivery, Storage And Handling

6.3.33.1 Deliver, store and handle materials in accordance with Section with manufacturer's written instructions.

6.3.33.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

6.3.33.3 Storage and Handling Requirements:

6.3.33.3(1) Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

6.3.33.3(2) Store and protect anchorage and reinforcing materials from nicks, scratches, and blemishes .

6.3.33.3(3) Replace defective or damaged materials with new.

6.3.33.3(4) Develop Construction Waste Management Plan related to Work of this Section and in accordance with LEED Requirements.

6.3.33.3(5) Packaging Waste Management: remove for reuse and return of pallets, crates, padding, packaging materials in accordance with LEED Requirements.

6.3.34. Materials

6.3.34.1 Bar reinforcement: Steel to CAN/CSA-A371 and CSA G30.18, Grade stainless steel to ASTM A167.

6.3.34.2 Connectors: to CAN/CSA-A370 and CSA S304.1.

6.3.34.3 Corrosion protection: to Stainless steel to ASTM A1022 / CSA S304.1, galvanized to CSA S304.1 and CAN/CSA-A370 .

6.3.34.4 Fasteners: installed post-construction:

6.3.34.4(1) Screw Shields and Plugs: directly into solid masonry units.

6.3.34.4(2) Bolts and Screws: size and type to suit application, locate where indicated.

6.3.34.4(3) Nails: case-hardened cut or spiral nails, size and type to suit fastening application.

6.3.34.4(4) Powder-Driven Fasteners: pin styles and lengths to suit fastening application in accordance with manufacturers use, load and hold recommendations.

6.3.34.4(5) Adhesives: epoxies, mastics and contact cements for fastening applications, use in accordance with manufacturers' recommendations.

6.3.34.5 Ties: hot dip galvanized to CAN/CSA-A370 Table 5.2.

6.3.34.5(1) Corrugated to: CAN/CSA-A370.

6.3.34.5(2) Unit ties, to CAN/CSA-A370: fabricated from wire stainless steel, size to suit application.

6.3.34.5(3) Adjustable Unit Ties: to CAN/CSA-A370: proprietary type ties, type, style and size to suit application in accordance with manufacturer's recommendations.

6.3.34.5(4) Joint Reinforcement Ties: CSA A371 with corrosion protection to CSA S304 and CSA A370:

6.3.34.5(4)(a) Single Wythe Joint Reinforcement: ladder type:

(a)..1 Steel wire, hot dip galvanized: to ASTM A641, Class 3 after fabrication.

(a)..2 Cold drawn steel wire.

(a)..3 Stainless steel conforming to ASTM A580, Type 304,

6.3.34.5(4)(b) Multiple Wythe Joint Reinforcement: truss type: without moisture drip;

(b)..1 Steel wire, hot dip galvanized: to ASTM A641 Class 3 after fabrication.

(b)..2 Cold drawn steel wire.

(b)..3 Stainless steel conforming to ASTM A580 Type 304

6.3.34.6 Anchors: to CAN/CSA-A370:

6.3.34.6(1) Conventional Anchors: type plate anchors, steel bolts with bent bar anchors, through bolts , sized to suit application.

6.3.34.6(2) Wedge Anchors: expansion anchors type wedge and bolt, sized to suit application.

6.3.34.6(3) Sleeve Anchors: type sleeve and bolt, sized to suit application.

6.3.34.6(4) Self-Contained Anchors: type double-glass/plastic vial system, with epoxy resin and hardener.

6.3.34.6(5) Dovetail Anchors: bent steel strap, [x] mm size x [_____] finish coated.

6.3.34.6(6) Spiral Anchors: 8mm stainless steel spiral anchors to Grade 304.

6.3.34.6(7) Stone Anchors: series 300 stainless steel conforming to ASTM A666. Anchors manufactured according to drawings.

6.3.34.6(8) Anchor Bolts: proprietary (patented) anchors, conventional (unpatented) anchors, steel/stainless steel, galvanized to CAN/CSA-A370 Table 5.2 finish.

6.3.34.7 Conventional Bolts:

6.3.34.7(1) Bolts: to ASTM A36, bar stock shop threaded, straight bolts with square or hex-headed nuts, bent bar anchors, per drawings.

6.3.34.7(2) Plate anchors: steel to ASTM A36, weld square of circular steel plate perpendicular to axis of steel bar threaded on opposite end.

6.3.34.7(3) Through bolt rods: to ASTM A307 threaded rod or threaded ASTM A36 bar stock.

6.3.34.8 Adhesive Anchors: proprietary systems, pre-mixed, self-contained system with double glass vial system to contain epoxy, consisting of resin, hardener and aggregate or measure and mix system where epoxy materials are hand-measured and mixed in accordance with manufacturers' written instructions.

6.3.35. Fabrication

6.3.35.1 Fabricate reinforcing in accordance with CSA A23.1/A23.2 and Reinforcing Steel Manual of Standard Practice by Reinforcing Steel Institute of Canada.

6.3.35.2 Fabricate connectors in accordance with CAN/CSA-A370.

6.3.35.3 Obtain Engineer of Record's approval for locations of reinforcement splices other than shown on placing drawings.

6.3.35.4 Upon approval of Engineer of Record, weld reinforcement in accordance with CSA W186.

6.3.35.5 Ship reinforcement and connectors, clearly identified in accordance with drawings.

6.3.36. Source Quality Control

6.3.36.1 Provide Engineer of Record with certified copy of mill test report of reinforcement steel and connectors, showing physical and chemical analysis, minimum 5 weeks prior to commencing reinforcement work.

6.3.36.2 Upon request inform Engineer of Record of proposed source of supplied material.

6.3.37. Examination

6.3.37.1 Verification of Conditions: verify that conditions of substrate previously installed under other sections or contracts are acceptable for anchorage and reinforcing materials installation in accordance with manufacturer's written instructions.

6.3.37.1(1) Visually inspect substrate in presence of Engineer of Record.

6.3.37.2 Inform Engineer of Record of unacceptable conditions immediately upon discovery.

6.3.37.3 Proceed with installation only after unacceptable conditions remedied and after receipt of written approval to proceed from Engineer of Record.

6.3.38. Preparation

6.3.38.1 Direct and coordinate placement of metal anchors for masonry supplied to other Sections.

6.3.39. Installation

6.3.39.1 Supply and install masonry connectors and reinforcement in accordance with CAN/CSA-A370, CAN/CSA-A371, CSA A23.1/A23.2 and CSA S304.1 unless indicated otherwise.

6.3.39.2 Prior to placing grout, obtain Engineer of Record's approval of placement of reinforcement and connectors.

6.3.39.3 Supply and install additional reinforcement to masonry as indicated.

6.3.40. Bonding And Tying

6.3.40.1 Bond walls of two or more wythes using connectors in accordance with CSA S304.1, CAN/CSA-A371 and as indicated.

6.3.40.2 Tie masonry veneer to backing in accordance with National Building Code of Canada (NBC), CSA S304.1, CAN/CSA-A371 and as indicated.

6.3.40.3 Install unit, adjustable, single wythe and multiple wythe joint reinforcement where indicated and in accordance with CAN/CSA-A370 and CAN/CSA-A371 / manufacturer's instructions .

6.3.40.3(1) Bond walls of two or more wythes using connectors in accordance with CAN/CSA-A371 and as indicated.

6.3.40.3(2) Install horizontal joint reinforcement 400 mm on centre.

6.3.40.3(3) Place masonry joint reinforcement in first horizontal joint above and below openings. Extend minimum 400 mm each side of opening.

6.3.40.3(4) Place joint reinforcement continuous in first joint below top of walls.

6.3.40.3(5) Lap joint reinforcement ends minimum 150 mm.

6.3.40.3(6) Connect stack bonded unit joint corners and intersections with strap anchors 400 mm on centre.

6.3.41. Reinforced Lintels And Bond Beams

6.3.41.1 Reinforce masonry beams, masonry lintels and bond beams as indicated.

6.3.41.2 Place and grout reinforcement in accordance with CSA S304.1, CAN/CSA-A371, and CAN/CSA-A179.

6.3.41.3 Support and position reinforcing bars in accordance with CAN/CSA-A371.

6.3.42. Grouting

6.3.42.1 Grout masonry in accordance with CSA S304.1, CAN/CSA-A371 and CAN/CSA-A179 and as indicated.

6.3.43. Anchors

6.3.43.1 Supply and install metal anchors in accordance with CAN/CSA-A370 and CAN/CSA-A371.

6.3.44. Lateral Support And Anchorage

6.3.44.1 Supply and install lateral support and anchorage in accordance with CSA S304.1 and as indicated.

6.3.45. Movement Joints

6.3.45.1 Reinforcement not continuous across movement joints unless otherwise indicated.

6.3.46. Field Bending

6.3.46.1 Do not field bend reinforcement and connectors except where indicated or authorized by Engineer of Record.

6.3.46.2 When field bending authorized, bend without heat, applying slow and steady pressure.

6.3.46.3 Replace bars and connectors with cracks or splits.

6.3.47. Field Quality Control

6.3.47.1 Site inspections in accordance with Section 04 05 00- Common Work Results for Masonry .

6.3.47.2 Obtain Engineer of Record approval of placement of reinforcement and connectors, prior to placing grout.

6.3.48. Field Touch-Up

6.3.48.1 Touch up damaged and cut ends of epoxy coated or galvanized reinforcement steel and connectors with compatible finish to provide continuous coating.

6.3.49. Cleaning

6.3.49.1 Progress Cleaning: clean in accordance with Section 01 74 11- Cleaning .

6.3.49.1(1) Leave Work area clean at end of each day.

6.3.49.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11- Cleaning .

6.3.49.3 Waste Management: separate waste materials for recycling / reuse] in accordance with Section 01 74 19- Waste Management and Disposal / 01 35 21- LEED Requirements .

6.3.49.3(1) Remove recycling containers and bins from site and dispose of materials at appropriate facility.

6.3.50. Related Requirements

6.3.50.1 Masonry Mortar and Grout – Section 04 05 12

6.3.50.2 Masonry Anchorage and Reinforcing – Section 04 05 19

6.3.51. ACTION AND INFORMATIONAL SUBMITTAL

6.3.51.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

6.3.51.2 Product Data:

6.3.51.2(1) Submit manufacturer's instructions, printed product literature and data sheets for concrete masonry units and include product characteristics, performance criteria, physical size, finish and limitations.

6.3.51.3 Sustainable Design Submittal:

6.3.51.3(1) LEED Canada Submittal: in accordance with LEED Requirements.

6.3.51.3(2) Construction Waste Management:

6.3.51.3(2)(a) Submit Project Waste Management Plan / Waste Reduction Workplan highlighting recycling and salvage requirements.

6.3.51.3(3) Recycled Content:

6.3.51.3(3)(a) Submit listing of recycled content products used, including details of required percentages or recycled content materials and products, showing their costs and percentages of post-consumer, post-industrial content, and total cost of materials for Project.

6.3.51.3(4) Regional Materials: submit evidence that Project incorporates required percentage

6.3.52. Quality Assurance

6.3.52.1 Test Reports: submit certified test reports including sand gradation tests in accordance with CAN/CSA-A179 showing compliance with specified performance characteristics and physical properties .Describe certificates intended to document affirmations by the Contractor or other entities that the work is in accordance with the Contract Documents.

6.3.52.2 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

6.3.53. Delivery, Storage And Handling

6.3.53.1 Deliver, store and handle materials in accordance with Product Requirements / with manufacturer's written instructions.

6.3.53.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

6.3.53.2(1) Offload concrete unit masonry packages using equipment that will not damage the surfaces.

6.3.53.2(2) Do not use brick tongs to move or handle masonry.

6.3.53.2(3) Storage and Handling Requirements:

6.3.53.2(3)(a) Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

6.3.53.2(3)(b) Do not double stack cubes of concrete unit masonry.

6.3.53.2(3)(c) Cover masonry units with non-staining waterproof membrane covering.

6.3.53.2(3)(d) Allow air circulation around units.

6.3.53.2(3)(e) Installation of wet or stained masonry units is prohibited.

6.3.53.2(3)(f) Keep concrete unit masonry in individual cardboard packaging provided by manufacturer until units are ready to be installed.

6.3.53.2(3)(g) Store and protect concrete unit masonry from nicks, scratches, and blemishes.

6.3.53.2(3)(h) Replace defective or damaged materials with new.

6.3.53.2(3)(i) Develop Construction Waste Management Plan related to Work of this Section and in accordance with Requirements.

6.3.53.2(3)(j) Packaging Waste Management: remove for reuse and return of pallets, crates, padding, packaging materials in accordance with LEED requirements.

6.3.54. Materials

6.3.54.1 Standard concrete block units: to CAN/CSA-A165 Series (CAN/CSA-A165.1) .

6.3.54.1(1) Classification: See General Notes

6.3.54.1(2) Dimensions Nominal: See Drawings

6.3.54.1(3) Special shapes: Provide purpose-made shapes for lintels, beams and bond beams. Provide additional special shapes as indicated.

6.3.54.2 Prefaced concrete block units: to CAN/CSA-A165 Series (CAN/CSA-A165.3).

6.3.54.2(1) Provide prefaced units manufactured from one continuous run to ensure minimum colour and texture variations.

6.3.54.2(2) Facing: pre-faced architectural concrete masonry blocks that have thermosetting glazing compound permanently molded to one or more faces.

6.3.54.2(3) Classification: See General Notes

6.3.54.2(4) Dimensions – See Drawings

6.3.54.2(5) Specify special shapes as required by Project. Co-ordinate special shapes and face profiles with drawings to verify that they are shown and located.

6.3.54.2(6) Special Shapes:

6.3.54.2(6)(a) Provide purpose-made shapes for bond beams.

6.3.54.2(6)(b) Provide additional special shapes as indicated.

6.3.54.3 Acoustical concrete block units: to CAN/CSA-A165 Series (CAN/CSA-A165.1) purpose made with acoustical characteristics specified.

6.3.54.3(1) Classification: See General Notes

6.3.54.3(2) Dimensions – See Drawings

6.3.54.3(3) Special shapes: provide special shapes indicated. Provide purpose made shapes for lintels and bond beams.

6.3.54.3(4) Fire rated concrete block units: to CAN/CSA-A165 Series (CAN/CSA-A165.1) as modified below.

6.3.54.3(4)(a) Classification: H/15/B/M except as modified by fire resistance requirements specified below.

6.3.54.3(5) Fire resistant characteristics: aggregate used in units and equivalent thickness of units to the British Columbia Building Code 2018 and in accordance with CAN/ULC-S101, for fire-resistance ratings indicated.

6.3.54.3(6) Size: modular.

6.3.54.3(7) Special shapes: Provide purpose-made shapes for lintels and bond beams and provide additional shapes as indicated.

6.3.55. Reinforcement

6.3.55.1 Reinforcement in accordance with Section 04 05 19 - Masonry Anchorage and Reinforcing.

6.3.56. Connectors

6.3.56.1 Connectors in accordance with Section 04 05 19 - Masonry Anchorage and Reinforcing.

6.3.57. Flashing

6.3.57.1 Flashing: in accordance with Section 04 05 23 - Masonry Accessories.

6.3.58. Mortar Mixes

6.3.58.1 Mortar and mortar mixes in accordance with Section 04 05 12 - Masonry Mortar and Grout.

6.3.59. Grout Mixes

6.3.59.1 Grout and grout mixes in accordance with Section 04 05 12 - Masonry Mortar and Grout.

6.3.60. Cleaning Compounds

6.3.60.1 Use low VOC products [in compliance with SCAQMD Rule 1168.

6.3.60.2 Compatible with substrate and acceptable to masonry manufacturer for use on products.

6.3.60.3 Cleaning compounds compatible with concrete unit masonry and in accordance with manufacturer's written recommendations and instructions.

6.3.61. Tolerances

6.3.61.1 Tolerances for standard concrete unit masonry tolerances in accordance with CAN/CSA-A165.1, supplemented as follows:

6.3.61.1(1) Maximum variation between units within specific job lot not to exceed 2 mm.

6.3.61.1(2) No parallel edge length, width or height dimension for individual unit to differ by more than 2 mm.

6.3.61.1(3) Out of square tolerance not to exceed 2 mm.

6.3.61.2 Tolerances for architectural concrete masonry units in accordance with CAN/CSA-A165.1, supplemented as follows:

6.3.61.2(1) Maximum variation in length or height between units within specific job lot for specified dimension not to exceed 2 mm.

6.3.61.2(2) No parallel edge length, width or height dimension for individual unit to differ by more than 2 mm.

6.3.61.2(3) Out of square tolerance not to exceed 2 mm.

6.3.61.2(4) Maximum variation in width between units within specific job lot for specified dimension not to exceed 2 mm.

6.3.62. Examination

6.3.62.1 Verification of Conditions: verify that conditions of substrate previously installed under other sections or contracts are acceptable for concrete unit masonry installation in accordance with manufacturer's written instructions.

6.3.62.1(1) Visually inspect substrate in presence of Engineer of Record.

6.3.62.1(2) Inform Engineer of Record of unacceptable conditions immediately upon discovery.

6.3.62.1(3) Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Engineer of Record.

6.3.63. Preparation

6.3.63.1 Protect adjacent finished materials from damage due to masonry work.

6.3.64. Installation

6.3.64.1 Concrete block units:

6.3.64.1(1) Bond: running / stack.

6.3.64.1(2) Coursing height: 200 mm for one block and one joint.

6.3.64.1(3) Jointing: concave where exposed or where paint or other finish coating is specified.

6.3.64.2 Architectural concrete unit masonry:

6.3.64.2(1) Bond: running.

6.3.64.2(2) Coursing height: 200 mm for one block and one joint.

6.3.64.2(3) Jointing: concave where exposed or where paint or finish coating is specified.

6.3.64.3 Prefaced concrete block units:

6.3.64.3(1) Bond: running.

6.3.64.3(2) Coursing height: 200 mm for one block and one joint.

6.3.64.3(3) Jointing: provide concave joints.

6.3.64.3(4) Clean block faces using soft cloths before mortar hardens rake to 10 mm depth. After completion of block laying fill joints with pointing mortar then point to provide concave joints. Repeat cleaning of faces.

6.3.64.4 Special Shapes:

6.3.64.4(1) Install special units to form corners, returns, offsets, reveals and indents without cut ends being exposed and without losing bond or module.

6.3.64.4(2) Install reinforced concrete block lintels over openings in masonry where steel or reinforced concrete lintels are not indicated.

6.3.64.4(3) End bearing: not less than 200 mm or as indicated on drawings.

6.3.64.4(4) Install special shaped units.

6.3.64.5 Acoustical Concrete Unit Masonry:

6.3.64.5(1) Bond: running.

6.3.64.5(2) Coursing height: 200 mm for one block and one joint.

6.3.64.5(3) Jointing: concave where exposed or where paint or finish coating is specified.

6.3.65. Reinforcement

6.3.65.1 Install reinforcing in accordance with Section 04 05 19 - Masonry Anchorage and Reinforcing.

6.3.66. Connectors

6.3.66.1 Install connectors in accordance with Section 04 05 19 - Masonry Anchorage and Reinforcing.

6.3.67. Flashing

6.3.67.1 Install flashings: in accordance with Section 04 05 23 - Masonry Accessories.

6.3.68. Mortar Placement

6.3.68.1 Place mortar in accordance with Section 04 05 12 - Masonry Mortar and Grout.

6.3.69. Grout Placement

6.3.69.1 Place grout in accordance with Section 04 05 12 - Masonry Mortar and Grout.

6.3.70. Construction

6.3.70.1 Cull out masonry units, in accordance with CAN/CSA-A165 and review range of colour samples, with chips, cracks, broken corners, excessive colour and texture variation.

6.3.70.2 Build in miscellaneous items such as bearing plates, steel angles, bolts, anchors, inserts, sleeves and conduits.

6.3.70.3 Construct masonry walls using running bond unless otherwise noted.

6.3.70.4 Build around frames previously set and braced. Fill behind hollow frames within masonry walls with mortar or grout and embed anchors.

6.3.70.5 Fit masonry closely against electrical and plumbing outlets so collars, plates and covers overlap and conceal cuts.

6.3.70.6 Install movement joints and keep free of mortar where indicated.

6.3.70.7 Hollow Units: spread mortar setting bed from outside edge of face shells. Gauge amount of mortar on top and end of unit to create full joints, equivalent to shell thickness. Avoid excess mortar.

6.3.70.8 Solid Units: apply mortar over entire vertical and horizontal surfaces. Avoid bridging of airspace between brick veneer and backup wall with mortar.

6.3.70.9 Ensure compacted head joints. Use full or face-shell joint as indicated.

6.3.70.10 Tamp units firmly into place.

6.3.70.11 Do not adjust masonry units after mortar has set. Where resetting of masonry is required, remove, clean and reset units in new mortar.

6.3.70.12 Tool exposed joints concave / weathered/raked for interior work; strike concealed joints flush.

6.3.70.13 After mortar has achieved initial set up, tool joints.

6.3.70.14 Do not interrupt bond below or above openings.

6.3.71. Repair/Restoration

6.3.71.1 Upon completion of masonry, fill holes and cracks, remove loose mortar and repair defective work.

6.3.72. Field Quality Control

6.3.72.1 Site Tests, Inspection: as follows:

6.3.72.1(1) Concrete Masonry units will be sampled and tested by independent testing agency in accordance with CSA S304.1.

6.3.72.1(2) Noise reduction between two rooms will be tested by independent testing agency appointed in accordance with ASTM E336.

6.3.72.1(3) Notify inspection agency minimum of 24 hours in advance of requirement for tests.

6.3.72.2 Manufacturer's Field Services: in accordance with Section 04 05 00 - Common Work Results for Masonry.

6.3.73. Cleaning

6.3.73.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

6.3.73.1(1) Leave Work area clean at end of each day.

6.3.73.2 Standard Concrete Unit Masonry:

6.3.73.2(1) Allow mortar droppings on masonry to partially dry then remove by means of trowel, followed by rubbing lightly with small piece of block. Clean wall surface with suitable brush or burlap.

6.3.73.3 Architectural Concrete Unit Masonry:

6.3.73.3(1) Allow mortar droppings on masonry to partially dry then remove by means of trowel, followed by rubbing lightly with small piece of block. Clean wall surface with suitable brush or burlap.

6.3.73.4 Prefaced Concrete Unit Masonry:

6.3.73.4(1) Clean masonry as work progresses using soft, clean cloths, within few minutes after laying. Upon completion, when mortar has set so that it will not be damaged by cleaning, clean with soft sponge or clean cloths, brush, and clean water. Polish with soft, clean cloths.

6.3.73.4(2) Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 77 00- Closeout Procedures.

6.3.73.4(3) Waste Management: separate waste materials for reuse / recycling in accordance with LEED Requirements.

6.3.73.4(3)(a) Remove recycling containers and bins from site and dispose of materials at appropriate facility.

6.3.74. Protection

6.3.74.1 Brace and protect concrete unit masonry.

6.4 Metals (Division 5)

6.4.1. Basic Requirements

6.4.1.1 Structural steel, steel deck, and cold-formed steel stud design and construction may be considered for building elements and systems, where appropriate.

6.4.2. Performance Criteria

6.4.2.1 Design structural steel, steel deck, and cold-formed steel stud systems to comply with the deflection and vibration criteria outlined in Section 5.7 (Structural Design).

6.4.2.2 Erection tolerances for steel construction will be in accordance with all applicable CAN/CSA standards.

6.4.2.3 For steel floor and roof construction, the deflection of steel beams, joists, and girders due to the wet weight of concrete topping slabs is to be considered. Topping slab thickness may have to vary to maintain floor levelness tolerances. The additional concrete ponding weight is to be considered in the design of the structure.

6.4.2.4 Concrete topping slabs will be finished with a smooth, dense, steel trowel finish in accordance with Section 6.2.3.1. Design and construct concrete topping slabs on steel deck to control cracking and avoid random surface shrinkage cracking and radial cracking around re-entrant corners. Implement concrete construction and curing procedures to minimize cracking for concrete topping slabs on metal deck.

6.4.2.5 Steel floor/roof decking is to be wide rib profile for ease of attachment of current and future services, equipment, and fixtures using drilled insert expansion anchors into the bottom of the deck ribs.

6.4.2.6 Steel floor/roof decking plus the concrete topping slab thickness is to satisfy the requirements of a ULC-rated assembly meeting the BC Building Code fire rating requirements. Spray on or applied fireproofing material is not to be used to achieve required floor deck fire rating.

6.4.2.7 Fire proof structural steel floor/roof framing and supporting members to meet the fire rating requirement.

6.4.3. Structural Steel and Steel Joists

6.4.3.1 Quality Requirements

6.4.3.1(1) Quality assurance testing and monitoring of workmanship to be carried out by an approved testing laboratory using testing procedures as specified in the CAN/CSA standards listed to verify soundness of representative shop and field welds.

6.4.3.1(2) Material quality including sourcing and welding quality will be monitored by an independent testing agency.

6.4.3.1(3) The specification for preparation and painting of Structural Steel components will conform to the Master Painters Institute (MPI) Standards.

6.4.4. Load Bearing Steel Studs

6.4.4.1 Overriding Principles

6.4.4.1(1) Load bearing steel studs may be considered as a component of the exterior wall systems to support exterior wall finishes and form an integral part of the perimeter envelope.

6.4.4.1(2) Load bearing steel studs may be part of the structural framing or may be independent of the principal structural system.

6.4.4.2 Quality Requirements

6.4.4.2(1) Design, detail and construct load bearing steel stud design and construction to comply with all applicable CAN/CSA standards.

6.4.4.2(2) The steel stud manufacturer will be certified in accordance with CSSBI Standard 30M-06 and all applicable CAN/CSA standards.

6.4.4.2(3) The steel stud fabricator and erector will be experienced in the type of work undertaken.

6.4.4.2(4) Conform to the Association of Wall and Ceiling Contractor's Specification Standards Manual (AWCC).

6.4.4.3 Performance Requirements

6.4.4.3(1) Limit maximum deflection under specified wind loads to L/360 (L/720 for masonry veneers), unless a smaller maximum deflection is specifically required due to wall finishes.

6.4.4.3(2) Design components to accommodate erection tolerances of the structure.

6.4.4.3(3) Design wind bearing stud end connections to accommodate floor/roof deflections and to ensure that studs are not loaded axially.

6.4.4.3(4) Design steel studs to take into account the anchorage of other materials being supported including but not limited to: sub-girts supporting metal cladding and composite panels, soffit finishes and the provision of lateral support at window heads.

6.4.4.4 Corner Guards and Bumper Rails

6.4.4.4(1) Provide stainless steel corner guards and bumper rails in infection control sensitive areas, including:

6.4.4.4(1)(a) the Medical Device Reprocessing Department;

6.4.4.4(1)(b) surgical suite corridors;

6.4.4.4(1)(c) sterile storage areas; and

6.4.4.4(1)(d) other areas with high risk of impact from utility cart traffic.

6.4.4.4(2) Provide heavy duty steel corner guards and bumper rails in utility areas, including:

6.4.4.4(2)(a) the Material Management Storage, Loading Dock and associated areas;

6.4.4.4(2)(b) utility corridors with heavy utility cart and pallet jack traffic; and

6.4.4.4(2)(c) utility shop areas.

6.4.4.5 Guardrails & Handrails

6.4.4.5(1) Provide guardrails and handrails of minimum diameter 42 mm, required to resist design loads.

6.4.4.5(2) All guardrails to be designed to their usage classification and per applicable codes.

6.4.4.5(3) Provide a durable painted finish for steel guardrails.

6.4.4.5(4) Provide a manufactured pre-finish for stainless steel or aluminum guardrails.

6.4.4.5(5) Provide safety glass for glazed decorative railings.

6.4.4.5(6) In exterior applications of guardrails, where a hazard exists, provide guardrails to conform to the requirements of the BC Building Code.

6.4.5. Related Requirements

6.4.5.1 Cast In Place Concrete – Section 03 30 00

6.4.5.2 Steel Joist Framing – Section 05 21 00

6.4.5.3 Steel Decking – Section 05 31 00

6.4.6. Reference Standards

6.4.6.1 ASTM International Inc.

6.4.6.1(1) ASTM A36/A36M, Standard Specification for Carbon Structural Steel.

6.4.6.1(2) ASTM A193/A193M, Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature or High-Pressure Service and Other Special Purpose Applications.

6.4.6.1(3) ASTM A307 , Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

6.4.6.1(4) ASTM A325 , Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.

6.4.6.1(5) ASTM A325M, Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Minimum Tensile Strength Metric.

6.4.6.1(6) ASTM A490M , Standard Specification for High-Strength Steel Structural Bolts, Classes 10.9 and 10.9.3, for Structural Steel Joints Metric.

[*Note: ASTM A325 & A490 were withdrawn in 2016 and replaced with: ASTM F3125/F3125M, Standard Specification for High Strength Bolts, Steel and Alloy Steel, Heat Treated, 120ksi (830MPa) and 150ksi (1040MPa) Minimum Tensile Strength, Inch and Metric Dimensions].

6.4.6.1(7) CSA G164 Hot Dip Galvanizing of irregularly shaped Articles.

6.4.6.2 Canadian General Standards Board (CGSB)

6.4.6.2(1) CAN/CGSB-85.10 , Protective Coatings for Metals.

6.4.6.3 Canadian Institute of Steel Construction (CISC)/Canadian Paint Manufacturers Association (CPMA).

6.4.6.3(1) Handbook of the Canadian Institute of Steel Construction.

6.4.6.3(2) CISC/CPMA Standard 2-75, Quick-Drying Primer for use on Structural Steel.

6.4.6.4 CSA Group (CSA)

6.4.6.4(1) CSA G40.20/G40.21 , General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

6.4.6.4(2) CAN/CSA-G164, Hot Dip Galvanizing of Irregularly Shaped Articles.

6.4.6.4(3) CAN/CSA-S16 , Limit States Design of Steel Structures.

6.4.6.4(4) CAN/CSA-S136, North American Specifications for the Design of Cold Formed Steel Structural Members.

6.4.6.4(5) CSA W47.1, Certification of Companies for Fusion Welding of Steel.

6.4.6.4(6) CSA W48, Filler Metals and Allied Materials for Metal Arc Welding.

6.4.6.4(7) CSA W55.3, Resistance Welding Qualification Code for Fabricators of Structural Members Used in Buildings.

6.4.6.4(8) CSA W59, Welded Steel Construction (Metal Arc Welding).

6.4.6.4(9) CSA W178.1, Certification of Welding Inspection Organizations

6.4.6.4(10) CSA W178, Certification of Welding Inspectors

6.4.6.5 Master Painters Institute

6.4.6.5(1) MPI-INT 5.1, Structural Steel and Metal Fabrications.

6.4.6.5(2) MPI-EXT 5.1 , Structural Steel and Metal Fabrications.

6.4.6.6 The Society for Protective Coatings (SSPC) and National Association of Corrosion Engineers (NACE) International

6.4.6.6(1) NACE No. 3/SSPC SP-6, Commercial Blast Cleaning.

6.4.7. Action And Informational Submittal

6.4.7.1 Provide Submittal in accordance with Section 01 33 00- Submittal Procedures .

6.4.7.2 Shop Drawings:

6.4.7.2(1) Submit drawings stamped and signed by professional engineer registered or licensed in British Columbia, Canada.

6.4.7.3 Erection drawings:

6.4.7.3(1) Submit erection drawings indicating details and information necessary for assembly and erection purposes including:

6.4.7.3(1)(a) Description of methods.

6.4.7.3(2) Sequence of erection.

6.4.7.3(3) Type of equipment used in erection.

6.4.7.3(4) Temporary bracings.

6.4.7.4 Fabrication drawings:

6.4.7.4(1) Submit fabrication drawings showing designed assemblies, components and connections are stamped and signed by qualified professional engineer licensed in British Columbia, Canada.

6.4.7.5 Intentionally deleted.

6.4.7.5(1) Intentionally deleted.

6.4.7.6 Source Quality Control Submittal:

6.4.7.6(1) Submit 4 weeks prior to fabrication of structural steel.

6.4.7.6(1)(a) Mill test reports to show chemical and physical properties and other details of steel to be incorporated in Project.

6.4.7.6(2) Provide mill test reports certified by metallurgists qualified to practise in the United States or Canada.

6.4.7.7 Fabricator Reports:

6.4.7.7(1) Provide structural steel fabricator's affidavit stating that materials and products used in fabrication conform to applicable material and products standards specified and indicated.

6.4.8. Delivery, Storage And Handling

6.4.8.1 Deliver, store and handle materials in accordance with Product Requirements .

6.4.8.2 Deliver materials in manufacturer's original, undamaged containers with identification labels intact.

6.4.8.3 Packaging Waste Management: remove for reuse / return of crates / padding / packaging materials / pallets in accordance with LEED Requirements.

6.4.9. Design Requirements

6.4.9.1 Design details and connections in accordance with requirements of CAN/CSA-S136 with CSA-S136.1 and CAN/CSA-S16 to resist forces, moments, shears and allow for movements indicated.

6.4.9.2 Shear connections:

6.4.9.2(1) Select framed beam shear connections from an industry accepted publication such as "Handbook of the Canadian Institute of Steel Construction" when connection for shear only (standard connection) is required.

6.4.9.2(2) Select or design connections to support reaction from maximum uniformly distributed load that can be safely supported by beam in bending, provided no point loads act on beam, when shears are not indicated.

6.4.9.2(3) For composite construction select or design minimum end connection to resist reaction resulting from factored movement resistance as tabulated in the "Handbook of the Canadian Institute of Steel Construction" assuming 100% shear connection with depth of steel deck and/or slab shown on drawings.

6.4.9.2(4) Submit sketches and design calculations stamped and signed by qualified professional engineer licensed in British Columbia , Canada for non standard connections.

6.4.10. Materials

6.4.10.1 Structural steel: to CSA-G40.20/G40.21, Grade as indicated on drawings

6.4.10.2 Anchor bolts: to ASTM A36/A36M / CSA-G40.20/G40.21, Grade as indicated on drawings.

6.4.10.3 High strength anchor bolts: to ASTM A193/A193M, Grade as indicated on drawings.

6.4.10.4 Bolts, nuts and washers: to ASTM A490/A490M / ASTM A325M / ASTM A307 / ASTM A325 .

6.4.10.5 Welding materials: to CSA W48 Series and CSA W59 and certified by Canadian Welding Bureau.

6.4.10.6 Shop paint primer: to CISC/CPMA2-75 .

6.4.10.7 Hot dip galvanizing: galvanize steel, where indicated, to CAN/CSA-G164, minimum zinc coating of 600 g/m

6.4.10.8 Shear studs: to CSA W59, Appendix H.

6.4.11. Fabrication

6.4.11.1 Fabricate structural steel in accordance with CAN/CSA-S16 and / or CAN/CSA-S136 and in accordance with reviewed shop drawings.

6.4.11.2 Install shear studs in accordance with CSA W59.

6.4.11.3 Continuously seal members by continuous welds or intermittent welds and plastic filler where indicated . Grind smooth as indicated .

6.4.12. Shop Painting

6.4.12.1 Clean, prepare surfaces and shop prime structural steel in accordance with[CAN/CSA-S136 / CAN/CSA-S16 except where members to be encased in concrete.

6.4.12.2 Clean members, remove loose mill scale, rust, oil, dirt and foreign matter. Prepare surface according to NACE No.3/SSPC-SP-6.

6.4.12.3 Apply one coat of primer in shop to steel surfaces to achieve minimum dry film thickness of 1.5 to 2.0 mils.

6.4.12.3(1) Surfaces to be encased in concrete.

6.4.12.3(2) Surfaces to receive field installed stud shear connections.

6.4.12.3(3) Surfaces and edges to be field welded.

6.4.12.3(4) Faying surfaces of slip-critical connections.

6.4.12.3(5) Below grade surfaces in contact with soil.

6.4.12.4 Apply paint under cover, on dry surfaces when surface and air temperatures are above 5 degrees C.

6.4.12.5 Maintain dry condition and 5 degrees C minimum temperature until paint is thoroughly dry.

6.4.12.6 Strip paint from bolts, nuts, sharp edges and corners before prime coat is dry.

6.4.13. Application

6.4.13.1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, and datasheets.

6.4.14. General

6.4.14.1 Structural steel work: in accordance with CAN/CSA-S136 and/or CAN/CSA-S16.

6.4.14.2 Welding: in accordance with CSA W59.

6.4.14.3 Companies to be certified under Division 1 or 2.1 of CSA W47.1 for fusion welding of steel structures and/or CSA W55.3 for resistance welding of structural components.

6.4.15. Marking

6.4.15.1 Mark materials in accordance with CSA G40.20/G40.21. Do not use die stamping. When steel is to be left in unpainted condition, place marking at locations not visible from exterior after erection.

6.4.15.2 Match marking: shop mark for fit and match.

6.4.16. Erection

6.4.16.1 Erect structural steel, as indicated and in accordance with CAN/CSA-S16 / CAN/CSA-S136 [and in accordance with reviewed erection drawings .

6.4.16.2 Field cutting or altering structural members: to approval by Engineer of Record.

6.4.16.3 Clean with mechanical brush and touch up shop primer to bolts, rivets, welds and burned or scratched surfaces at completion of erection.

6.4.16.4 Continuously seal members by continuous welds where indicated. Grind smooth.

6.4.17. Field Quality Control

6.4.17.1 Inspection and testing of materials and workmanship will be carried out by testing laboratory.

6.4.17.2 Provide safe access and working areas for testing on site, as required by testing agency and as authorized by Engineer of Record.

6.4.17.3 Submit test reports to Authority's Consultant within 1 week of inspection to Engineer of Record.

6.4.17.4 Test shear studs in accordance with CSA W59.

6.4.18. Field Painting

6.4.18.1 Paint in accordance with Section 09 91 23- Interior Painting .

6.4.18.1(1) Touch up damaged surfaces and surfaces without shop coat with primer to NACE No.3/SSPC-SP-6 except as specified otherwise. Apply in accordance: MPI Architectural Painting Specification Manual.

6.4.19. Cleaning

6.4.19.1 Clean in accordance with Section 01 74 11- Cleaning .

6.4.19.2 Waste Management: separate waste materials for reuse / recycling in accordance with LEED Requirements.

6.4.20. Related Requirements

6.4.20.1 Cast In Place Concrete – Section 03 30 00

6.4.20.2 Structural Steel For Buildings – Section 05 12 23

6.4.20.3 Steel Decking – Section 05 31 00

6.4.21. Reference Standards

6.4.21.1 LEED V4/V4.1 (USGBC) in Canada

6.4.21.1(1) LEED Reference Guide for Green Building Design and Construction – Healthcare Supplement 2009 Edition

6.4.21.2 Canadian Institute of Steel Construction (CISC)/Canadian Paint Manufacturer's Association (CPMA)

6.4.21.2(1) CISC/CPMA 2-75, Quick-Drying, Primer for Use on Structural Steel.

6.4.21.2(2) CISC/CPMA 1-73a, Quick-Drying, One-Coat Paint for Use on Structural Steel.

6.4.21.3 Canadian Standards Association (CSA)

6.4.21.3(1) CSA G40.20 /G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

6.4.21.3(2) CSA S16, Design of Steel Structures.

6.4.21.3(3) CSA S136, North American Specification for the Design of Cold Formed Steel Structural Members.

6.4.21.3(4) CSA W47.1, Certification of Companies for Fusion Welding of Steel.

6.4.21.3(5) CSA W55.3, Certificate of Companies for Resistance Welding of Steel and Aluminum.

6.4.21.3(6) CSA W59, Welded Steel Construction (Metal Arc Welding) [Metric] .

6.4.21.4 The Master Painters Institute (MPI)

6.4.21.4(1) Architectural Painting Specification Manual.

6.4.22. Action And Informational Submittal

6.4.22.1 Submit in accordance with Section 01 33 00- Submittal Procedures .

6.4.22.2 Product Data:

6.4.22.2(1) Submit manufacturer's instructions, printed product literature and data sheets for steel joist framing and include product characteristics, performance criteria, physical size, finish and limitations.

6.4.22.3 Shop Drawings:

6.4.22.3(1) Submit drawings stamped and signed by professional engineer registered or licensed in British Columbia, Canada.

6.4.22.3(2) Indicate on erection drawings, relevant details such as joist mark, depth, spacing, bridging lines, bearing, anchorage and details.

6.4.22.3(3) Indicate particulars, on shop drawings, relative to joist geometry, framed openings, splicing details, bearing and anchorage. Include member size, properties, specified and factored member loads, and stresses under various loadings, deflection and camber.

6.4.22.4 Delegated Design Submittal:

6.4.22.4(1) Submit floor vibration analysis as directed by Engineer of Record.

6.4.22.4(2) Submit drawings stamped and signed by a qualified professional engineer for Engineer of Record review a minimum of 4 weeks prior to fabrication and delivery.

6.4.22.5 Sustainable Design Submittal:

6.4.22.5(1) LEED Canada- LEED Requirements .

6.4.22.5(2) Construction Waste Management:

6.4.22.5(2)(a) Submit Project Waste Management Plan highlighting recycling and salvage requirements.

6.4.22.5(3) Recycled Content:

6.4.22.5(3)(a) Submit listing of recycled content products used, including details of required percentages or recycled content materials and products .

6.4.22.5(4) Regional Materials: submit evidence Project incorporates required percentage % of regional materials and products, showing their cost, distance from Project to furthest site of extraction or manufacture, and total cost of materials for Project.

6.4.23. Quality Assurance

6.4.23.1 Submit 4 weeks prior to fabrication of steel joists and accessories. Reports to show:

6.4.23.1(1) Chemical and physical properties.

6.4.23.1(2) Other details of steel incorporated into work.

6.4.23.1(3) Certification by qualified metallurgists confirming that tests conform to requirements of CSA G40.20/G40.21

6.4.23.2 Submit affidavit prepared by fabricator of structural steel joists stating materials and products used in fabrication conform to this specification.

6.4.24. Delivery, Storage And Handling

6.4.24.1 Deliver, store and handle materials in accordance with Section with manufacturer's written instructions / 01 61 00- Common Product Requirements .

6.4.24.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

6.4.24.3 Storage and Handling Requirements:

6.4.24.3(1) Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

6.4.24.3(2) Replace defective or damaged materials with new.

6.4.24.3(3) Develop Construction Waste Management Plan / Waste Reduction Workplan] related to Work of this Section and in accordance with LEED Requirements .

6.4.24.3(4) Packaging Waste Management: remove for reuse / and return of padding, crates, pallets, packaging materials in accordance with LEED Requirements .

6.4.25. Site Conditions

6.4.25.1 Verify dimensions and condition of existing work; report discrepancies and potential problem areas to Engineer of Record for direction before commencing fabrication.

6.4.26. Design Criteria

6.4.26.1 Design steel joists and bridging to carry loads indicated in joist schedule shown on drawings to CSA S16 / CSA S136 .

6.4.26.2 Design joists and anchorages for uplift forces as indicated.

6.4.26.3 Manufacture joists to consider load effects due to fabrication, erection and handling.

6.4.26.4 Limit natural frequency of joist and floor system per Schedule 1 Statement of Requirements

6.4.26.5 Limit roof joist deflection per Schedule 1 Statement of Requirements

6.4.26.6 Limit floor joist deflection per Schedule 1 Statement of Requirements

6.4.27. Materials

6.4.27.1 Open web steel joists: to CSA S16 / CSA S136.

6.4.27.2 Structural steel: to CSA G40.20/G40.21 / CSA S136 .

6.4.27.3 Welding materials: to CSA W59.

6.4.27.4 Shop paint primer: to MPI - INT 5.1A / MPI - INT 5.1B / CISC/CPMA-2 / CISC/CPMA-1 .

6.4.27.5 Shear studs: to CSA W59, Appendix H.

6.4.28. Fabrication

6.4.28.1 Fabricate steel joists and accessories as indicated in accordance with CSA S136 / CSA S16 and in accordance with reviewed shop drawings .

6.4.28.2 Weld in accordance with CSA W59.

6.4.28.3 Provide chord extensions where indicated.

6.4.28.4 Provide diagonal and horizontal bridgings and anchorages as indicated.

6.4.28.5 Weld studs to top / bottom chords for attachment purposes.

6.4.28.6 Install shear studs in accordance with CSA W59.

6.4.29. Shop Painting

6.4.29.1 Clean, prepare and shop prime surfaces of steel joists to SSPC SP6 / CSA S16 .

6.4.29.2 Clean members of loose mill scale, rust, oil, dirt and other foreign matter. Prepare surfaces to SSPC SP1 brush blast.

6.4.29.3 Apply one coat of CISC/CPMA 2 primer to steel surfaces to achieve dry film thickness of .065 mm to .080 mm maximum except:

6.4.29.3(1) Surfaces encased in concrete.

6.4.29.3(2) Surfaces to receive field installed stud shear connectors and steel decks.

6.4.29.3(3) Surfaces and edges field welded.

6.4.29.3(4) Faying surfaces of friction-type connections.

6.4.29.3(5) Below grade surfaces in contact with soil.

6.4.29.4 Apply paint under cover, on dry surfaces when surface and air temperatures minimum 5 degrees C.

6.4.29.5 Maintain dry condition and 5 degrees C minimum temperature until paint thoroughly dry.

6.4.29.6 Strip paint bolts, nuts, sharp edges and corners before prime coat dries.

6.4.30. Examination

6.4.30.1 Verification of Conditions: verify conditions of substrates previously installed under other sections or contracts acceptable for steel joist framing installation in accordance with manufacturer's written instructions.

6.4.30.1(1) Visually inspect substrate in presence of Engineer of Record.

6.4.30.2 Inform Engineer of Record of unacceptable conditions immediately upon discovery.

6.4.30.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Engineer of Record.

6.4.31. Erection

6.4.31.1 Do structural steel work: to CSA S16 / CSA S136 .

6.4.31.2 Do welding: in accordance with CSA W59.

6.4.31.3 Ensure installers certified to CSA W47.1 for fusion welding / CSA W55.3 for resistance welding.

6.4.31.4 Submit certification welded joints qualified by Canadian Welding Bureau.

6.4.31.5 Erect steel joists and bridging as indicated to CSA S16 and in accordance with reviewed erection drawings.

6.4.31.6 Complete installation of bridging and anchorages before placing construction loads on joists.

6.4.31.7 Field cutting or altering joists or bridging not shown on shop drawings: to approval of Engineer of Record.

6.4.31.8 Clean and touch up shop primer to bolts, welds, burned or scratched surfaces at completion of erection.

6.4.32. Field Quality Control

6.4.32.1 Inspection and testing of materials and work carried out by testing laboratory designated by Engineer of Record.

6.4.32.2 Testing laboratory to inspect representative joists for integrity, accuracy of fabrication and soundness of welds. Submit test report to Engineer of Record Test shear studs to CSA W59.

6.4.33. Field Painting

6.4.33.1 Paint: in accordance with Section 09 90 00- Painting and Coating.

6.4.33.2 Touch up damaged surfaces and surfaces without shop coat with MPI - INT 5.1A, CISC/CPMA-2, MPI - INT 5.1B, CISC/CPMA-1 in accordance with manufacturers' recommendations.

6.4.34. Cleaning

6.4.34.1 Progress Cleaning:

6.4.34.1(1) Leave Work area clean at end of each day.

6.4.34.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 77 00 – Closeout Procedures .

6.4.34.3 Waste Management: separate waste materials in accordance with LEED Requirements.

6.4.34.3(1) Remove recycling containers and bins from site and dispose of materials at appropriate facility.

6.4.35. Protection

6.4.35.1 Protect installed products and components from damage during construction.

6.4.35.2 Repair damage to adjacent materials caused by steel joist framing installation.

6.4.36. Related Requirements

6.4.36.1 Structural Steel For Buildings – Section 05 12 23

6.4.36.2 Steel Joist Framing – Section 05 21 00

6.4.37. Reference Standards

6.4.37.1 ASTM International

6.4.37.1(1) ASTM A653/A653M, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

6.4.37.1(2) ASTM A780-01 Standard Practice for Repair of Damaged and Uncoated Areas of Hot Dip Galvanized Coatings.

6.4.37.1(3) ASTM A792/A792M, Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.

6.4.37.2 LEED V4/V4.1 (USGBC) in Canada

6.4.37.2(1) LEED Reference Guide for Green Building Design and Construction – Healthcare Supplement 2009 Edition

6.4.37.3 Canadian Sheet Steel Building Institute (CSSBI)

6.4.37.3(1) CSSBI 10M , Standard for Steel Roof Deck.

6.4.37.3(2) CSSBI 12M, Standard for Composite Steel Deck.

6.4.37.4 CSA Group

6.4.37.4(1) CSA C22.2 No.79 , Cellular Metal and Cellular Concrete Floor Raceways and Fittings.

6.4.37.4(2) CSA S16-, Design of Steel Structures.

6.4.37.4(3) CSA S136, North American Specification for the Design of Cold Formed Steel Structural Members CSA W47.1, Certification of Companies for Fusion Welding of Steel Structures.

6.4.37.4(4) CSA W55.3, Certification of Companies for Resistance Welding of Steel and Aluminum.

6.4.37.4(5) CSA W59, Welded Steel Construction, (Metal Arc Welding)

6.4.37.5 Green Seal Environmental Standards (GS)

6.4.37.5(1) GS-11, Paints and Coatings.

6.4.38. Design Requirements

6.4.38.1 Design steel deck to CSA S136 and CSSBI 10M.

6.4.38.2 Design roof / floor composite steel deck to CSA S16, CSA S136, and CSSBI 12M.

6.4.38.3 Steel deck and connections to steel framing to carry dead, live and other loads including lateral loads, diaphragm action, composite deck action, and uplift as indicated.

6.4.38.4 Deflection per Schedule 1 Statement of Requirements.

6.4.38.5 Where vibration effects controlled as indicated, dynamic characteristics of decking system designed in accordance with CSA S16.

6.4.39. Action And Informational Submittal

6.4.39.1 Submit in accordance with Section 01 33 00- Submittal Procedures .

6.4.39.2 Product Data:

6.4.39.2(1) Submit manufacturer's instructions, printed product literature and data sheets for steel decking and include product characteristics, performance criteria, physical size, finish and limitations.

6.4.39.3 Shop Drawings:

6.4.39.3(1) Submit drawings stamped and signed by professional engineer registered or licensed in British Columbia, Canada.

6.4.39.3(2) Submit design calculations if requested by Engineer of Record.

6.4.39.3(3) Indicate deck plan, profile, dimensions, base steel thickness, metallic coating designation, connections to supports and spacings, projections, openings, reinforcement details and accessories.

6.4.39.3(4) Indicate details of temporary shoring of steel deck, such as location, time and duration of placement and removal of shoring for concrete fill decks.

6.4.39.4 Sustainable Design Submittal:

6.4.39.4(1) LEED Canada Submittal: in accordance with LEED Requirements.

6.4.39.4(2) Construction Waste Management:

6.4.39.4(2)(a) Submit Project Waste Management Plan highlighting recycling and salvage requirements.

6.4.39.4(3) Recycled Content:

6.4.39.4(3)(a) Submit listing of recycled content products used, including details of required percentages or recycled content materials and products

6.4.39.4(4) Regional Materials: submit evidence Project incorporates required percentage of regional materials and products, showing their cost, distance from Project to furthest site of extraction or manufacture, and total cost of materials for Project.

6.4.39.4(5) Low-Emitting Materials:

6.4.39.4(5)(a) Submit listing of adhesives and sealants, paints and coatings] used in building, comply with VOC and chemical component limits or restrictions requirements.

6.4.40. Quality Assurance

6.4.40.1 Retain professional engineer registered or licensed in British Columbia, Canada, with experience in steel deck Work of comparable complexity and scope, to perform following services as part of Work of this Section:

6.4.40.1(1) Structural design of steel deck and composite deck.

6.4.40.2 Review, stamp, and sign shoring and erection Shop Drawings, design calculations, and revisions required.

6.4.40.3 Conduct on-site inspections and prepare and submit inspection reports verifying this part of Work in accordance with Contract Documents and reviewed Shop Drawings.

6.4.40.4 Monitor supplier's and fabricator's quality control tests and reports.

6.4.41. Delivery, Storage And Handling

6.4.41.1 Deliver, store and handle materials in accordance with manufacturer's written instructions.

6.4.41.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

6.4.41.3 Storage and Handling Requirements:

6.4.41.3(1) Store materials off ground and in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

6.4.41.3(2) Store and protect decking from nicks, scratches, and blemishes.

6.4.41.3(3) Replace defective or damaged materials with new.

6.4.41.3(4) Develop Construction Waste Management Plan related to Work of this Section and in accordance with LEED Requirements.

6.4.41.4 Packaging Waste Management: per LEED Requirements.

6.4.42. Materials

6.4.42.1 Zinc-iron Alloy (ZF) coated steel sheet: to [ASTM A653/A653M] structural quality Grade 230 or 255, with ZF75 coating, for interior surfaces not exposed to weather, painted / unpainted finish per drawings.

6.4.42.2 Decks to be painted: zinc-iron alloy coated decks suitable for finish painting.

6.4.42.3 Zinc (Z) coated steel sheet: to ASTM A653/A653M structural quality Grade 255 or 230, with ZF75, coating, regular spangle / extra smooth surface, chemically treated for unpainted finish or not chemically treated for paint finish for exterior surfaces exposed to weather per drawings.

6.4.42.4 Aluminum-zinc alloy (AZ) coated steel sheet: to ASTM A792/A 792M structural quality grade 255, / 230 with AZ 180 / AZ 150, coating, surface, not chemically treated for paint finish, chemically treated for unpainted finish, for exterior surfaces exposed to weather, per the drawings.

6.4.42.5 Acoustic insulation: fibrous glass 17.5 kg/m3density minimum profiled to suit deck flutes.

6.4.42.6 Closures: in accordance with manufacturer's recommendations.

6.4.42.7 Cover plates, cell closures and flashings: steel sheet with minimum base steel thickness of 0.76 mm minimum. Metallic coating same as deck material.

6.4.42.8 Primer: to section 09 90 00- Painting and Coating.

6.4.42.8(1) VOC limit 250g/L maximum to SCAQMD Rule 1113. GS-11

6.4.42.9 Caulking: to Section 07 92 00- Joint Sealants.

6.4.42.9(1) Sealants: VOC limit 250 g/L maximum to SCAQMD Rule 1168.

6.4.42.10 Shear studs: to CSA W59.

6.4.43. Types Of Decking

6.4.43.1 Steel roof / floor deck: interlocking side laps.

6.4.43.2 Cellular roof / floor deck for electrical raceway: to CSA C22.2 No. 79.

6.4.44. Examination

6.4.44.1 Verification of Conditions: verify conditions of substrates previously installed under other sections or contracts acceptable for steel decking installation in accordance with manufacturer's written instructions.

6.4.44.1(1) Visually inspect substrate in presence of Engineer of Record.

6.4.44.1(2) Inform Engineer of Record of unacceptable conditions immediately upon discovery.

6.4.44.1(3) Proceed with installation after unacceptable conditions remedied [and after receipt of written approval to proceed Engineer of Record.

6.4.45. Preparation

6.4.45.1 Locate bundles of deck materials to prevent overloading of supporting members.

6.4.45.2 Install temporary shoring before placing deck panels, if required to meet deflection limitations.

6.4.46. Erection

6.4.46.1 Structural steel work: in accordance with CSSBI 12M, CSSBI 10M, CSA S136.

6.4.46.2 Welding: in accordance with CSA W59, except where specified otherwise.

6.4.46.3 Companies to be certified under Division 1 or 2.1 of CSA W47.1 for fusion welding of steel or CSA W55.3 for resistance welding.

6.4.46.4 Erect steel deck as indicated and in accordance with CSA S136, CSSBI 10M, CSSBI 12M and in accordance with reviewed erection drawings.

6.4.46.5 Butt ends: to 1.5 to 3 mm gap. Install steel cover plates over gaps minimum 3 mm wide.

6.4.46.6 Lap ends: to 50 mm minimum.

6.4.46.7 Weld and test stud shear connectors through steel deck to steel joists/beams below

6.4.46.8 Immediately after deck is permanently secured in place, touch up metallic coated top surface with compatible primer where burned by welding.

6.4.46.9 Prior to concrete placement, steel deck free of soil, debris, standing water, loose mil scale and other foreign matter.

6.4.46.10 Temporary shoring, if required, designed to support construction loads, wet concrete and other construction equipment. Do not remove temporary shoring until concrete attains 75% of its specified 28 day compression strength.

6.4.46.11 Place and support reinforcing steel as indicated.

6.4.46.12 Closures: Install closures in accordance with approved details.

6.4.46.13 Openings and Areas of Concentrated Loads

6.4.46.13(1) No reinforcement required for openings cut in deck maximum 150 mm square.

6.4.46.13(2) Frame deck openings with dimension between 150 to 300 mm as recommended by manufacturer, except as otherwise indicated.

6.4.46.13(3) For deck openings with dimension minimum 300 mm and for areas of concentrated load, reinforce in accordance with structural framing details, except as otherwise indicated.

6.4.46.14 Connections: Install connections in accordance with CSSBI recommendations as indicated.

6.4.47. Field Touch-Up Painting

6.4.47.1 Upon erection completion, mechanically brush clean bolts, rivets, welds, and burned or scratched surfaces.

6.4.47.2 For galvanized steel surface with damage and without shop coat, repair with field touch up primer.

6.4.48. Cleaning

6.4.48.1 Progress Cleaning:

6.4.48.1(1) Leave Work area clean at end of each day.

6.4.48.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 77 00- Closeout Procedures.

6.4.48.3 Waste Management: separate waste materials in accordance with - LEED Requirements.

6.4.48.4 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

6.4.49. Protection

6.4.49.1 Protect installed products and components from damage during construction.

6.4.49.2 Repair damage to adjacent materials caused by steel decking installation.

6.5 Wood, Plastics and Composites (including Millwork) (Division 6)

6.5.1. Basic Requirements

6.5.1.1 The use of wood and plastic products is to be within the limitations of combustible content restrictions of the BC Building Code for the specific occupancy classification of each Building.

6.5.1.2 Timber may be considered as acceptable product for Building structure (e.g. Clinical Services Building).

6.5.1.3 Do not use urea formaldehyde containing materials in the Facility.

6.5.1.4 Provide rough carpentry, wood backing materials, backing boards for mechanical rooms and electrical/communication rooms, roof sheathing, copings, cant strips, finish carpentry and architectural woodwork, including but not limited to exterior fascia's, cabinets, casework (excluding laboratory casework, which is included in Division 12), frames, paneling, ceiling battens, trim, installation of doors and hardware, and other wood-related products and applications as required:

6.5.1.4(1) to support functionality as defined in Appendix 1A Clinical Specifications or as required for operation of the Facility; and

6.5.1.4(2) as required for wood products exposed to view in finished interior and exterior installations.

6.5.1.5 Use wood studs for non-load bearing framing in non-patient care areas, subject to approval from the authority having jurisdiction under the BC Building Code. Wood studs will comply with applicable CSA standards for lumber. Wood framing design will be certified by a professional engineer registered in the province of British Columbia.

6.5.1.6 Provide solid polymer fabricated or stainless steel surfacing for:

6.5.1.6(1) all counters that incorporate integral sinks; and

6.5.1.6(2) other areas as required to create surfaces that provide antiseptic or clean characteristics, special or regular maintenance, and resistance to caustic action of chemicals or agents used by the Authority.

6.5.1.7 Provide acrylic plastic products (or other products as approved by the Authority) as required for wall cladding, wall protection, corner protection, casework finishing, trims, ornamental elements, and other applications to achieve a quality of interior finish suitable for use by patients and staff.

6.5.1.8 Prepare and propose to the Authority locations and types of all handrails, bumper guards, wall protection, and consult with the Authority to determine locations and types.

6.5.1.9 Use pressure treated wood for any exterior exposed wood.

6.5.2. Wall Guards and Corner Guards, Handrails, Wall Protection, Door Edge and Door Frame Protection

6.5.2.1 Wall and corner guards

6.5.2.1(1) Provide protection of walls and exposed wall corners at patient care areas, service areas, and other areas as required, to prevent damage due to impact from traffic such as stretchers, equipment and service vehicles.

6.5.2.1(2) Select materials appropriate to the amount and degree of impact anticipated.

6.5.2.2 Handrails

6.5.2.2(1) Provide handrails in all corridors and patient care areas of an appropriate type for patient support.

6.5.2.2(2) Select materials and shapes appropriate for the use, provide continuous uninterrupted supports.

6.5.2.3 Wall protection

6.5.2.3(1) Apply sheet wall protection to wall areas where the impact damage anticipated is of a larger area of wall than would be protected by bumper guards.

6.5.2.3(2) Provide wall splash back protection behind and surrounding hand sinks, scrub sinks and housekeeping sinks.

6.5.2.3(3) Apply sheet wall protection to faces of doors where impact damage is anticipated. Use sheet wall protection that complements the installation of door edge and frame protection.

6.5.2.3(4) Secure wall and corner guards to reinforcing and backing in the walls, such backing sufficient to withstand expected impact loads. Wall protection will be high impact and stain-resistant.

6.5.2.3(5) Use wall protection handrails and corner guard products that are stain-resistant to pen marks, paint, and graffiti, and able to withstand commercial cleaners without fading or staining. Use products containing anti-microbial additives to retard mildew and bacterial growth.

6.5.2.4 Door Edge and Door Frame Protection

6.5.2.4(1) Protect door edges and door frames in patient care areas from damage such as impact caused by the regular movement of stretchers and other wheeled vehicles.

6.5.2.4(2) Protect door edges and door frames in clinical and service areas from damage such as impact caused by regular and non-regular service vehicles.

6.5.2.4(3) Use bumper guards, crash rails, handrails, and corner guards that are high impact-resistant extrusion conforming to ASTM D4226 and with anti-microbial additive.

6.5.3. Finish Carpentry, Millwork and Architectural Woodwork

6.5.3.1(1) Conform to Architectural Woodwork Manufacturer's Association of Canada (AWMAC) Quality Standards Manual for minimum "Custom Grade," and Door and Hardware Institute (DHI) standards for the design, fabrication, materials, installation, and workmanship of finish carpentry and architectural woodwork.

6.5.3.1(2) For millwork and cabinets, seal all wood surfaces and edges with plastic laminate for infection control.

6.5.3.1(3) Adhesives will be non-toxic, non-solvent glue to comply with AWMAC Quality Standards Manual, Canadian 'Eco-Logo' program, and CaGBC (Canada Green Building Council).

6.5.3.1(4) Use marine-grade plywood substrate for countertops. Do not use fibreboard or particleboard.

6.6 Thermal and Moisture Protection (Division 7)

6.6.1. Basic Requirements

6.6.1.1 Design construction assemblies according to sound building envelope principles.

6.6.1.2 Design construction assemblies to prevent the ingress of moisture or water vapour from the exterior through the building envelope and the passage of air through the building envelope from the interior spaces to the exterior and vice versa.

6.6.1.3 Design construction assemblies to prevent the ingress of moisture through foundation walls below grade, both subject and not subject to hydrostatic pressure.

6.6.1.4 Provide protection (such as insulation) to resist the transfer of heat through exterior walls and roofs to create comfortable, livable interior environments.

6.6.1.5 Provide resistance to the propagation and spread of fire for exterior walls and interior walls designated as fire-resistance rated separations where appropriate.

6.6.2. Performance Criteria

6.6.2.1 Dampproofing

6.6.2.1(1) Dampproofing is not to be used as a means of prevention of moisture ingress.

6.6.2.2 Waterproofing

6.6.2.2(1) Provide waterproofing to prevent moisture ingress to basement and crawlspaces below grade. This applies to structured parking, as well as other buildings.

6.6.2.2(2) Use membrane waterproofing to prevent water ingress over suspended slabs and decks and associated walls over habitable spaces where water collection is anticipated.

6.6.2.2(3) Use fluid-applied waterproofing for mechanical room floors.

6.6.2.2(4) Provide waterproof membranes in exterior walls as part of the building envelope and integral with rain screen or cavity wall assemblies.

6.6.2.2(5) Dam the floor under key mechanical equipment in the mechanical penthouse, mechanical rooms and mechanical shafts with a continuous curb and waterproofing to contain the water. Provide floor drains.

6.6.2.3 Vapour Barriers

6.6.2.3(1) Prevent water vapour transmission and condensation in wall assemblies, roofing assemblies, and under concrete slabs-on- grade within the Building perimeter by means of a continuous vapour barrier membrane.

6.6.2.4 Air Barriers

6.6.2.4(1) Prevent air leakage caused by air pressure across the wall and roof assembly by means of air barrier assemblies.

6.6.2.4(2) Provide air barrier assemblies that:

6.6.2.4(2)(a) limit air exfiltration and infiltration through materials of the assembly, joints in the assembly, joints in components of the wall assembly, and junctions with other building elements including the roof; and

6.6.2.4(2)(b) prevent air leakage caused by air pressure across the wall and roof assembly, including interruptions to the integrity of wall and roof systems such as junctions with dissimilar constructions.

6.6.2.5 Thermal Protection

6.6.2.5(1) Provide rigid and semi-rigid thermal insulation as part of the building envelope to prevent the transfer of heat both from the interior to the exterior and vice versa, depending on seasonal conditions, and to resist the absorption of water.

6.6.2.5(2) Use thermal protection materials of a type and quality that will provide consistent environmental quality to enclosed spaces.

6.6.2.5(3) Use foamed plastic insulation that is CFC and HCFC free.

6.6.2.5(4) Minimum insulation values will be R22 for exterior walls and R32 for roof areas or higher as necessary to achieve targeted energy performance, or alternatively be demonstrated to meet the energy performance through energy modelling.

6.6.2.6 Roofing

6.6.2.6(1) Comply with the Roofing Contractors Association of British Columbia Guarantee Roof Star latest standards and requirements for a five (5) year Guarantee, as published in the Roof Star Roofing Practices Manual. Perform roofing quality inspections as required by the RCABC to obtain the RCABC warranty. Alberta Roofing Associate Warranty may be used in lieu of the RCABC Warranty providing it meets or exceeds the requirements of the Roofing Contractors Association of British Columbia Warranty.

6.6.2.6(2) Provide roofing assemblies that will withstand air pressures due to helicopter approaches and landings.

6.6.2.6(3) Comply with Roof Star Roofing Practices Manual “Acceptable Materials List,” including:

6.6.2.6(3)(a) Flexible membrane for reflective roofs – Elastomeric or Thermoplastic (single-ply system), Energy Star compliant (highly reflective) and high emissivity (of at least 0.9 when tested in accordance with ASTM 408).

6.6.2.6(4) Use foamed plastic insulation that is CFC- and HCFC-free and complies with the province of British Columbia Ozone Depletion Substances Regulations.

6.6.2.6(5) Provide a complete horizontal barrier to weather and climate using one of the aforementioned roofing systems.

6.6.2.6(6) Roofing systems will include

6.6.2.6(6)(a) flashings and sheet metal;

6.6.2.6(6)(b) thermal insulation;

6.6.2.6(6)(c) roofing specialties and accessories required for completion;

6.6.2.6(6)(d) interior access systems to roof areas;

6.6.2.6(6)(e) protection from pedestrian traffic and solar radiation;

6.6.2.6(6)(f) roof drainage, including overflow scuppers.

6.6.2.6(7) Provide sheet metal flashings that divert water away from membrane flashing termination and protect the membrane from deterioration due to the exterior elements and mechanical damage. Provide flexible membrane sub flashing continuously under the metal.

6.6.2.6(8) Metal roofing systems, if used, will be complete with continuous waterproof membrane as part of the assembly and provide clear internal paths of drainage to allow any trapped moisture to drain to the exterior and avoid the staining of architectural finishes, forming of puddles, forming of icicles, and dripping on pedestrians.

6.6.2.6(9) In designing the Facility, including any roof systems, ensure that entrance ways are protected from sliding snow and ice and that there are no accumulations of snow and ice in roof valleys.

6.6.2.7 Fire and Smoke Protection

6.6.2.7(1) Use spray-applied cementitious fireproofing if required to achieve a fire resistance rating.

6.6.2.7(2) Integrate barriers into vertical and horizontal space separations to protect against the spread of fire and smoke. Apply protection to exposed building elements (structural and non-structural) susceptible to fire and subsequent damage.

6.6.2.7(3) Apply protection around penetrations through vertical and horizontal fire-resistance rated separations.

6.6.2.7(4) Use firestopping and smoke seal systems that consist of asbestos- free materials and systems, capable of maintaining an effective barrier against flame, smoke, and gases.

6.6.2.7(5) Use firestopping that:

6.6.2.7(5)(a) is compatible with substrates;

6.6.2.7(5)(b) allows for movement caused by thermal cycles; and

6.6.2.7(5)(c) prevents the transmission of vibrations from pipe, conduit or duct to structure and structure to pipe, conduit or duct.

6.6.2.7(6) When more than one product is required for an assembly, use products that are compatible with one another and from the same manufacturer.

6.6.2.7(7) Use fire stopping sealants and coatings that are silicone-based and guaranteed not to re-emulsify if subject to wetting or standing water. Do not use acrylic-based coatings and sealants.

6.6.2.8 Sealants

6.6.2.8(1) All sealants and sealant primers used on the interior of the Facility will comply with the requirements of LEED - low VOC.

6.6.2.8(2) Apply sealant materials to achieve:

6.6.2.8(2)(a) Seals to the building envelope systems and around openings in the building envelope systems as required to prevent water ingress;

6.6.2.8(2)(b) seals around and over cavities in or behind surface elements to allow effective infection prevention and control (note that sealant around door frames must include joints at bottom of door frames (between floor finish and frames);

6.6.2.8(2)(c) sealed joints between dissimilar or similar materials to allow a smooth or even transitions; and

6.6.2.8(2)(d) sealed expansion or controls joints in the building envelope systems or structural systems to allow movement.

6.6.2.8(3) Do not use unsealed joints in clinical areas.

6.6.2.8(4) For the exterior; use sealants to completely and continuously fill joints between dissimilar and/or similar materials.

6.6.2.8(5) For the interior; use sealants (at frames such as those at doors, windows and skylights), to completely fill joints between dissimilar materials using one component, acrylic emulsion, paintable type.

6.6.2.8(6) Use silicone caulking that is mildew-resistant and impervious to water for caulking washroom plumbing fixtures.

6.6.2.8(7) Use sealants with self-levelling properties for expansion and control joints in concrete floors using two-component epoxy urethane sealants.

6.6.2.8(8) Use non-sag sealants for exterior vertical expansion and control joints in masonry or wall cladding.

6.6.2.8(9) Use sealants that allow for minimum 25% movement in joint width.

6.6.2.8(10) In corridors and other traffic areas used by laundry carts, supply carts, material handling equipment use traffic bearing type sealants suitable to support imposed load without deformation or failure.

6.7 Cladding (Division 7)

6.7.1. Acceptable cladding materials include

6.7.1.1 Sections 6.3.2, 6.3.3, and 6.3.4 Concrete Masonry Unit, Brick & Stone Masonry

6.7.1.2 Section 6.8.2.10 Glass & Glazing

6.7.1.3 Section 6.7.2 Phenolic Panels

6.7.1.4 Section 6.7.3 Metal or Composite Aluminum Cladding

6.7.1.5 Section 6.8.2.4(7) Aluminum Curtain Wall

6.7.1.6 Section 6.8.5 Cementitious Cladding

6.7.2. Phenolic Panels

6.7.2.1 Panels to be high density phenolic resin with acrylic resin finish.

6.7.2.2 Acceptable Phenolic Panels include Trespa, Prodema, Fundermax or similar.

6.7.2.3 Phenolic Panels to comply with all applicable CSA standards per BC Building Code.

6.7.3. Metal Cladding

6.7.3.1 Metal Panel cladding can be integrated into aluminum curtain wall system or be stand-alone system. Panels can be composite panel construction.

6.7.3.2 Metal panel to be baked enamel finish or better. Aluminum to be prefinished aluminum or baked enamel finish (or better).

6.7.3.3 Maximum panel deviation (flatness) to be 3 mm in 1530 mm in any direction for assembled units (non-accumulative – no oil canning).

6.8 Openings (Division 8)

6.8.1. Basic Requirements

6.8.1.1 Except where wire glass is required in accordance with the BC Building Code, construct interior windows, sidelights and glazing forming part of doors of tempered glass. For exterior glazing at doors and sidelights, use laminated glass.

6.8.1.2 Installation methods and locations for doors, frames and hardware to conform with the standards of the Door and Hardware Institute (DHI).

6.8.1.3 Doors

6.8.1.3(1) Doors are to be sized, fabricated and installed to suit the intended function of spaces or rooms requiring acoustic or visual privacy, security, special HVAC requirements, fire-resistance rated separations or other closures.

6.8.1.3(2) Size Requirements for Doors

6.8.1.3(2)(a) Provide door openings of adequate width to suit the intended purpose of rooms on either side of the doors and allow the movement of people and equipment associated with those rooms.

6.8.1.3(2)(b) No single door will have a width of less than 750mm.

6.8.1.3(2)(c) Provide double doors into rooms where large pieces of equipment will be moved in or out during the lifetime of the Facility and where such equipment cannot pass through a single 1200 mm wide opening.

6.8.1.3(2)(d) HDCU and ICU room doors will be 3 panels wide sliding glass, and 2 panels wide sliding glass for the emergency department.

6.8.1.3(2)(e) Size door openings to accommodate movement of equipment

6.8.1.3(2)(f) Size door openings to suit bariatric patient requirements for all patient rooms of medical / surgical units, ICU and other rooms identified in Appendix 1A Clinical Specifications for bariatric use. The minimum door opening size will be 1500 mm.

6.8.1.3(2)(g) Provide door widths that are 1500 mm clear for both bariatric and non-bariatric patient rooms. Doors must have a large door leaf and a small door leaf. Provide a viewing window in the large door leaf, with an integral blind in the window unit, operable from both sides

6.8.1.3(2)(h) Provide double doors into corridors and major rooms to ease access where patients in beds or stretchers will be attended to or accompanied by a large number of medical staff and medical equipment.

6.8.1.3(2)(i) Unless required otherwise, provide doors to patient care areas, including doors to water closets and change room cubicles with a minimum width of 900 mm.

6.8.1.3(2)(j) Provide a minimum of 2150 mm high door or door leaf, unless specifically required for access to services or other purposes where height is restricted.

6.8.1.3(3) Acoustic Requirements for Doors: refer to Appendix 3D [Sound Transmission Ratings]. STC ratings of doors are to match that of the walls they are located within.

6.8.1.3(4) Provide patient rooms with hardware that allows the doors to stay in an open position and facilitates casual observance of patients by the nursing staff.

6.8.1.3(5) For doors into or between major departments or activity areas through which cart, stretcher, or bed traffic is anticipated on a routine basis, provide automatic activation by an electronic device or manual push button, located to allow emergency access without the necessity to stop movement. For all other doors through which cart, stretcher, bed, or frequent patient or staff traffic is anticipated on a routine basis, provide appropriate hardware or automatic activation that allows the doors to stay in an open position.

6.8.1.3(6) Apply door sizes and designs consistently to rooms of similar use, location, and configuration.

6.8.1.3(7) Avoid doors swinging into corridors in a manner that may obstruct traffic flow or reduce the corridor width, except doors to psychiatric holding rooms or to spaces that are used infrequently and are not subject to occupancy such as small closets.

6.8.1.3(8) Doors may swing into patient bathrooms, provided they allow for ease of patient use, both on their own and assisted by staff. Equip such doors with appropriate hardware to allow the door to be opened out into the room in an emergency situation. Alternatively “barn type” sliding doors may be used for patient bathrooms.

6.8.1.3(9) Single fixture Washrooms for public/patient use to have double-hinged swing doors to allow for emergency access.

6.8.1.3(10) Provide all doors with appropriate hinges, edge protection, and face protection to minimize damage and resultant disruptive maintenance.

6.8.1.3(11) Finish doors and frames with a suitable finish that prevents dirt and fingerprint accumulation, and can be easily cleaned and disinfected.

6.8.1.3(12) Be consistent with the extent of glazing in a door, or the size and quantity of sidelights, and balance these between the nature of observation required and the privacy requirements of the occupants of the room.

6.8.1.3(13) Provide glazing in doors and sidelights in such a way that they allow patient observation and operational safety of the spaces they serve. Provide tempered glass in aluminum frame sliding doors. Sliding doors to be without floor tracks, and be provided with emergency swing breakout. Provide blinds or coverings suitable and appropriate for the level of privacy intended and required.

6.8.1.3(14) Provide doors and door frames with the capability to withstand the varying and high levels of humidity and impact that occur typically within a hospital and in specific rooms within a hospital, and maintain their inherent aesthetic and functional capacities.

6.8.1.3(15) Frames and anchors for door, sidelights, interior and exterior windows in mental health / Psychiatry departments, and other areas as requested by the Authority, will be designed to withstand a heavy degree of impact while maintaining their aesthetic and functional capacities. Glazing of such components will be non- breakable and use hospital-type cut-away jambs.

6.8.1.3(16) In areas where security is considered paramount, including mental health / Psychiatry departments and secure entrances, achieve safety and security with the appropriate location, configuration, materials, construction and detailing of doors and hardware as required by British Columbia Ministry of Health Standards for Hospital-Based Psychiatric Emergency Services: Observation Units.

6.8.1.4 Exterior Windows

6.8.1.4(1) Size, configure, and adequately construct windows to suit rooms that require daylight, views and/or natural ventilation. Patient Room windows are to be 3.5m² minimum. Front Entrance to be 50% glazed.

6.8.1.4(2) Window framing systems to be thermally-broken, designed based on principles of pressure equalized rain screen.

6.8.1.4(3) Provide operable windows (windows that may be opened and closed) in Spiritual Care.

6.8.1.4(4) Provide exterior windows in the mental health / Psychiatry areas that meet the requirements of the British Columbia Ministry of Health Hospital-Based Psychiatric Emergency Services Standards.

6.8.1.5 Interior Windows

6.8.1.5(1) Provide ‘borrowed light’ through interior windows to occupied rooms that do not have exterior windows. The intent is to borrow light from areas that have windows and consequently create a more comfortable and less closed-in atmosphere.

6.8.1.5(2) Provide interior window into larger leaf of doors. Window width will be the width of the door less 300 mm. Provide in the following rooms:

6.8.1.5(2)(a) Intensive Care Unit/Telemetry Unit: provide a window in between adjacent inpatient rooms, and from the charting counters at corridor outside patient bedrooms;

6.8.1.5(2)(b) maternity rooms, provide a viewing window from the corridor or team care station;

6.8.1.5(2)(c) isolation patient rooms: provide a viewing window from the corridor or team care station;

6.8.1.5(2)(d) provide viewing windows between the ante room into the Isolation Patient Rooms; and

6.8.1.5(2)(e) in the emergency department from the ante room into the decontamination room.

6.8.1.5(3) Coordinate glazing heights with adjacent wall protection, handrails, and other accessories to achieve functional and aesthetic cohesiveness.

6.8.2. Performance Criteria

6.8.2.1 Hollow Metal Doors and Frames

6.8.2.1(1) Materials and manufacture of metal doors and will comply with the requirements of the Canadian Steel Door and Frame Manufacturer's Association (CSDFMA).

6.8.2.1(2) Provide interior metal doors with flush face construction.

6.8.2.1(3) Provide exterior metal doors with:

6.8.2.1(3)(a) flush face construction;

6.8.2.1(3)(b) edge seams to correspond with door function and minimize maintenance needed; and

6.8.2.1(3)(c) prepared surfaces to receive finishes that resist corrosion from exposure to weather.

6.8.2.1(4) Provide pressed metal frames with:

6.8.2.1(4)(a) fully welded construction;

6.8.2.1(4)(b) thermally-broken door frames for exterior door; and

6.8.2.1(4)(c) anchors to each jamb to suit wall type and receive the frame.

6.8.2.1(5) Door Glazing

6.8.2.1(5)(a) For exterior hollow metal door glazing, use sealed units with warm edge, in thermally-broken frames to prevent heat loss.

6.8.2.1(5)(b) For interior hollow metal door glazing use tempered glass.

6.8.2.2 Wood Doors

6.8.2.2(1) All wood doors will comply with all applicable standards, including the Quality Standards for Architectural Woodwork published by the Architectural Woodwork Manufacturer's Association of Canada (AWMAC).

6.8.2.2(2) Wood doors will have hardware and finishes that suit the intended function and aesthetics of the Facility.

6.8.2.2(3) Construct, finish, and install wood doors to minimize the requirement for maintenance and resulting disruption to Facility operations.

6.8.2.2(4) Provide wood doors in flush design, Architectural Grade quality (as defined in the AWMAC standards referred to above), and solid particleboard core.

6.8.2.2(5) Provide fire-resistance rated doors with a homogeneous incombustible mineral core and AWMAC Quality Standards Option 5 blocking.

6.8.2.2(6) Install finish hardware securely to resist loosening over time. Fasten to solid wood backing, except where hardware is designed to be through-bolted.

6.8.2.2(7) Glue stiles, rails and faces to the core with ANSI Type II water-resistant adhesive to minimize de-lamination or disassembly as a result of moisture ingress.

6.8.2.2(8) Use B-Grade hardwood veneer with AWMAC No. 3 edge, finish to suit the intended use.

6.8.2.2(9) Do not use wood veneer-faced doors in critical care areas for reasons of cleanliness and infection prevention and control, unless suitably finished to mitigate such concerns.

6.8.2.2(10) In locations requiring radiation protection, line doors with lead and label such doors with lead thickness.

6.8.2.3 Aluminum Entrances and Storefronts

6.8.2.3(1) Aluminum entrances and storefront framing and doors may form part of the exterior envelope of the Building.

6.8.2.3(2) Provide glazed interior partitions as appropriate to comply with the functions of the spaces as defined by Appendix 1A Clinical Specifications.

6.8.2.3(3) Use aluminum doors within aluminum entrances and storefront.

6.8.2.3(4) Use frames that are thermally-broken, flush glazed, aluminum sections, to accept insulating glass units.

6.8.2.3(5) Incorporate in the frames drained and vented system (rain screen) with a complete air and vapour seal, allowing any moisture entering the frame to drain to the exterior and allowing air into the pressuring chamber.

6.8.2.3(6) Use aluminum swing entrance doors that are heavy-duty commercial or institutional grade that may be automatically operated, motion-detector controlled.

6.8.2.3(7) Apply aluminum finish for exposed aluminum surfaces. Finish to be permanent and resistant to corrosion caused by weather exposure and climate.

6.8.2.4 Specialty Doors

6.8.2.4(1) Overhead Rolling Service Doors

6.8.2.4(1)(a) Restrain lateral movement of door curtain slats. Provide windlocks as required by door size or wind load requirements.

6.8.2.4(1)(b) Provide interlocking flat slats, complete with bottom bar and contact type bottom astragal.

6.8.2.4(1)(c) For manually operated doors, provide inside lift handle and locking bar or chain hoist. Motor operation may be provided on doors requiring constant usage. Chain operation will be by means of reduction gears and galvanized hand chain.

6.8.2.4(1)(d) For fire doors, provide automatic closing device operated by fire door release device connected to fire alarm system.

6.8.2.4(2) Overhead Rolling Grilles

6.8.2.4(2)(a) Provide grilles that allow visual access to secure areas.

6.8.2.4(2)(b) Provide aluminum or steel guides that are: fabricated to withstand vertical and lateral loads; counterbalanced by helical torsion springs; and sound-deadened.

6.8.2.4(2)(c) For manually operated closures, provide inside lift handle and locking bar or chain hoist. Motor operation may be provided on grilles requiring constant usage. Chain operation will be by means of reduction gears and heavy chrome plated hand chain.

6.8.2.4(3) Overhead Rolling Counter Shutters / horizontal sliding grilles

6.8.2.4(3)(a) Provide shutter curtains fabricated with extruded aluminum, galvanized steel, or stainless steel interlocking flat slats, complete with guides of similar materials.

6.8.2.4(3)(b) Provide closures that are manually operated and with locking capability.

6.8.2.4(4) Interior Aluminum Sliding Doors and Sidelights

6.8.2.4(4)(a) Provide interior glass sliding doors and sidelights without floor track, sliding and fixed panel(s) single glazed with 6 mm clear fully tempered float glass.

6.8.2.4(4)(b) Interior sliding doors to have break-out capability to facilitate staff access to patient rooms.

6.8.2.4(4)(c) Provide visual cues/glazing film in transparent glass panels as appropriate to prevent collisions.

6.8.2.4(4)(d) Provide manual break-out capable 3 panel style interior glass sliding doors in the following patient rooms:

(a).35 intensive care unit/telemetry unit; and;

(a).36 post-anaesthesia recovery enclosed patient bays.

(a).37 Intentionally deleted.

6.8.2.4(4)(e) Provide automatic break-out capable interior glass sliding doors, with card access and locking capability, in the following areas:

(a).38 Intentionally deleted;

(a).39 Emergency Trauma / Resuscitation rooms;

(a).40 Intentionally deleted.

(a).41 Intentionally deleted.

6.8.2.4(4)(f) Intentionally deleted.

6.8.2.4(5) Automatic Sliding Doors

6.8.2.4(5)(a) Automatic sliding doors complete with break-away capability for exiting may be installed at main entrance, provided that the size and configuration of the entrance vestibule is designed such that both sets of doors will not be open at the same time.

6.8.2.4(5)(b) Door equipment will accommodate medium to heavy pedestrian traffic and up to the following weights for active leaf doors: 100 kg for bi-part doors and 200 kg for single slide doors.

6.8.2.4(5)(c) Provide door operators, including the motion and presence detection system, that are: capable of operating within the temperature ranges existing at the Facility; and unaffected by ambient light or ultrasonic interference.

6.8.2.4(5)(d) Provide energy-saving devices to reduce conditioned air loss.

6.8.2.4(6) Automatic Swing Doors

6.8.2.4(6)(a) Use automatic swing doors for interior and exterior locations where appropriate, including the entrance vestibule, cross-corridor double-egress doors, entrances to departments and areas where stretchers and equipment are frequently wheeled, and doors to exterior spaces that are required to be handicapped accessible.

6.8.2.4(6)(b) If used, provide directional motion sensor control device that are unaffected by ambient light or ultrasonic frequencies.

6.8.2.4(6)(c) Equip all in-swing doors that are required exits with an emergency breakaway switch that internally cuts power to the operator. No external power switch allowed.

6.8.2.4(6)(d) Implement longer hold-open times to accommodate the elderly and frail.

6.8.2.4(7) Aluminum Curtain Walls

6.8.2.4(7)(a) Aluminum curtain walls will comply all applicable standards, including the Aluminum Association Standards (AAS) and the American Architectural Manufacturers Association (AAMA) field testing specifications.

6.8.2.4(7)(b) Incorporate in the curtain wall framing a drained and vented system complete with air and vapour seal, allowing any water entering the framing/system and the glazing detail cavities to drain to the exterior and also allow air into the pressuring chamber.

6.8.2.4(7)(c) All exterior windows to be sealed triple glazed units.

6.8.2.4(7)(d) Provide curtain wall framing that incorporates a thermal- break.

6.8.2.4(7)(e) For exposed aluminum surfaces, provide a finish that is permanent and resistant to corrosion resulting from weather exposure and climate.

6.8.2.4(7)(f) Provide assemblies that resist local seismic conditions and 1-in-100 year climatic events (with a safety factor).

6.8.2.4(7)(g) Window wall framing relying on primary face seals is not allowed.

6.8.2.5 Aluminum Windows

6.8.2.5(1) Aluminum windows will comply with all applicable standards, including the Aluminum Association Standards (AAS) and the American Architectural Manufacturers Association (AAMA) field testing specifications.

6.8.2.5(2) Incorporate in windows a drained and vented system complete with air and vapour seal, allowing any water entering the framing/system and the glazing detail cavities to drain to the exterior and also allow air into the pressuring chamber.

6.8.2.5(3) All exterior windows to be sealed **TRIPLE** glazed units.

6.8.2.5(4) Provide windows that incorporate a thermal-break.

6.8.2.5(5) For exposed aluminum surfaces, provide a finish that is permanent and resistant to corrosion resulting from weather exposure and climate.

6.8.2.5(6) Provide assemblies that resist local seismic conditions and 1-in- 100 year climatic events (with a safety factor).

6.8.2.6 Skylights

6.8.2.6(1) Skylights will comply with all applicable standards, including the Aluminum Association Standards (AAS), and the American Architectural Manufacturers Association (AAMA) field testing specifications.

6.8.2.6(2) Roof or skylight glazing may be provided where natural light is required in interior spaces to augment or complement interior ambient lighting.

6.8.2.6(3) All skylights to be sealed **TRIPLE** glazed in thermally- broken, internally drained rain screen type extruded aluminum frames. Plastic skylights are not to be used.

6.8.2.6(4) For exposed aluminum surfaces, provide a finish that is permanent and resistant to corrosion resulting from weather exposure and climate.

6.8.2.7 Light Tubes

6.8.2.7(1) If light tubes are required for providing natural light to internal areas, provide a reflective light tube system that that will transmit the full range of natural light, ensuring a bright, clean and white light source.

6.8.2.7(2) Provide a daylight dimmer to control the level of light.

6.8.2.7(3) Coordinate the light tube solution with the other components of the ceiling design, including the artificial lighting, to provide an integrated design solution.

6.8.2.8 Roof Hatches

6.8.2.8(1) Minimize use of roof hatch accesses per Section 5.4.1.3(4). If roof hatches are used to provide access to the roof for maintenance:

6.8.2.8(1)(a) provide access ladders and ships ladders;

6.8.2.8(1)(b) the minimum hatch size will be 762 mm x 762 mm, and

6.8.2.8(2) All roof hatches to be thermally insulated.

6.8.2.9 Entrance Mat Wells

6.8.2.9(1) Provide a recessed, integrated mat well at major entrances with built in drainage.

6.8.2.10 Glass and Glazing

6.8.2.10(1) Glass and glazing will comply with all applicable standards, including the Insulating Glass Manufacturers Association of Canada (IGMAC) Guidelines and the Fenestration Association of BC (FENBC) Glazing Systems Specifications Manual.

6.8.2.10(2) Exterior and/or interior glass and glazing may be provided as integral components of the exterior envelope, interior partitions and screens, exterior and interior doors, handrail balustrades, skylights and decorative and ornamental glazing.

6.8.2.10(3) Provide assemblies that resist local seismic conditions as a post- disaster building as defined in the BC Building Code.

6.8.2.10(4) Provide assemblies that resist 1-in-100 year climatic events (with a safety factor).

6.8.2.10(5) Use laminated safety glass in single-glazed skylights, entry doors and sidelights, or as the inboard light of a double-glazed skylight. Single-glazed skylights are not to be used when separating interior and exterior environments.

6.8.2.10(6) For the mental health / Psychiatric Unit and Psychiatric Intensive Care Unit inpatient rooms, provide glass and glazing that meets the requirements of the British Columbia Ministry of Health Hospital-Based Psychiatric Emergency Services Standards.

6.8.2.10(7) Mirrors

6.8.2.10(7)(a) For full wall unframed mirrors, use 6 mm thick minimum float glass backed with electrolytically-applied copper plating. Grind smooth and polish all edges.

6.8.2.10(7)(b) For wall mounted posture mirrors, use framed type; one piece, stainless steel channel frame with a No. 1 quality, 6 mm thick float glass mirror backed with electrolytically applied copper plating. Back with galvanized steel.

6.8.2.11 Finish Hardware

6.8.2.11(1) Finish hardware will comply with all applicable standards, including the quality standards of the Door and Hardware Institute (DHI).

6.8.2.11(2) Provide all finish hardware from one supplier that is Cantech compatible and is a member in good standing of the Door and Hardware Institute (DHI) with one or more AHC (Architectural Hardware Consultant) in its employ.

6.8.2.11(3) Hardware will be integrated with the security requirements and coordinated with electrical wiring and power requirements.

6.8.2.11(4) Select finishes to provide maximum longevity and preservation of the finish.

6.8.2.11(5) Provide, where applicable, ULC-listed hardware for the required fire rating.

6.8.2.11(6) Use heavy-duty commercial quality hardware; locksets and latchsets fully mortised type and lever handles of solid material.

6.8.2.11(7) All doors with maglocks must have a key override on both sides of the door.

6.8.2.11(8) For special areas provide hardware to suit the purposes unique to those areas. Hardware in the mental health / Psychiatry department will comply with the British Columbia Ministry of Health Standards for Hospital- Based Psychiatric Emergency Services: Observation Units.

6.8.2.11(9) All hardware, including door strikes, in special areas such as mental health/Psychiatry, will be ligature resistant.

6.8.2.11(10) In areas such as Maternity, Newborn, and Pediatric Inpatient Unit, where infant and child abduction is a possibility, provide hardware that can interface with an electronic child abduction system. This system is to be confirmed with the Authority.

6.8.2.11(11) Keying

6.8.2.11(11)(a) Supply and install ASSA key cylinders, or pre-approved cylinders of equivalent quality, 6 pin (factory pinned).

6.8.2.11(11)(b) Implement a 4-level system.

6.8.2.11(11)(c) Keying groups will be assigned by the Authority.

6.8.2.11(11)(d) New key fittings will be given to and controlled by the Authority.

6.8.2.11(11)(e) Develop a keying schedule in consultation with the Authority

6.8.2.11(11)(f) Turn over keys from factory to the Authority.

6.8.2.11(11)(g) Supply four (4) keys for each lock cylinder.

6.9 Finishes (Division 9)

6.9.1. Basic Requirements

6.9.1.1 Provide interior finishes that are capable of being maintained throughout the Operating Period to the Authority's Cleaning Audits Housekeeping Policy, dated January 22, 2020, and Green Cleaning Standards Housekeeping Policy, dated September 13, 2019.

6.9.1.2 In areas where finishes and systems of installation will occur and water is anticipated to be present as part of cleaning or other procedures, allow water to collect and exit without causing damage to the finishes or substrate.

6.9.1.3 For areas in which wear is a concern, such as areas with anticipated pedestrian or wheeled traffic, use durable finish materials able to withstand damage and easily replaceable in sections if damage does occur.

6.9.1.4 Give priority to infection prevention and control in the selection of finishes for all patient care areas. Acoustic characteristics of finish materials will also be a priority consideration.

6.9.1.5 Select the appearance of finishes and colours to create and promote a natural healing environment, prevent glare, and minimize artificial lighting requirements.

6.9.1.6 Select materials to promote sustainability by, for instance, having low-emissivity or comprising of renewable resources.

6.9.1.7 Select finish materials that do not use known carcinogenic material or chemicals in their manufacture or disposal. Consult the Green Guide for Healthcare Version 2.2.

6.9.2. Performance Criteria

6.9.2.1 Interior Wall Framing

6.9.2.1(1) Interior wall framing will comply with all applicable standards, including the Canadian Sheet Steel Building Institute Standards (CSSB1) and the Association of Wall and Ceiling Contractors of B.C. (AWCC) Wall & Ceiling Specification Standards Manual for materials and workmanship for interior walls, including steel studs and furring and gypsum board ceiling suspension systems.

6.9.2.1(2) System design and components will meet seismic restraint requirements for a post-disaster building where applicable.

6.9.2.1(3) Use prefabricated non-load bearing steel studs for interior partitions and furring with no axial load other than its own weight, the weight of attached finishes, and lateral loads of interior pressure differences and seismic loads.

6.9.2.1(4) Construct steel stud framing to accommodate electrical, plumbing and other services in the partition cavity, and to support fixtures, wall cabinets, medical equipment and other such wall-mounted items. Provide reinforcement and backing throughout.

6.9.2.1(5) Consider in design, the differences in air pressure that may result on opposite sides of the wall or partition due to factors such as wind and other lateral pressures, stack effects, or mechanically- induced air pressurization.

6.9.2.1(6) Coordinate with all supplied equipment to confirm location of wall mounts for equipment and furnishings. Provide backing for handrails, grab-bars, wall protection and other similar items. Identify areas for mounting artwork and other display items that would require backing and confirm with the Authority.

6.9.2.2 Gypsum Board

6.9.2.2(1) Gypsum board will comply with all applicable standards, including the Association of Wall and Ceiling Contractors of B.C. (AWCC) Wall & Ceiling Specification Standards Manual.

6.9.2.2(2) Gypsum board will be no less than 16 mm in thickness.

6.9.2.2(3) Use cementitious backer board (tile backer board) behind ceramic wall tile in showers or other wet areas. Use glass mat water- resistant gypsum backing panels behind sinks.

6.9.2.2(4) Provide abuse-resistant gypsum board in corridors with heavy patient, cart or equipment traffic, to be located on the bottom 1200mm of the corridor wall, in order to increase resistance to abrasion, indentation and penetration of interior walls.

6.9.2.2(5) Use glass mat surfaced gypsum sheathing board wherever exterior gypsum sheathing is required at exterior walls.

6.9.2.2(6) Provide airborne sound insulation for gypsum board/steel stud assembly to close off air leaks and flanking paths by which noise can go around the assembly. Make assemblies airtight. Do not locate back to back recessed wall fixtures such as cabinets or electrical, telephone and television outlets and medical gas outlets, which perforate the gypsum board surface. In addition, carefully cut any opening for fixtures to the proper size and appropriately seal piping penetration. Seal conduit/duct/piping penetrations with tape and fill at the plenum barrier. Make the entire perimeter of a sound insulating assembly airtight to prevent sound flanking. Use an acoustic caulking compound or acoustical sealant to seal between the assembly and all dissimilar surfaces (including at window mullions) in accordance with the recommendations of an acoustic consultant.

6.9.2.3 Ceramic Tilework

6.9.2.3(1) Ceramic tilework will comply with all applicable standards, including the Terrazzo Tile and Marble Association of Canada (TTMAC) Specification Guide 09300 Tile Installation Manual.

6.9.2.3(2) In order to reduce opportunities for the spread of infection, avoid use of ceramic tile in interior applications at patient and other clinical areas, and if used limit to no more than 10% of such applications.

6.9.2.3(3) For installations on wet and exterior surfaces, use floor tiles that have the following static coefficients of friction as per the American Society for Testing and Materials International (ASTM):

6.9.2.3(3)(a) Level Surfaces: Not less than 0.50 for wet and dry conditions.

6.9.2.3(3)(b) Stair Treads: Not less than 0.60 for wet and dry conditions.

6.9.2.3(3)(c) Ramp Surfaces: Not less than 0.60 for wet and dry conditions.

6.9.2.3(4) For exterior installations, provide frost-resistant exterior tiles with a moisture absorption rating of 3.0% or less.

6.9.2.3(5) Provide control joints and expansion joints in conformance with the recommendations of the TTMAC Tile Installation Manual.

6.9.2.3(6) Provide a waterproof membrane under ceramic floor and wall tile in showers and other wet areas. The membrane will be trowel- applied, built-up, liquid-applied or sheet-applied.

6.9.2.3(7) Provide crack isolation membranes to resist crack transmission from the substrate due to lateral movement; design for use in thin- set applications of tile over a cracked substrate. Use elastomeric sheets or trowel-applied materials suitable for subsequent bonding of ceramic tile.

6.9.2.3(8) Set ceramic tile with latex modified mortar and grout with epoxy grout.

6.9.2.4 Ceilings

6.9.2.4(1) Acoustic Tile Ceilings

6.9.2.4(1)(a) Acoustic ceiling tiles in metal suspension system will be used in at least the following locations:

(a)..1 Hallways;
(a)..2 Offices, meeting rooms;
(a)..3 Common lobby, admitting areas;
(a)..4 Waiting areas;
(a)..5 Quiet rooms;
(a)..6 Staff sleep rooms
(a)..7 Medication rooms;
(a)..8 Coffee/gift shops;
(a)..9 Patient Rooms
(a)..10 Examination rooms;
(a)..11 Soiled, clean and storage rooms
(a)..12 Patient and staff lounges; and
(a)..13 Other areas requiring a non-institutional finish.

6.9.2.4(1)(b) Acoustic Panel: Non-directional, fissured pattern, Imperial dimension white ceiling panel, trim edge detail (square) to fit a standard 15/16” T-bar grid panel size.

6.9.2.4(1)(c) Install acoustic ceiling tiles in the suspension system that comply with the requirements of Appendix 2E [Sound Transmission Ratings] and provide the levels of sound attenuation required to suit the intended function of the room.

6.9.2.4(1)(d) All acoustic tile ceilings used in spaces which do not have special cleaning, maintenance or environmental needs (as in food preparation areas or high temperature / humidity areas) to have a Noise Reduction Co-efficient of 0.80 or greater.

6.9.2.4(1)(e) Provide accessibility to the ceiling spaces where access is required to mechanical, electrical or other service systems.

6.9.2.4(1)(f) Special surface-treated ceiling tiles, such as mylar, vinyl- faced or metal-faced tiles, may be used where maintenance and ease of cleaning are priorities as well as the accessibility and acoustic requirements.

6.9.2.4(1)(g) Provide acoustical panels that are appropriate for the normal occupancy condition range of 15°C - 29°C and maximum 70% relative humidity. When the service use temperature and relative humidity are expected to exceed these ranges, consider use of acoustical units specifically designed for such applications.

6.9.2.4(1)(h) Use tiles with scratch-resistant surfaces in any area where lay-in ceiling panels frequently need to be removed for plenum access.

6.9.2.4(1)(i) For ceilings installed in food preparation areas, use acoustic panels capable of being cleaned without undue wear on the panel.

6.9.2.4(1)(j) In the operating rooms, provide a gasketed, smooth, prefinished, metal panel t-bar ceiling system for easy access to the plenum, with an integrated ceiling solution for mechanical, electrical, overhead boom and surgical lighting systems. Provide this ceiling solution in high humidity areas of the Medical Device Reprocessing department.

6.9.2.4(1)(k) Install LED ceiling panel mural in the ceiling of the CT and MRI imaging rooms to provide visual relief and distraction.

6.9.2.4(2) Hard Ceilings

6.9.2.4(2)(a) Construct hard ceilings of 16 mm gypsum board where fire rating is not required. In fire rated rooms the gypsum board must be fire rated and the thickness of the gypsum board is to be determined by the rating required by the BC Building Code. Finish hard ceilings as per the paint specifications outlined in Section 6.9.2.7. Provide hard ceilings for the following rooms:

(a).42 housekeeping and utility rooms;

(a).43 washrooms and shower rooms;

(a).44 procedure rooms and any other rooms where invasive procedures may be performed;

(a).45 sterile supply rooms;

(a).46 other areas where infection prevention and control may be an issue;

(a).47 air borne isolation and protective isolation rooms and anterooms; and

(a).48 other areas where infection prevention and control may be an issue.

6.9.2.4(2)(b) In special areas such as mental health/Psychiatry, construct the ceiling in accordance with British Columbia Ministry of Health Standards for Hospital-Based Psychiatric Emergency Services: Observation Units.

6.9.2.4(3) Access Panels

6.9.2.4(3)(a) Where hard ceilings are used, provide access panels to allow for mechanical and electrical servicing in the ceiling.

6.9.2.4(3)(b) Access panel to be prefinished.

6.9.2.4(4) Ceiling Virtual Skylights

6.9.2.4(4)(a) Create photographic views of the natural landscape or sky view in the ceiling mounted in a rectilinear luminous sky ceiling type system.

6.9.2.4(4)(b) Provide the luminous panels in a suspended ceiling grid system, with back lighting.

6.9.2.4(4)(c) Integrate the ceiling virtual skylight system with the adjacent ceiling areas to create a calming distraction for patients lying on treatment tables.

6.9.2.4(4)(d) Luminous panel surface to be smooth to facilitate cleaning.

6.9.2.5 Flooring

6.9.2.5(1) All Rooms Except Wet Rooms

6.9.2.5(1)(a) Use solid homogeneous sheet flooring (or an equivalent product approved in advance by the Authority) unless specified otherwise.

6.9.2.5(1)(b) Hot weld all joint seams.

6.9.2.5(1)(c) Form coved bases 150 mm high, straight cut, finished with clear silicone caulking. Do not cap.

6.9.2.5(1)(d) Use water soluble, low odour flooring adhesive.

6.9.2.5(1)(e) Where there is no existing product to butt against, finish edging finish with vinyl finishing strip as per manufacturers' specifications.

6.9.2.5(1)(f) Finish flooring with high speed buffing as per manufacturers' specification. Do not apply sealer or wax.

6.9.2.5(2) Wet Rooms

6.9.2.5(2)(a) Use slip-resistant solid sheet flooring (or an equivalent product approved in advance by the Authority) for all wet rooms.

6.9.2.5(2)(b) Hot weld all joint seams.

6.9.2.5(2)(c) Form coved bases 150 mm high, straight cut, finished with clear silicone caulking. Do not cap.

6.9.2.5(2)(d) Use solvent based, low odour flooring adhesive.

6.9.2.5(2)(e) Hot weld new flooring to existing floor product.

6.9.2.5(2)(f) Finish flooring as per manufacturer's specification. Do not apply sealer or wax.

6.9.2.5(3) Stair Covering

6.9.2.5(3)(a) Use one piece treads and sheet risers with Carborundrum strip or an alternate designed for the visually impaired (product approved in advance by the Authority).

6.9.2.5(3)(b) Use water soluble, low odour adhesive.

6.9.2.5(4) Comply with all applicable standards, including the National Floor Covering Association (NFCA) Specification Standards Manual. US Federal Specification RR-T-650d.

6.9.2.5(5) In selecting flooring materials, consider cleaning and maintenance, pedestrian and rolling traffic, acoustics, infection prevention and control, and aesthetics.

6.9.2.5(6) Where epoxy flooring is used in wet areas, use water and slip- resistant grade and prevent water or moisture transmission to the substrate. Terminate flooring at the walls in the form of 150 mm high flash coves.

6.9.2.5(7) Use heavy-duty materials for flooring on which wheeled or service vehicle traffic is anticipated and to which wear and damage may result.

6.9.2.5(8) Use permanent, heavy-duty integral materials such as seamless epoxy quartz flooring for flooring in areas subject to moisture and heat over extended periods of time.

6.9.2.5(9) Use suitable flooring in patient and staff areas where cart or stretcher traffic is expected or where cleaning on a regular or emergency basis is necessary.

6.9.2.5(10) Use water resistant and slip-resistant flooring in public, staff, and patient washrooms.

6.9.2.5(11) Consider resilient tile products for flooring in service corridors and service areas.

6.9.2.5(12) Use anti-static flooring material for telecommunication rooms.

6.9.2.5(13) Resilient Flooring

6.9.2.5(13)(a) Choose products with exposed surface having anti- bacterial properties to prevent entry of gram-positive and gram-negative micro-organisms. Weld all seams. Provide integral cove bases.

6.9.2.5(13)(b) If used, provide slip-resistant sheet vinyl with a static coefficient of friction of 0.6 on level surfaces and 0.8 on ramps.

6.9.2.5(13)(c) Avoid the use of linoleum sheet flooring.

6.9.2.5(13)(d) Hot weld all seam joints.

6.9.2.5(13)(e) Form cove bases 150 mm high, straight cut, finished with prefinished aluminum trim.

6.9.2.5(13)(f) Use solvent based low odour flooring adhesive.

6.9.2.5(13)(g) Finish flooring with high speed buffing as per Manufacturer's specification.

6.9.2.5(13)(h) Provide tactile warning strips and stair nosings to assist the visually impaired.

6.9.2.5(13)(i) Use adhesive for resilient flooring that meets or exceeds the United States Environmental Protection Agency (EPA) Standards for acceptable VOC concentration and emission rates.

6.9.2.5(14) Gymnasium Flooring

6.9.2.5(14)(a) Provide a resilient vinyl surface multipurpose sport flooring surface.

6.9.2.5(14)(b) Vinyl to be 5 mm thick minimum for shock absorption.

6.9.2.5(14)(c) Choose products with exposed surface having anti-bacterial properties to prevent entry of gram-positive and gram-negative micro-organisms. Weld all seams. Provide integral cove bases.

6.9.2.5(14)(d) Static coefficient of friction of 0.6 on level surfaces.

6.9.2.5(14)(e) Hot weld all seam joints.

6.9.2.5(14)(f) Form cove bases 150 mm high, straight cut, finished with prefinished aluminum trim.

6.9.2.5(14)(g) Use solvent based low odour flooring adhesive.

6.9.2.5(14)(h) Finish flooring with high speed buffing as per Manufacturer's specification.

6.9.2.5(15) Seamless Quartz Epoxy Flooring

6.9.2.5(15)(a) If used, provide seamless epoxy flooring with 100% solids, zero VOC, solvent-free comprised of a two-component epoxy primer, a two-component epoxy resin and curing agent, coloured quartz aggregate broadcast into both primer and undercoat, and a high performance, UV- resistant two-component, clear epoxy sealer. Provide integral cove bases.

6.9.2.5(16) Carpets and Carpet Tiles

6.9.2.5(16)(a) The use of carpets and carpet tile is not allowed.

6.9.2.6 Acoustic Treatment

6.9.2.6(1) Design and construct the Facility to comply with the minimum sound transmission ratings between spaces described in Appendix 3E [Sound Transmission Ratings].

6.9.2.6(2) In addition, provide acoustic treatment where sound attenuation, soundproofing or other sound control measures are necessary to create a healing environment for patients and a safe and comfortable environment for staff and where confidentiality is required.

6.9.2.6(3) Sound control will include:

6.9.2.6(3)(a) attenuation of sound within public, patient and staff environments;

6.9.2.6(3)(b) sound isolation between the exterior and interior spaces;

6.9.2.6(3)(c) sound isolation between interior spaces within the building at both horizontal and vertical separations;

6.9.2.6(3)(d) sound and vibration isolation of building service noises and sound isolation of building service rooms; and

6.9.2.6(3)(e) sound isolation as required for specialty rooms such as video-conferencing. Refer to the Authority Standards/Specifications in the Data Room.

6.9.2.6(4) Design partition and ceiling construction to provide the STC ratings as required by Table 1 in Appendix 1C – Acoustics and Noise Control Measures. When a partition is used for sound isolation, extend the sound control construction from slab to slab.

6.9.2.6(5) Optimum sound isolation requires that the integrity of gypsum board partitions and ceilings (mass) never be violated by vent or grille cut-outs or by recessed cabinets, light fixtures.

6.9.2.6(6) Where penetrations are necessary, minimize placing them back- to-back and next to each other. Stagger electrical boxes and medical gas outlets, preferably by at least one stud space. Use mineral fibre insulation to seal joints around all cut-outs such as electrical, TV and telephone outlets, plumbing escutcheons, recessed cabinets, and bathtubs. Use non setting acoustical caulking to seal where the gaps are too small to insert mineral fibre insulation.

6.9.2.6(7) Minimize constructions such as ducts, rigid conduits, or corridors that act as speaking tubes to transmit sound from one area to another. At common supply and return ducts, provide sound attenuation liners at the diffuser and/or grill to maintain assemblies' STC. Seal around conduit.

6.9.2.6(8) Isolate structure-borne vibrations and sound with resilient mountings on vibrating equipment to minimize sound transfer to structural materials. Provide ducts, pipes, and conduits with resilient, non-rigid boots or flexible couplings where they leave vibrating equipment; isolate from the structure with resilient gaskets and sealant where they pass through walls, floors, or other building surfaces.

6.9.2.6(9) Use acoustic screens, vibration isolators, and carefully selected exterior equipment to prevent exterior noise that neighbours may find offensive. See Section 4.2.5, Community Noise Protection guidelines / criteria.

6.9.2.7 Painting and Protective Coatings

6.9.2.7(1) Comply with LEED requirements for Low Emitting Materials Paints and Coatings. In particular:

6.9.2.7(1)(a) architectural paints, coatings and primers: low voc.

6.9.2.7(1)(b) anti-corrosive and anti-rust: low voc.

6.9.2.7(1)(c) clear wood finishes, floor coatings, stains and shellacs: low VOC.

6.9.2.7(2) Walls, doors and shelving

6.9.2.7(2)(a) Use eggshell or semi-gloss for all walls, doors and painted shelving.

6.9.2.7(3) Door frames and metal doors

6.9.2.7(3)(a) Use semi-gloss for all door frames and metal doors.

6.9.2.7(4) Wood finish doors

6.9.2.7(4)(a) Use clear coat interior rub varnish for all wood finish doors.

6.9.2.7(5) Paint Grade Doors

6.9.2.7(5)(a) Use semi-gloss for all paint grade doors.

6.9.2.7(6) Ceilings

6.9.2.7(6)(a) Use eggshell paint for all ceilings.

6.9.2.7(7) Floors, concrete

6.9.2.7(7)(a) Use a 2-component (base component A, curing agent B).

6.9.2.7(7)(b) Use a primer if part of coating system.

6.9.2.7(8) Paint painted patient care areas with a semi-gloss finish.

6.9.2.7(9) Conform to all applicable standards, including the material and workmanship requirements of Master Painters Institute (MPI) Architectural Painting Specification Manual.

6.9.2.7(10) Use exterior paints of a quality designed to protect substrate materials from weather and climate conditions.

6.9.2.7(11) Use exterior and interior finish materials with surface finishes either as integral to the finish material or field-applied separately to the surface of the finish material.

6.9.2.7(12) Treat exterior masonry materials such as brick and concrete block with water-repellent coatings to prevent water ingress into or through the material.

6.9.2.7(13) Provide a special protective coating on exterior and interior materials that are subject to corrosion from exposure to moisture or other corrosive agents, and where painting is deemed to be insufficient protection. Materials requiring a special protective coating include exterior and interior structural, galvanized, and miscellaneous steel.

6.9.2.7(14) Use paints with a minimal VOC level in patient, staff, and public interior areas.

6.9.2.7(15) Use interior paint materials of a quality to withstand regular or repeated cleaning as the function of the area dictates.

6.9.2.7(16) Paint handrails, doors, and frames with a contrasting colour from walls in consideration of the visually impaired.

6.9.2.7(17) Do not use materials containing lead and mercury.

6.9.2.7(18) If seamless epoxy wall coatings are used, provide a two-component, high solids, zero or low VOC, solvent-free, epoxy glaze wall coating that is seamless and abrasion, chemical, and UV-resistant.

6.9.2.8 Vinyl Acrylic Wall Covering

6.9.2.8(1) If vinyl/acrylic wall covering is used, provide vinyl/acrylic high impact rigid sheet, nominal 0.40" thickness with colour-matched vinyl/acrylic trim for joint/transitions.

6.9.2.8(2) Furnish complete packaged system containing all primers and adhesive. Use non water-based and non-hazardous primer and adhesive materials.

6.9.2.9 Dry Erase Wall Covering

6.9.2.9(1) Provide as required throughout the Facility pigmented gloss vinyl wall covering presentation surfaces for dry erase markers, 0.61 kg/sq.m, non-woven backing.

6.9.2.9(2) Provide trim and other accessories including but not limited to wall covering trim of anodized aluminum, low profile trim, plastic marker dispensers, dry erase markers (set of 4 colours), low odour, and eraser, magnets, clearer, towels.

6.10 Specialties (Division 10)

6.10.1. Basic Requirements

6.10.1.1 Provide specialty products manufactured for the specific purposes intended, and installed in strict accordance with the manufacturer's directions.

6.10.2. Tack boards and Whiteboards

6.10.2.1 Provide, as required in the Equipment List:

6.10.2.1(1) tack board surfaces that allow pin penetration of the surface materials and have reasonable resistance to deterioration; and

6.10.2.1(2) whiteboard surfaces that allow use of felt-type writing instruments and allow erasing and cleaning with minimal effort. Use porcelain ceramic on steel surface, magnetic, scratch and abrasion-resistant and have maximum contrast, glare control, and reflectivity.

6.10.2.2 Provide tack boards and whiteboards with extruded aluminum frames, accessory trays, map rails and map hooks.

6.10.2.3 Use non-toxic, water based lamination adhesive for tack boards and whiteboards.

6.10.3. Projection Screens

6.10.3.1 Provide, as required in the Equipment List:

6.10.3.1(1) projection Screens mounted from recesses in ceilings or wall mounted; and

6.10.3.1(2) where appropriate, provide for motorized screens.

6.10.3.2 Provide supports and power as required to coordinate with mobile or fixed projector units, including ceiling mounted projectors.

6.10.3.3 Provide for trims and finishes compatible with the design of the rooms.

6.10.4. Compartments and Cubicles

6.10.4.1 Provide compartments and cubicles including toilet partitions, change cubicles, shower partitions, and other compartments and cubicles requiring privacy and security.

6.10.4.2 Provide exposed surfaces that are permanent, water-resistant, corrosion-proof, and readily cleaned and maintained.

6.10.4.3 Secure partitions and standards to the floor or ceiling structure, and in a manner to resist lateral loading and impact.

6.10.4.4 For compartment/cubicle doors, use material matching the partitions and include permanent, purpose-made hardware. Design doors and hardware to provide barrier-free access.

6.10.4.5 Where appropriate and approved by the Authority, curtain tracks and curtains may be used in lieu of doors.

6.10.4.6 Provide a mirror and a coat hook in all change cubicles.

6.10.5. Toilet Partitions

6.10.5.1(1) Galvannealed sheet metal will conform to ASTM A653 with minimum ZF001 (A01) zinc coating. Finish in polyester, baked enamel or powder coating.

6.10.5.1(2) For stainless steel, use Type 304 conforming to ASTM A240 with No. 4 finish.

6.10.5.1(3) For plastic laminate, use Grade 10/HGS GP50 scuff-resistant, high pressure laminate, conforming to NEMA LD-3.

6.10.5.1(4) Avoid use of particleboard core partitions.

6.10.5.1(5) For fibre-reinforced plastic (fibreglass), use a moisture resistant grade.

6.10.5.1(6) Solid Phenolic with laminate or s.s finish.

6.10.6. Change Cubicle Partitions

6.10.6.1(1) Where not adjacent to showers, change cubicle partitions will comply with the above requirements for toilet partitions.

6.10.7. Shower Partitions

6.10.7.1(1) Use solid phenolic laminated thick stock, factory-laminated with decorative finish both faces of core and conforming to CAN3-A172 or NEMA LD3.

6.10.8. Metal Lockers

6.10.8.1 Provide individual and shared storage facilities in designated staff and patient areas in the Facility based on expected staffing requirements as described in Appendix 1A Clinical Specifications and as appropriate for operation of the Facility. Such storage facilities may be metal lockers and metal locker systems of sizes, numbers, and groupings as determined in consultation with the Authority. Lockers will include a mix of full height, half size and purse lockers.

6.10.8.2 For sheet metal, use galvannealed steel conforming to ASTM A653 with ZF001 (A01) zinc coating.

6.10.8.3 Lockers will be placed on minimum 150 mm high masonry bases finished with cove bases integral with the floor finish.

6.10.8.4 Lockers will fit tightly below gypsum board bulkheads or be complete with sloped metal tops.

6.10.8.5 Finish steel surfaces with polyester baked enamel or powder coating.

6.10.8.6 For single, double, or multiple-tier metal lockers for staff use, include a provision for locking with padlock, and complete with number plates, and hanging hooks.

6.10.9. Storage Shelving Systems

6.10.9.1 Provide storage systems for materials in designated storage areas.

6.10.9.2 Adjustable shelving systems may be specifically manufactured for storage purposes, such as plywood or steel-slotted angle industrial shelving for bulk materials of plastic laminate-faced plywood for clean storage.

6.10.9.3 For mobile storage systems, provide a high-density system designed to make maximum use of available space by eliminating need for access aisle for each run of shelving. Install and brace systems to resist seismic loads. The mobile storage system to be either power assisted or to be easily operable without undue required strength by any person.

6.10.10. Washroom Accessories

6.10.10.1 Provide washroom accessories as specified in the Equipment List and this Schedule in all public, patient, and staff washrooms as required in accordance with the applicable high quality hospital standards. Determine the type, size, and number of accessories and placement on walls with regard for the numbers and categories of users, in consultation with the Authority.

6.10.10.2 Install washroom accessories to allow cleaning and maintenance of the accessory and surrounding wall area.

6.10.10.3 Accessories with appropriate safety features will be selected for mental health / Psychiatry and other areas where there is increased risk of patient injury and in accordance with British Columbia Ministry of Health Standards for Hospital- Based Psychiatric Emergency Services: Observation Units.

6.10.10.4 Recessed dispensers (such as those for paper towels, soap and waste receptacle) will not be used.

6.10.10.5 Use commercial grade accessories free from imperfections in manufacture and finish.

6.10.10.6 Use fittings with concealed fastening for security and discouragement of tampering.

6.10.10.7 Staff and public washroom accessories will include the following:

6.10.10.7(1) soap dispensers;

6.10.10.7(2) toilet paper dispensers;

6.10.10.7(3) paper towel dispensers – “hands free” type;

6.10.10.7(4) paper towel disposals;

6.10.10.7(5) mirrors;

6.10.10.7(6) barrier-free grab bars (with integral tactile grip finish);

6.10.10.7(7) coat hooks;

6.10.10.7(8) sanitary napkin dispensers;

6.10.10.7(9) sanitary napkin disposals;

6.10.10.7(10) baby change table; and

6.10.10.7(11) utility shelf.

6.10.10.8 Patient washroom accessories will include the following:

6.10.10.8(1) soap dispensers;

6.10.10.8(2) toilet paper dispensers;

6.10.10.8(3) paper towel dispensers;

6.10.10.8(4) paper towel disposals;

6.10.10.8(5) mirrors;

6.10.10.8(6) handicap grab bars (with integral tactile grip finish);

6.10.10.8(7) coat hooks; and

6.10.10.8(8) utility shelf.

6.10.10.9 Shower rooms or showers in washrooms will include the following accessories:

6.10.10.9(1) shower curtain and track or rod as appropriate;

6.10.10.9(2) handicap grab bars; and

6.10.10.9(3) fold-down shower seat.

6.10.11. Cubicle Curtains

6.10.11.1 Provide and install hospital cubicle privacy curtain panels, curtain hooks, ceiling mounted tracks, wall flanges, angle brackets, ceiling flanges, end stops, T plates, 4-way plates and all other accessories as required, in consultation with the Authority.

6.10.11.2 Provide the number of cubicle curtains required to fully enclose the opening, with a minimum of three sets of curtain panels for each location.

6.10.11.3 Curtains will comply with CAN/ULC S109-03 Flame Tests of Flames Resistant Fabrics and Films.

6.10.11.4 For cubicle tracks, use extruded, anodized aluminum, entirely enclosed except for the track guide.

6.10.11.5 Use cubicle carriers composed of a non-binding, abrasion-resistant, nylon block supported from self-lubricating bearings by two nylon wheels with a free-moving plated swivel-hook assembly. Fit one end of each track with a removable end stop to permit simple carrier replacement. Use anodized aluminum splicing clamps. Use factory-curve tracks.

6.10.11.6 Curtain and curtain track will be structurally supported.

6.10.11.7 Provide cubicle curtains in the following locations:

6.10.11.7(1) inpatient bedrooms and treatments bays in the General Medical and Surgical inpatient units, ICU/Telemetry unit and Maternity Newborn and Pediatric units;

6.10.11.7(2) the emergency department at stretcher, bed and chair bays, treatment areas, holding spaces, examination rooms, procedure rooms and trauma rooms;

6.10.11.7(3) the cast clinic at stretcher treatment bays;

6.10.11.7(4) Diagnostic Imaging at change cubicles;

6.10.11.7(5) Ambulatory Clinics / Outpatient Procedural Care at change cubicles, treatment bays, procedure bays and examination rooms;

6.10.11.7(6) Surgery Day Care at stretcher bays;

6.10.11.7(7) Surgical Suite PARR bays and Pre-Operating holding bays;

6.10.11.7(8) Cardio Pulmonary Diagnostics at change cubicles and Holter monitoring and stress test areas;

6.10.11.7(9) Therapy Services at change cubicles; and

6.10.11.7(10) any other location identified in Appendix 1A Clinical Specifications.

6.10.12. Shower Curtains

6.10.12.1 Provide shower curtains and track in the following locations:

6.10.12.1(1) General medical and surgical unit at inpatient washrooms;

6.10.12.1(2) ICU/Telemetry unit at inpatient washrooms; and

6.10.12.1(3) Maternity Newborn and Pediatric Unit inpatient washrooms.

6.10.12.1(4) any other location identified in Appendix 1A Clinical Specifications.

6.10.13. Privacy Glazed Partitions

6.10.13.1 Provide fixed glazed partitions in open bed bays in accordance with the Appendix 1A Clinical Specifications.

6.10.13.2 Fixed glazed partitions to allow for enhanced patient acoustic privacy while allowing for visual supervisions by staff.

6.10.14. Folding Panel Partitions

6.10.14.1 Provide folding panel partitions with acoustic seal for subdividing the EOC in accordance with Appendix 1A Clinical Specifications.

6.10.14.2 Provide an access door in each folding panel partition to allow access from meeting room to meeting room.

6.10.15. Inpatient Bed Headwalls

6.10.15.1 In private inpatient rooms, design the head wall adjacent to the inpatient bed:

6.10.15.1(1) to allow for one oxygen connection, one medical air connection and one vacuum connection on each side of the bed, for a total of 6 medical gas outlets; and

6.10.15.1(2) to meet or exceed all relevant CSA and ULC codes and regulations for the full range of requirements for an Acuity Adaptable Direct Patient Care Area and environment;

6.10.15.1(3) to provide all rails, accessories and backing required for mounting monitors, baskets, and other equipment as required,

6.10.15.1(4) to provide bed dock locators behind the bed,

6.10.15.1(5) to allow for data, communication and electrical power outlets on both sides of the bed (refer to Attachment 4A and Attachment 4B of Appendix 1B Furniture and Medical Equipment for the required number of outlets); and

6.10.15.1(6) to provide one nurse call station button and one code blue button; and

6.10.15.1(7) so that medical gases, service outlets, rails, equipment and accessories are configured in an horizontal and modular system, which may be either a horizontal modular headwall strip or a complete wall unit.

6.10.15.2 In double occupancy overload inpatient rooms provide two headwalls, each of which must comply with requirements of Section 6.10.15.1.

6.10.15.3 In bariatric rooms provide two headwalls that comply with the requirements of section 6.10.15.1, one behind the bariatric bed and the other on the opposite wall, in order to support a second inpatient bed during over capacity.

6.10.16. Intentionally deleted.

6.10.16.1 Intentionally deleted.

6.10.16.2 Intentionally deleted.

6.10.17. Mail Slots

6.10.17.1 Provide mail slots that are a minimum of 25mm wide, 350mm high and 400mm deep, in locations identified in Appendix 1A Clinical Specifications.

6.11 Equipment (Division 11)

6.11.1. Food Services

6.11.1.1(1) Refer to Appendix 1 H(I) Food Services Equipment List;

6.11.1.1(2) The Responsibility Category for all items noted in Appendix 1H(I) Food Services Equipment List and Appendix 1H(II) Laundry Equipment List will be: Design Builder to Supply and Install.

6.11.2. General Instructions

6.11.2.1 Scope of Work

6.11.2.1(1) Include detailed design, manufacturer, supply, installation, inspection and testing of:

6.11.2.1(1)(a) Food service equipment.

6.11.2.1(1)(b) Conveyors.

6.11.2.1(1)(c) Waste handling equipment.

6.11.2.1(1)(d) Warewashing equipment.

6.11.2.2 Electrical Work Provided by Electrical Division

6.11.2.2(1) Electrical work related to the food service equipment conveyors, waste handling equipment and warewashing equipment shall be and include:

6.11.2.2(2) In liquid tight flexible conduit and concealed within building walls and/or ceilings wherever possible.

6.11.2.2(3) From the building source or distribution point of power, through disconnect switches or starters to the terminals, connection box, circuit breaker panel or plug receptacles located on the equipment as per applicable codes.

6.11.2.2(4) Inter-wiring of the kitchen ventilation and fire suppression system components including but not necessarily limited to the following; exhaust ventilator(s) (hood), water wash pane(s), gas valve(s), gas valve resets, surface fire suppression detector(s) in each hood, remote water wash solenoid valve(s), fire suppression building alarm fire and trouble interlocks as required, exhaust fans, makeup air units, cooking equipment shut down devices, and interlocks to Building Management Controls.

6.11.2.2(5) Electrical wiring for kitchen exhaust ventilator, control panel, exhaust and make-up air fans.

6.11.2.2(6) Electrical inter-wiring between kitchen exhaust and make-up air fans, exhaust ventilator control panel, magnetic contacts and shunt trips. so as to shut down power to electric cooking equipment in the event of a fire condition in conjunction with the fire suppression system.

6.11.2.2(7) Emergency power supply to all food service equipment as required to maintain food services during a power outage.

6.11.2.2(8) Electrical inter-wiring of electric gas solenoid valve (if used) in the retail kitchen. Supply and install the reset relay or shunt trip to shut down gas and electricity to the cooking equipment in the event of activation of the surface fire suppression system.

6.11.2.2(9) Inter-wiring of the fire suppression system in the kitchen to the maintenance annunciator panel or building security system as required including building fire and trouble annunciation.

6.11.2.2(10) Electrical wiring and inter-wiring of multiple food service equipment components such as but not limited to: waste pulpers or hydra extractors, hose reels.

6.11.2.2(11) Supply and installation of all electrical receptacles located in floors, ceilings or walls.

6.11.2.2(12) Supply and installation of all electrical receptacles, junction boxes or sub-panels in millwork service counters.

6.11.2.2(13) Supply and installation of low water cut-off devices for any equipment in which immersion type electric heating elements are utilized.

6.11.2.2(14) Supply and installation of all motors integral with equipment complete with starters, internal thermal overload protection and disconnect switches.

6.11.2.2(15) Supply and installation of all internal wiring on custom fabricated items in a concealed and well supported manner and terminated inside circuit breaker panels or junction boxes ready for final connection by the electrical trades. All equipment shall be inspected by the local hydro authority and carry CSA and ULC approval.

6.11.2.2(16) Tag each multiple electrical wire or cable used in any custom fabricated piece of equipment to indicate the item serviced. When circuit breaker panels are used, identify each circuit.

6.11.2.2(17) Supply and installation of cords and plugs on equipment as required and match the plug with the respective receptacle.

6.11.2.3 Mechanical Work Provided by Mechanical Plumbing Division

6.11.2.3(1) Mechanical work related to the food service equipment, conveyors, waste handling equipment and warewashing equipment shall be and include:

6.11.2.3(2) Concealed within building walls and/or ceilings wherever possible.

6.11.2.3(3) Supply, installation, rough-in, and connection of all domestic hot and cold water, drains, vents, gas supply lines, steam supply and condensate return lines as per code from building supply to the point of connection required for the complete operation of equipment.

6.11.2.3(4) Supply and installation of shut off valves, back flow preventers, line strainers, shock absorbers, pressure, temperature and pressure gauges and control valves or devices.

6.11.2.3(5) Supply and interconnection of hot and/or cold water lines to multiple components of food service equipment including but not limited to: exhaust ventilator/water wash control, dishwashers and booster heaters, waste handling and dishtabling, hose reels etc.

6.11.2.3(6) Supply and installation of drain lines, traps, vent piping, clean outs and grease traps, sediment interceptors, drains for floor pans, connected drains for equipment, floor drains with funnels for open drains on equipment and exhaust ventilators.

6.11.2.3(7) Supply and installation of all floor drains for general drainage purpose, maintenance and cleaning, throughout the Facility.

6.11.2.3(8) Supply and installation of all hand sinks, slop sinks, janitorial sinks, drinking fountains, grease traps and general sanitizing stations.

6.11.2.3(9) Supply and installation of all base building water heating equipment capable of supplying the volume, pressure and temperature of hot water required to properly operate all food and equipment.

6.11.2.3(10) Installation of mechanical or automatic electrically controlled solenoid gas shut off valve(s) to shut down fuel to gas cooking equipment in the retail kitchen in conjunction with the fire suppression system in the event of a fire condition.

6.11.2.3(11) Supply and installation of steam supply and condensate return lines from building boiler to the connection point on equipment complete with, but not limited to shut-off valves, line strainers, steam traps, pressure regulating valves or devices, back flow preventers, temperature and pressure gauges and any other necessary equipment or devices to form a complete operating system.

6.11.2.3(12) Supply and installation of gas lines with manifolds to each piece of gas fired foodservice equipment complete with shut off valves in the retail kitchen.

6.11.2.3(13) Installation of mechanical or automatic solenoid gas valve(s), in conjunction with the fire suppression system in the retail kitchen.

6.11.2.3(14) Supply and installation of gas main pressure regulating valve(s) to ensure adequate volume and pressure of gas for food service equipment in the retail kitchen.

6.11.2.3(15) Testing of all gas connections to appliances as required by local authority having jurisdiction.

6.11.2.3(16) Connection of all equipment designated as “Supplied” by the Design-Builder.

6.11.2.3(17) Disconnection and later reconnection of any equipment designated as “Existing Equipment To Be Relocated”.

6.11.2.3(18) Roughing-in and capping off of mechanical services required for any equipment designated as “Future”.

6.11.2.3(19) Use chrome plated piping wherever exposed.

6.11.2.3(20) Provision and installation of all faucets complete with aerators and replaceable seats, ready for connection by Design-Builder.

6.11.2.3(21) Supply and installation of chrome plated overflow assemblies, drain fittings and traps with tail pieces for all sink type assemblies.

6.11.2.3(22) Supply and installation of chrome plated blowdown piping from items with relief or safety valves, extend piping to nearest hub or floor drain approximately 4" (100mm) above drain.

6.11.2.3(23) Gas pressure regulating valves for gas fired cooking equipment in the retail kitchen must be factory pre-mounted on the appliance by the manufacturer.

6.11.2.3(24) Gas fired cooking equipment in the retail kitchen included as part of a cooking equipment battery must be set in place and leveled. Ensure that all pieces fit properly and complete/test final gas connections between individual pieces of gas fired cooking equipment as required by local authorities having jurisdiction.

6.11.2.3(25) Gas fired cooking equipment in the retail kitchen with casters must be installed with positioning docks constructed of flame retardant thermo plastic resin capable of withstanding 500psi of direct force, Posi-set or equal, to ensure proper positioning of equipment.

6.11.2.3(26) Inter-piping of all hot food well drains to one common 1 ½" (38mm) chrome manifold and extend to 4" (100mm) above floor drain or funnel floor drain. The drain(s) shall be trapped as required by local codes complete with clean out. Provide a separate extended shut off valve for each well.

6.11.2.4 Mechanical Work Provided by Mechanical HVAC Division

6.11.2.4(1) HVAC/mechanical work related to the food service equipment, conveyors, waste handling equipment and warewashing equipment shall be and include:

6.11.2.4(2) Supply, installation and connection of all kitchen exhaust ductwork from exhaust fan(s) to foodservice equipment, exhaust ventilator(s) hood(s) or dishwashing and cart washing equipment per the current edition of the NFPA-96 as recognized by building codes, and per the requirements of the BC Gas Utilization Code.

6.11.2.4(3) Supply and installation of all kitchen exhaust s.s. duct work leading to exhaust ventilator(s) hood(s) take-off collars and connect to collars. Use watertight duct work and weld all joints as per the current edition of NFPA Code – 96.

6.11.2.4(4) Supply and installation of make-up air system including fan, s.s. duct work, distribution grills and/or connection to make-up air plenum on exhaust ventilator(s) (hoods), if specified.

6.11.2.5 Work Provided by Other Trades:

6.11.2.5(1) Supply and installation of floors, floor leveling materials and floor finishes throughout the foodservice areas.

6.11.2.5(2) Provision of all floor depressions required for foodservice equipment.

6.11.2.5(3) Provision of concrete curbs and bases around and under foodservice equipment.

6.11.2.5(4) Provision of sleepers with vibration isolation for refrigeration

6.11.2.5(5) Supply and setting of sleeves in floors, walls and ceiling (as well as any related core drilling) for electrical, mechanical refrigeration, plumbing, gas and beverage lines etc.

6.11.2.5(6) Supply and installation of structural supports or sleepers for exhaust and make-up air units etc as specified.

6.11.2.5(7) Work related to the retail kitchen exhaust ventilators and fire suppression system shall be and include

6.11.2.5(8) Supply, set-into-place and suspension of all exhaust ventilators, integral make-up air plenums supplied and installed with exhaust ventilator(s) or (hoods).

6.11.2.5(9) Supply, and set-into-place exhaust ventilator(s) control panels complete with control relays as required for interlock to the building central alarm panel.

6.11.2.5(10) Supply and installation of fire suppression systems complete with piping, bottles, Fenwal thermostatic detection devices or fusible links as specified, release mechanisms and all other necessary accessories and components to form a complete operational and NFPA and ULC approved system.

6.11.2.5(11) Supply and installation of remote fire pull stations for the exhaust ventilator/fire suppression system.

6.11.2.5(12) The supply and installation of remote fire suppression system shall be in accordance with all requirements and regulations of Underwriters' Laboratories of Canada, "N.F.P.A. Code 96", BCBC and other local municipal authority having jurisdiction.

6.11.2.5(13) Supply and installation of removable s.s. panels from the top of exhaust hoods to the underside of the finished ceiling.

6.11.2.6 Miscellaneous

6.11.2.6(1) Conform to all laws, bylaws, rules, regulations and requirements of all authorities having jurisdiction.

6.11.2.6(2) All electrical equipment must conform to the Canadian Electrical Code, the Electrical Inspection Department Bulletins, the Electric Safety Code and the Canadian Standards Association. All equipment must have a C.S.A. approval label. Equipment that is not C.S.A. approved will be rejected, removed from the site and substituted for at no additional cost to the Contract.

6.11.2.6(3) Gas equipment shall conform to the Canadian Gas Association, the Gas Utilization Code of the Department of Energy and Resources Management, BC and Canadian Standard Association.

6.11.2.6(4) Any plumbing or drainage systems shall conform to the Plumbing Code and BC Water Resources Act except as modified by regulations and bylaws of authorities having jurisdiction.

6.11.2.6(5) Steam equipment shall conform to interprovincial codes covering such equipment as well as the rules, regulations and by-laws of authorities having jurisdiction.

6.11.2.6(6) Each piece of equipment shall be accompanied by a label or certificate of approval.

6.11.2.6(7) All mechanical refrigeration system shall be supplied with safety relief valves, shut-off valves for each piece of equipment, refrigerant leak detectors and all other items as required by local regulations.

6.11.2.6(8) All welded pressure vessels shall be constructed to ASME Code. The vessels shall bear the stamp and certificates framed under glass and hung adjacent to the vessel.

6.11.2.6(9) Equipment design and fabrication must conform with the National Sanitation Foundation and Provincial as well as Local Municipal Health Department Regulations.

6.11.3. PART 2 – Furniture and Equipment

6.11.3.1 See Appendix 1B Furniture and Medical Equipment Responsibilities for acceptable equipment and allowable equivalents.

6.11.3.2 Materials

6.11.3.2(1) Materials for fixed surfaces shall be impervious to moisture, corrosion resistant, smooth and able to withstand regular cleaning and sanitizing.

6.11.3.2(2) Stainless steel, denoted by the abbreviation "s.s." in this specification shall be ASTM-A167-81A, (18-8 Analysis) type 304 cold rolled and annealed, No. 4 finish one side, 180 grit finish free of buckles, pits, warps and imperfections. Ensure that direction of grain matches throughout units.

6.11.3.2(3) Stainless steel tubing shall be 304, seamless and welded, No. 4 finish, 38mm sq. for all legs and bracing.

6.11.3.2(4) Nuts, bolts, screws, washers and other fastenings shall be type 304 stainless steel.

6.11.3.2(5) Galvanized steel sheet, generally referred to as Satincoat; zinc coated, 380 gms/sq. m. Where such material is used as an exposed surface, it shall be finished with one (1) coat of primer and two (2) coats of air dry enamel, silver gray unless otherwise specified.

6.11.3.2(6) Structural steel shall be new material, conforming to recognized standards, grade 300W, cleaned and primed.

6.11.3.2(7) Gauges of material refer to U.S. Standard Gauges.

6.11.3.2(7)(a) Gauges are as follows:

(a)..1 1.0mm - 20 ga.

(a)..2 1.2 mm - 18 ga.

(a)..3 1.6 mm - 16 ga.

(a)..4 1.8mm - 14 ga.

(a)..5 2.0mm - 12 ga.

6.11.3.2(8) Plywood to be Douglas Fir, minimum 5 ply construction conforming to CSA 0121, good two (2) sides, waterproof where required.

6.11.3.2(9) Particle board to be CAN 3 0188.1 MÄ78 with smooth dense surfaces.

6.11.3.2(10) Laminated plastic sheet and decorative materials used to clad surfaces of wood or metal shall be Arborite, Formica or Nevamar, 1.0mm thick or such other materials as may be specified or indicated on the Drawings. Where plywood or wood particle board panels are being clad, apply laminate manufacturer's backing sheet wherever necessary to obtain a balanced construction and prevent warpage. All panels shall be 19mm thick before plastic laminate is applied. Finish all exposed edges.

6.11.3.2(11) Sound deadening, 3mm thick rigid waterproof insulation, Component Hardware M75-1366 applied under working surfaces.

6.11.3.3 Electrical Components

6.11.3.3(1) Electrical parts supplied under this Section shall be compatible with materials specified for use on this Project. Receptacles shall be waterproof and have stainless steel cover plates and screws. Cords and caps shall be approved type, matching the receptacles for which they are intended.

6.11.3.3(2) Make receptacles, junction boxes and breaker panels easily accessible without dismantling equipment.

6.11.3.3(3) Terminate wiring within equipment at load centre or junction boxes with wires identified by Item No. and load.

6.11.3.3(4) Properly rate and ground all receptacles.

6.11.3.3(5) Supply load centres with bolt on "qwik-gard" type circuit breakers properly rated and identified. Include two (2) 20 amp. spare breakers. Face of panel shall be easily accessible behind stainless steel hinged door of a compartment which must be insulated from local heat.

6.11.3.3(6) Equip 3-phase motors with magnetic starters with thermal overload protection on each of the three phases.

6.11.3.3(7) Equip single-phase motors of fractional horsepower rating and those ranging up to and including .746 Kw with manual starters with overload protection. Motors rated over .746 Kw must have magnetic starter with overload protection.

6.11.3.3(8) Terminate wiring for motors in fused disconnect within 900mm of equipment to be controlled, between 1500mm and 1800mm above floor unless otherwise specified.

6.11.3.4 Control circuits to be 120 V maximum.

6.11.3.4(1) Provide all lighting fixtures for designated equipment with colour corrected lamps and controls or switches wired to an easily accessible common junction box for power connection.

6.11.3.4(2) Fit all portable and mobile electrical equipment with cord and plug suited for the electrical characteristics and outlets specified for the equipment. Include grounding conductor in the cord.

6.11.3.5 Plumbing Components

6.11.3.5(1) Plumbing components supplied under this section shall be compatible with materials specified for use on this Project.

6.11.3.5(2) All control valves and faucets, pipe fittings, waste and tail pieces., must be brass chrome plated, bright finish, new, best quality and comply with applicable codes.

6.11.3.5(3) Valve handles must be of non-conductive materials.

6.11.3.5(4) Faucets, Fisher or Encore, Inlet Size 12mm IPS.

6.11.3.5(4)(a) Deck Mount, Encore Model K57-4006, Inlet Centres 102mm, spout 152mm

6.11.3.5(4)(b) Deck Mount, Fisher Model 3500, Inlet centres 102mm, Spout 152mm

6.11.3.5(4)(c) Deck Mount, Encore Model K61-8008 or Encore Model K61-8012, Inlet centres 203mm, or Gooseneck

6.11.3.5(4)(d) Deck Mount, Fisher Model 3300, Inlet centres 203mm, Spout 203mm, 279mm, or Gooseneck

6.11.3.5(4)(e) Splash Mount, Encore K54-8008 or Encore Model K54-8012, Inlet centres 203mm, Spout 203mm or 279mm.

6.11.3.5(4)(f) Splash Mount, Fisher Model 3200, Inlet centres 203 mm, Spout 203mm or 279mm

6.11.3.5(4)(g) Provide wrist action handle on all faucets unless specified otherwise, Encore Model K50-001.

6.11.3.5(5) Pre-Rinse units, Pot Sink, 19mm IPS Encore Model KN53-5026-12, complete with K50Y-500 swivel arm support, K55-7012 add-on faucet and all attachments including wall brackets for splash mount units.

6.11.3.5(6) Wastes, 38mm or 51mm IPS.

6.11.3.5(7) Centre type, with removable basket strainers and tailpiece, Specialty Hardware model P1.

6.11.3.5(8) Rotary type stainless steel, Specialty Hardware DSS8000 with strainer.

6.11.3.5(9) Corner type, with stainless steel overflow, removable strainer and tailpiece.

6.11.3.6 Miscellaneous

6.11.3.6(1) Casters to be black neoprene non-marking rubber tired, 60 shore hardness, doughnut shaped, ball bearing, equipped with brakes as noted, sized to suit specific usage, zinc finished. Plate type shall be securely bolted to frame. Shank casters shall be threaded type c/w bushing. Bushing shall be welded and upright. Bolts, nuts and lock washers shall be stainless steel. All casters supplied shall be made by the same manufacturer. Casters shall be supplied on each unit to suit its particular application so that it runs freely and handles easily, minimum of 4" diameter and 200 lbs. capacity per caster

6.11.3.6(2) Bumpers shall be Colson #6915 for wrap around type set into stainless steel channel and #6927 for corner type c/w a 1.6mm s.s. exterior casing. Secure bumpers on equipment at identical height and seal any exposed gap

6.11.3.6(3) Garbage containers shall be yellow Rubbermaid #2620 complete with lid and #2623 Dolly

6.11.3.6(4) Towel rack shall be K-Venience type

6.11.3.6(5) Cutting boards shall be white thermoplastic polyethylene, with a hardness of 65-70 durometer and all surfaces polished, as supplied by Rubbermaid Products Inc., Johnson Plastics or approved equal.

6.11.3.6(6) All sealants shall be one-part silicone type, tackfree in less than one hour with complete cure achieved to 6mm depth in less than 24 hours. Sealant must not significantly alter its properties when set.

6.11.3.6(7) Sealant to remain flexible and resistant to damage from all normal environments of a commercial kitchen. It must not support the growth of bacteria, mould or fungi or discolor.

6.11.3.6(8) Sealant to be clear or as required to suit colour of surrounding materials.

6.11.3.7 Approved Manufacturers and Models.

6.11.3.7(1) All preparation and production equipment must be heavy duty series or equivalent

6.11.3.7(2) All ranges within the main kitchen to be model MST-44RE, manufactured by GARLAND, or equivalent by SOUTHBEND PREMIUM/MARATHONER

6.11.3.7(3) All griddles within the main kitchen to be model MST-47RE, and to be manufactured by GARLAND, or equivalent by SOUTHBEND PREMIUM/MARATHONER

6.11.3.7(4) All Rapid cook ovens to be model 402s, manufactured by MERRYCHEF or equivalent by TURBOCHEF

6.11.3.7(5) All broilers to be model M34B manufactured by GARLAND, or SOUTHBEND PREMIUM/MARATHONER

6.11.3.7(6) All convection ovens to be manufactured by GARLAND, or SOUTHBEND PREMIUM/MARATHONER

6.11.3.7(7) All conveyor ovens to be model 1100 series manufactured by LINCOLN.

6.11.3.7(8) All deep fat fryers to be model FMP235 manufactured by FRYMASTER or equivalent by PITCO

6.11.3.7(9) All Combination oven/Steamers within the main kitchen to be model OGS-2020 manufactured by CLEVELAND or equivalent by ALTO-SHAAM

6.11.3.7(10) All convection steamers within the main kitchen to be model 22-CET boilerless manufactured by CLEVELAND.

6.11.3.7(11) All floor-mount steam jacketed kettles within the main kitchen to be model KGL-40-T manufactured by CLEVELAND or EQUIVALENT by GROEN

6.11.3.7(12) All counter-mount steam jacketed kettles to be model KET-12T, manufactured by CLEVELAND

6.11.3.7(13) All braising pans and tilt fry pans to be manufactured by CLEVELAND

6.11.3.7(14) All flight type Warewashers to be model FT924DBD manufactured by HOBART or equivalent by MEIKO

6.11.3.7(15) All undercounter type Warewashers to be model LXiH manufactured by HOBART or equivalent by MEIKO

6.11.3.7(16) All floor mixers within the main kitchen to be model HL600 manufactured by HOBART

6.11.3.7(17) All slicers to be model 3813, manufactured by HOBART or equivalent by GLOBE

6.11.3.7(18) All counter mixers, rotary choppers, to be manufactured by HOBART or equivalent by GLOBE

6.11.3.7(19) All food processors to be model R2N manufactured by ROBOT COUPE

6.11.3.7(20) All Mixer/Blenders to be model Blixer 6Vmanufactured by ROBOT COUPE

6.11.3.7(21) All High Performance Blenbders to be model HBH450 manufactured by HAMILTON BEACH

6.11.3.7(22) All blast chillers to be model Q-100 manufactured by DELFIELD or equivalent by ALTO-SHAAM

6.11.3.7(23) All food pulpers to be model WPS1200 manufactured by HOBART or equivalent by MEIKO

6.11.3.7(24) All plate base charger units to be model IND2503, manufactured by ALADDIN

6.11.3.7(25) All air curtain refrigerators to be model ALD 26 pass through, manufactured by ALADDIN

6.11.3.7(26) All mobile plate heaters to be model DH07, manufactured by ALADDIN

6.11.3.7(27) All Room Service Tables to be model BMWCST-TRD-1020, manufactured by BURLODGE

6.11.3.7(28) All tray assembly overshelf/gravity shelves to be model B2-FSGS-M-2620-4, manufactured by BURLODGE

6.11.3.7(29) All conveyor toasters to be manufactured by HATCO or TOASTMASTER

6.11.3.8 Hardware

6.11.3.8(1) Handles that are an integral part of doors shall be Component Hardware Model P44-1010 full grip stainless steel pulls.

6.11.3.8(2) Handles that are an integral part of drawers shall be Component Hardware Model P44-1010 full grip stainless steel pulls.

6.11.3.8(3) Catches shall be Component Hardware Model M32-2401, concealed magnetic catch with a 30 lb. pull.

6.11.3.8(4) Door track hardware shall be Component Hardware Model B57-0144.

6.11.3.8(5) Door guides shall be Component Hardware Model B62-1093 or equal.

6.11.3.8(6) Door stops shall be Component Hardware Model B60-1086 or equal.

6.11.3.8(7) Front door by-passing door locks shall be Component Hardware Model B58-5513 for non-heated cabinets and B58-5511 for heated cabinets.

6.11.3.8(8) Back door by-passing door locks shall be Component Hardware Model B58-5523 for non-heated cabinets and B58-5521 for heated cabinets.

6.11.3.8(9) Swing door hinge for refrigerator doors shall be Component Hardware Model R42-2840.

6.11.3.8(10) Refrigerator door hardware: Self closing, heavy duty stainless steel offset pivot hinges with magnetic gaskets and 430 stainless steel door frame and tamper proof cylinder locks and two (2) keys per lock.

6.11.3.8(11) Stainless steel drawer slides: Component Hardware Model S52 series for standard and refrigerated units.

6.11.3.8(12) Drawer locks: Component Hardware Model P30 series, stainless steel face (drawers shall not be keyed alike). Supply two (2) keys per lock and hand over to the Design-Builder.

6.11.3.8(13) Provide locks on all doors and drawers. Key each section of the foodservices areas with a different series of locks, two (2) keys per lock.

6.11.3.8(14) Casters shall be cadmium plated, steel disc cushion non-marking rubber tired wheels with adjustable cup and cone ball bearings. Caster swivel with two rows of ball bearings running in hardened raceways. Capacity per caster, minimum 100 kg. All stem casters with expanding type fittings of size to suit tube. Plate casters mounted with stainless steel bolts and lock washers for easy replacement. All casters on mobile equipment lubricated for efficient use in varied temperatures of kitchen, walk-in refrigerators and freezers. Casters on mobile equipment equipped with cart-washable casters with grease nipples to assure adequate watertight lubrication.

6.11.3.8(15) Pilaster strips, stainless steel 20mm wide with 13mm adjustment.

6.11.3.8(16) Clips for shelves shall be die formed stainless steel.

6.11.3.9 Welding

6.11.3.9(1) All welding shall conform to the requirements of CSA specifications and be performed by fabricators who are approved by the Canadian Welding Bureau and CSA specifications. Exposed welds shall be filed or ground smooth and flush and polished to match surfaces. All exposed welds shall be continuous.

6.11.3.9(2) Electric seamless welding shall utilize low carbon filler rod, coated with non-carbonaceous flux, with sufficient chromium and nickel so that the deposited metal and the original metal have the same composition.

6.11.3.9(3) Welds shall be free from pits, cracks, discolouration and other imperfections.

6.11.3.9(4) Welded joints shall be butt fitted, properly jigged, continuous, ground smooth and polished for both exposed conditions as well as unexposed welds on underside of equipment.

6.11.3.9(5) Where soldering is desirable, it shall be made with tin-lead solder. In no case shall soldering be relied upon for the stability of the seam or joint. Soldering shall serve only as a filler to prevent leakage and shall not be considered as a replacement for welding or brazing.

6.11.3.9(6) Butt joints made by spot welding or riveting straps under seams and filling with solder, puddled welds and exposed screws are not acceptable.

6.11.3.10 Fabrication

6.11.3.10(1) Before fabrication commences, check all dimensions and conditions at the building site, including means of access into and through the building to the area where equipment is to be set in place, for all conditions affecting the delivery and installation of the equipment.

6.11.3.10(2) Fix and assemble work in the shop wherever possible. Execute the work in accordance with details and shop drawings which have been reviewed and accepted by the Engineer of Record. Where complete or final shop fabrication is not possible, make a trial assembly in the shop prior to delivery.

6.11.3.10(3) Workmanship shall be of the best grade modern shop and field practice for the manufacturers who specialize in this work.

6.11.3.10(4) Fabricate and erect work square, plumb, straight and accurately fitted. Provide adequate reinforcing and anchorage in all places.

6.11.3.10(5) Insulate where necessary to prevent electrolysis.

6.11.3.10(6) All drillings to be reamed and exposed edges left clean and smooth.

6.11.3.10(7) All straight lengths shall be one piece throughout, with all seams, including field joints, continuously welded. Radiused corners must be welded and polished to match original finish.

6.11.3.10(8) Conceal joints and connections wherever possible. Intermediate joints between supports are not acceptable.

6.11.3.10(9) Machine dressed work and finished work shall be free from drag, feathers or roughness of any kind. Remove machine marks by sanding

6.11.3.10(10) Pop rivets shall not be used unless clearly noted on shop drawings, and then only if such drawings have been reviewed and accepted by the Engineer of Record.

6.11.3.10(11) The methods of construction, reinforcement and anchorage, as well as details of finish, fitting and jointing, and other data indicated on shop drawings shall be accurately followed. No deviations from shop drawings which have been reviewed and accepted will be permitted during the construction of equipment or installation.

6.11.3.10(12) The gauge of metal and methods of construction shall in all cases be adequate for the various conditions to be met, with the requirements of the design details and Specifications considered as minimum. Finished equipment shall be rigid when assembled and installed.

6.11.3.10(13) All fastenings and fittings shall be stainless steel, type 302 or 304 unless otherwise specified. All bolts and screws shall have truss heads or flat heads which are properly countersunk, at exterior and interior surfaces which are normally visible. Concealed fastenings shall be used throughout, unless otherwise approved by the Engineer of Record.

6.11.3.10(14) Sheet material for counter tops, tables, shelves and similar forms shall be straight lengths, in one continuous sheet if not over 3 metres long.

6.11.3.10(15) Make provisions in the equipment for proper installation of services and connections. Cut and patch only when necessary. The completed installation shall be properly finished without rough edges or exposed openings.

6.11.3.10(16) Allow for expansion and contraction of materials.

6.11.3.10(17) Obtain samples and confirm sizes of trays, racks, pans and china to determine the exact requirements for openings in equipment.

6.11.3.11 Millwork

6.11.3.11(1) All fixtures are to be made by one manufacturer and assembled in single and complete units, as the dimensions will permit shipment to and installation at the building. Large pieces requiring sectional construction are to have their parts accurately fitted and aligned with each other, and provided with ample screws, glue and bolt blocks, tongues, grooves and splines, dowels, mortises and tenons, screws, bolts or substantial, rigid and permanently secured in proper position to each related section.

6.11.3.11(2) Sufficient additional material is to be provided to permit accurate scribing to walls, floors and related work, and allowance made wherever possible for shrinkage that may develop after installation. All units are to be provided with adequate cleating, blocking, crating and other forms of protection as necessary to prevent damage during shipping and handling.

6.11.3.11(3) All fixtures are to be assembled without face screws or nails, except where it may be necessary to attach trim items. All face screws or nails that are necessary are to be countersunk and plastic wood or wood plugs used to cover heads, and the plug neatly touched up. The heads of all screws used in any assembly are to be countersunk below the surface.

6.11.3.11(4) Joints – Mortise and tenon, spline, dowel and/or pin block and glue work to avoid use of nails wherever practical. Make butt joints with an approved device for prevention of separation of members. Blind nail and conceal.

6.11.3.11(5) Plastic laminate is to be bonded to all exposed surfaces with contract cement fast bond EC2166 as manufactured by 3-M Products Company, or equal, to minimum ¾" (19MM) fir faced plywood applied under high pressure. All edges shall be carefully sanded to smooth finish, removing burns, nicks and cut marks. Plastic laminate joints are to be finished without wavy and unsightly joints.

6.11.3.11(6) Where solid core/monolithic tops are specified i.e. Nevamar Fountainhead or equivalent, such materials are to be installed by factory certified installers only.

6.11.3.11(7) Hinged doors are to be fabricated of ¾" (19mm) thick plywood with hardwood full perimeter edging with plastic laminate on face and self-edging on exposed sides. Door hinges, pulls and catches shall be supplied and installed as specified.

6.11.3.11(8) Sliding doors are to be fabricated of solid core plywood with hardwood edges and constructed similar to hinged doors. Doors are to be mounted on E-Z Glides track, and to be removable without the use of tools. Rubber stops are to be provided concealed in end stile or mullion.

6.11.3.11(9) Tambour sliding doors are to fabricated of individual hardwood slats, 3/8" x 3/4" (10 x 20mm), round on 2 edges and glued to 20 ounce duck canvas or reject elastic vinyl plastic or equal and be provided with hardwood end stile with integral door pull. Track to be lined with laminated plastic or equally sooth surface and guides at top and bottom to be fabricated hardwood. Provide lock-pin for sliding doors

6.11.3.11(10) Any access panel is to be fabricated of ¾" (19mm) nominal thick hardwood and fabricated as a door. Each access panel to be provided with two (2) magnetic catches at top and two (2) 3/16" (5mm) positioning pins at bottom.

6.11.3.11(11) Drawer sides and backs are to be constructed of 5/8” (16mm) thick solid hardwood such as ash, oak or maple, or 5/8” (16mm) finished birch interior plywood without plugs or defects. Sides to be French dovetailed into fronts, with backs lock-shouldered into sides. Drawer bottoms to be 1/4” (6mm) tempered hardboard, dadoed into sides. Provide pulls as specified. The inside surfaces of all drawers shall receive one coat of Penetrating Primer and one coat of Glass Lacquer.

6.11.3.11(12) Drawer fronts to be 3/4” (19mm) thick, 5-ply veneer core construction, with veneer banded top edge to match face. Ends to be puttied, sanded and glazed to match top edge. All drawers to be provided with full extension glides.

6.11.3.11(13) Painted finishes to have exposed surfaces free from defects and blemished that would show after being finished, regardless of grade specified. All surfaces specified to receive a paint or enamel finish are to receive one cross-coat of lacquer type undercoat. After the undercoat has been thoroughly dried, surfaces are to be sanded smooth and tow coats of enamel is to be applied. Back painting is to be provided for all cabinet and woodwork prior to installation.

6.11.3.11(14) Interior shelves are to be laminated and provided with self-edging on all sides.

6.11.3.11(15) Where required by code, all required materials are to be treated with fire retardant chemicals to achieve the required flame spreading performance rating. Retardant chemicals must be a type approved by local authorities.

6.11.3.12 Solid Surfaces

6.11.3.12(1) Material: Homogeneous filled acrylic; not coated, laminated or of composite construction; meeting ANSI Z124.3 and .6, Type Six, and federally inspected WW-P-541E/GEN.

6.11.3.12(2) Superficial damage to a depth of .25mm shall be repairable by sanding and polishing.

6.11.3.12(3) Fabrication to be performed by a Certified Corian fabricator/installer.

6.11.3.12(4) Fabricate components in shop to greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and Corian manufacturer requirements.

6.11.3.12(5) Solid surface tops to be 19mm thick, adhesively joined with inconspicuous seams; edge details as specified.

6.11.3.12(6) Backsplashes to be 19mm thick.

6.11.3.12(7) Tray slide to be 19mm thick, adhesively joined with inconspicuous seams; edge details as specified. Tray slide to include 6mm deep grooves to accept tray slide inserts.

6.11.3.12(8) Tray slide inserts to be 13mm x 13mm set into 6mm deep grooves with silicone sealant.

6.11.3.12(9) Make cut-outs to templates furnished by cold or hot appliance manufacturer. Reinforce joints and cut-outs as recommended by the surfacing manufacturer.

6.11.3.12(10) Provide insulation between solid surface and adjacent cold pans or hot appliances.

6.11.3.12(11) Thermally isolate hot applications from cold.

6.11.3.12(12) Provide venting of cabinets.

6.11.3.12(13) Sinks to be seamed undermount “S” type sink.

6.11.3.12(14) Single sink bowls to be 445mm wide x 496mm long x 206mm deep complete with drain holes.

6.11.3.12(15) Double bowl sinks to be 783mm wide x 471mm long x 210mm deep complete with drain holes.

6.11.3.12(16) S.S. work tables and counters

6.11.3.12(17) 2.0mm stainless steel continuous sheets all welded.

6.11.3.12(18) Reinforcing shall be a minimum 3.0mm Satin Coat sub top arranged so that forms are concealed from normal view. Secure reinforcing to tops with stud welding and appropriate silicone.

6.11.3.12(19) Table or counters up to 1800mm in length shall have a minimum of 4 legs.

6.11.3.12(20) Tables with sinks shall have a marine edge unless otherwise specified.

6.11.3.12(21) Worktable and counters with sink, work tops to slope towards sinks at a slope of 20mm per metre. For dish tables 8mm per metre toward dishwashing machine. Front edge level over full length.

6.11.3.12(22) Kickplates, where specified, shall be of 1.6mm stainless steel and secured to equipment, easily removable.

6.11.3.13 Tops

6.11.3.13(1) Stainless steel tops as specified under "Worktables and Counters".

6.11.3.13(2) Wood tops as manufactured by Michigan Maple Ltd. style "G" - 48mm thick, cured and selected edge grain laminations c/w steel bolt reinforcements. Sand and finish both sides.

6.11.3.13(3) Polyethylene tops (high density types) as distributed by Johnson Plastics. Material is white (all surfaces polished with a hardness of 65 Ä 70 durometer), 19mm thick, no-toxic, with no odour or taste transfer and stain resistant. Top to be reversible and properly supported on stainless steel framework.

6.11.3.13(4) Marble tops shall be continuous 25mm thick, white veined and fairly uniform in colour. Provide "A" type graded marble free of cracks and fractures. Support top on stainless steel framework with lateral cross members and a rubber cushioned underpad at the supports. Polish and seal to protect against acids and oils.

6.11.3.14 Backsplash

6.11.3.14(1) 2.0mm stainless steel fully welded.

6.11.3.14(2) Integral section of table or counter top turned up on a 19mm radius to the height specified, then boxed or splayed.

6.11.3.14(3) Enclose, fill and weld all exposed ends and back. Exposed backs at upturns and splashbacks shall be faced with 1.2mm stainless steel back panel to bottom of splashback. Such panels shall be removable as required for access to mechanical and electrical parts. Seal backs to wall with clear silicone.

6.11.3.15 Legs and bracing

6.11.3.15(1) 1.6mm stainless steel wall, 41mm O.D. tubular.

6.11.3.15(2) Provide framework for table tops to maintain a height of 900mm above finished floor.

6.11.3.15(3) Leg spacing maximum 1600mm apart, 760mm front to back.

6.11.3.15(4) Bullet feet, Component Hardware Model A10-0851. When table has service connections, dowel and secure to floor using Component Hardware Model A10-0854. Secure to one set of feet only when bridging a structural expansion joint.

6.11.3.15(5) Braces shall be continuously welded to legs, polished with minimum reduction in volume.

6.11.3.15(6) Cross brace legs in pairs and longitudinal brace at front, centre or back to suit requirements. All set at 250mm above floor.

6.11.3.15(7) Legs shall be continuously welded to s.s. saddles of inverted U shape 100mm wide x 20mm deep x 2.75mm. Flanges angled back or rounded at each end.

6.11.3.16 Over cupboards

6.11.3.16(1) 1.2mm stainless steel all welded

6.11.3.16(2) Top sloped at 30 deg., end gables boxed and bottom shelf fixed.

6.11.3.16(3) Intermediate and adjustable shelves as specified under "Shelving".

6.11.3.16(4) Doors as specified under "Doors" section.

6.11.3.16(5) Secure units to wall with stainless steel fastenings.

6.11.3.17 Shelving

6.11.3.17(1) 1.6mm stainless steel all welded construction.

6.11.3.17(2) Boxed edges on all four (4) sides. Notch corners to fit contour of legs as required for work tables.

6.11.3.17(3) Shelves with sides or backs shall be turned up 50mm and set to backs or folded if away from walls.

6.11.3.17(4) Shelves shall be easily removable and in sections capable of being pulled out through a single door opening.

6.11.3.17(5) Overshelves to be boxed with backs set to walls and secured with stainless steel tubular brackets.

6.11.3.17(6) Wire shelves to be 5mm O.D. on 25mm centres, set in a 10mm O.D. perimeter frame either stainless steel or heavy duty chrome plated finish as specified.

6.11.3.17(7) Provide a removable bottom shelf in any counter or table set on an enclosed base with mechanical and electrical services.

6.11.3.17(8) Removable bottom shelf in counters or tables with sink for access to clean-out valve on trap.

6.11.3.18 Angle Slides

6.11.3.18(1) 1.6mm stainless steel construction

6.11.3.18(2) Slides shall be of 50mm x 50mm section, length to suit. Leading corners rounded, fully welded to supports on vertical edge (for fabrication) or secured by no less than four (4) s.s. screws (for millwork)

6.11.3.18(3) Round exposed corners and provide back stops. Mount units in key hole slots to ease cleaning and removal.

6.11.3.18(4) Back stops to be provided to limit travel.

6.11.3.18(5) Verify tray, pan or basket size to ensure accurate fit.

6.11.3.19 Drawers

6.11.3.19(1) Front shall be double pan construction with insulation equal to cabinet body. Where drawer fronts are shown to have a plastic laminate finish, the double pan construction shall be reversed so that the plastic laminate is contained by the outer edges of the back pan.

6.11.3.19(2) Frames shall be 1.6mm. stainless steel channel, welded to drawer front.

6.11.3.19(3) Pulls shall be formed of stainless steel and welded onto the top edge of drawers; profile shape and size as indicated on the Drawings. Where such formed pulls are not indicated, recessed pulls shall be used, Component Hardware P63-1012 or approved equal.

6.11.3.19(4) Slides for refrigerated cabinets shall be Component Hardware S52 series; for other drawers Component Hardware S26 series as specified under "Hardware".

6.11.3.19(5) All slides to be installed so that drawers are self-closing.

6.11.3.19(6) Housing of 1.0mm stainless steel fully enclosed for drawers under worktables and open cabinets.

6.11.3.19(7) Drawers shall accommodate one plastic pan Component Hardware S80 series or one stainless steel pan Component Hardware S81 series for 510 x 510 x 125mm insert.

6.11.3.19(8) Provide rubber buttons at end of frames to cushion drawer.

6.11.3.19(9) Locks as specified under "Hardware".

6.11.3.19(10) Bread drawers shall have 510 x 510 x 250mm deep stainless steel removable pan.

6.11.3.20 Sink bowl

6.11.3.20(1) All of 2.0mm stainless steel integrally welded into table or counter top.

6.11.3.20(2) Interior corners radiused 19mm both vertically and horizontally, all welded and polished. Slope bottom to drain fitting.

6.11.3.20(3) Undercoat with sound deadening compound when sinks are not exposed.

6.11.3.20(4) Multiple sinks to have 18 ga. stainless steel apron to conceal gap between bowls.

6.11.3.20(5) Faucets and drains as specified under "Hardware".

6.11.3.21 Hinged and sliding door

6.11.3.21(1) Front and back of 1.6mm stainless steel.

6.11.3.21(2) All welded, double pan type 19mm thick sound deadened with fibreglass insulation board.

6.11.3.21(3) Hinges for cabinet doors shall be concealed, continuous stainless steel piano type secured to body with stainless steel screws.

6.11.3.21(4) Sliding doors shall be top hung with a stainless steel track mounted above to allow self-closing. Provide nylon rollers with ball bearing centre except for heated cabinets where stainless steel rollers shall be used. Doors must be removable without tools.

6.11.3.21(5) Provide rubber buttons to cushion doors.

6.11.3.22 Unheated cabinets

6.11.3.22(1) Stainless steel tops and backsplash. Top edges boxed, backs up and splayed unless otherwise noted.

6.11.3.22(2) 1.2 mm stainless steel body.

6.11.3.22(3) Door to be hinged or sliding as required.

6.11.3.22(4) Stainless steel pilasters for adjustable shelves c/w clips.

6.11.3.22(5) 1.6 mm stainless steel fixed bottom shelf and removable intermediate shelf.

6.11.3.22(6) Legs as specified under "Legs and Bracing"

6.11.3.23 Heated cabinets

6.11.3.23(1) Stainless steel tops and backsplash as for unheated cabinet.

6.11.3.23(2) 1.2 mm stainless steel body, fully insulated with 13 mm thick fibreglass and stainless steel 2B interior finish.

6.11.3.23(3) Doors to be hinged or sliding and insulated as specified under the "Door" section.

6.11.3.23(4) Stainless pilasters and clips.

6.11.3.23(5) Removable and perforated intermediate shelf.

6.11.3.23(6) Fixed bottom shelf.

6.11.3.23(7) Legs as specified under "Legs and Bracing".

6.11.3.23(8) Maintain a minimum temperature of 160 deg. F (71 deg. C) within the cabinet.

6.11.3.23(9) Heater strip shall be chromolox type c/w thermostatic control and pilot light mounted in a recessed panel.

6.11.3.23(10) Approved manufacturers to be HATCH, METRO, or ALTO-SHAAM

6.11.3.24 Steam tables and bain maries

6.11.3.24(1) Stainless steel top and backsplash.

6.11.3.24(2) Construction as per "Heated Cabinet" unless specified otherwise.

6.11.3.24(3) Heating tank shall be an integral, all welded unit with the top. Cove all corners and slope bottom to drain equipped with overflow assembly.

6.11.3.24(4) Perforated false bottoms shall be stepped in varying heights and easily removable in sections c/w finger holes.

6.11.3.24(5) Insulate heating tank with 25 mm rigid fibreglass.

6.11.3.24(6) Provide chromolox type immersion heater c/w a low water cut off and a minimum heating capacity of 3.0 Kw per sq. m. of bain marie surface or 1.3 Kw per standard full size pan section of steam table.

6.11.3.24(7) Recess thermostatic controls and pilot lights into front of cabinet.

6.11.3.24(8) Manifold all multiple drain outlets to a common and larger diameter header. Trap the header as required by local codes.

6.11.3.24(9) Steam heated units shall have 19 mm diameter copper coil assembly to maintain a 95 deg. C water temperature within the tank.

6.11.3.24(10) Provide recessed steam control valves and insulate all exposed steam piping within the cabinet.

6.11.3.24(11) Approved manufacturers to be HATCH, WELLS, or DUKE

6.11.3.25 Kitchen Exhaust ventilators and hoods

6.11.3.25(1) The basic requirements of the design, installation and use of exhaust systems components including ventilator(s) (hoods with or without dampers) exhaust ducts, air moving devices, fire suppression systems, and auxiliary equipment shall be supply and installed in accordance to the current edition of the NFPA-96 and NFPA-17a, and ULC standard ULC-S646-98.

6.11.3.25(2) Fabricate hoods of 1.25 mm stainless steel type 304, No. 4 finish with joints and seams fully welded and liquid tight.

6.11.3.25(3) Intentionally deleted.

6.11.3.25(4) Intentionally deleted.

6.11.3.25(5) Provide self-closing dampers if so listed by U.L.C. and approved by authorities having jurisdiction.

6.11.3.25(6) Duct collars shall be 1.6 mm stainless steel all welded c/w 25 mm flanged perimeter connection.

6.11.3.25(7) Drains from multiple hood sections shall be manifolded to one common connection.

6.11.3.25(8) Lights shall be fluorescent recessed vapour type fixtures c/w bulbs. Standard hoods shall have Klein # 2310 incandescent vapour proof fixtures c/w bulbs.

6.11.3.25(9) Stainless steel removable enclosure panels shall be provided from top of ventilators to underside of finished ceilings.

6.11.3.25(10) Provide a 1.25 mm stainless steel service chase approximately 300 X 200 mm to enclose services from top of service wall to underside of ventilators or hoods.

6.11.3.25(11) Provide the required and engineered number of U.L.C. grease extractors for filter type exhaust hoods. Extractors constructed of stainless steel frame with stainless steel interior air baffles and strategic weep holes to allow drainage into grease trough.

6.11.3.25(12) Grease trough shall be one piece, at back of hood and below extractors c/w a removable 150 x 150 x 100 mm grease container drawer.

6.11.3.25(13) Support and hang ventilators and hoods by means of mild steel threaded rod, secured to structural ceiling member. Utilize turn-buckles to ensure a plumb and level installation.

6.11.3.25(14) Approved manufacturers to be HALTON or SPRING AIR

6.11.3.26 Condensate Hoods

6.11.3.26(1) Intentionally deleted.

6.11.3.26(2) Intentionally deleted.

6.11.3.26(3) Intentionally deleted.

6.11.3.26(4) Intentionally deleted.

6.11.3.26(5) Intentionally deleted.

6.11.3.26(6) Intentionally deleted.

6.11.3.26(7) Intentionally deleted.

6.11.3.26(8) Pot washing equipment that is self venting shall be used. If such self venting equipment is not used, then a condensate hood is required

6.11.3.27 Fire Suppression Systems

6.11.3.27(1) The basic requirements for the design, installation and use of a pre-engineered fire suppression system shall be governed by the current edition of the NFPA-17a, NFPA-96, ULC listed, and acceptable to the local authorities having jurisdiction.

6.11.3.27(2) The hood manufacturer shall supply a wet chemical fire suppression.

6.11.3.27(3) The hood manufacture shall provide a pre-piped fire suppression system with full coverage in each hood, plenum and duct collar. Each fire suppression drop shall extend from the roof of the hood and shall be chrome plated or stainless steel pipe or sleeve. The complete coverage of each hood will allow appliance(s) to be relocated and/or removed and/or added to any hood without requiring any changes to the overall capacity of the Piranha system or re-location of the fire suppression drops. (Exception: Appliances requiring specific nozzle location per the ULC listing. i.e. Salamander Broiler, Upright broilers)

6.11.3.27(4) The hood manufacturer shall provide detector(s) factory installed in each hood and wired to a common junction box on top of each hood. The quantity and location of the detectors shall be in accordance with the ULC listing and the authority having jurisdiction.

6.11.3.27(5) A fire condition shall cause the system to automatically discharge above the hazard areas and extinguish the fire.

6.11.3.27(6) On discharge of the system, all fuel and power to cooking equipment shall be shut off automatically by means of a mechanical or electrical (if so specified) gas valve for gas equipment and/or under voltage shunt trip for electrical equipment.

6.11.3.27(7) During a fire condition, water wash ventilators shall have their wash system activated and operational until the system is manually reset.

6.11.3.27(8) Provide mechanical or electrical, if so specified, remote fire pull stations at the kitchen exit(s).

6.11.3.27(9) System discharge nozzles shall have grease caps.

6.11.3.27(10) The hood manufacturer shall supply and install all field and factory piping in accordance with the ULC listing of the fire suppression system. Conceal all piping above the roof of the hood whenever possible. All exposed piping to be stainless steel or chrome plated and/or sleeved.

6.11.3.27(11) The system shall be installed to the manufacturer's specifications, by qualified representatives and in strict accordance to all applicable codes.

6.11.3.27(12) Supply and installation of the field piping from the hoods to the fire suppression system shall be by the hood manufacturer in accordance with the ULC listing. The hood manufacturer to supply all detection devices, release mechanisms and other accessories and components to form a complete operational and approved system.

6.11.3.27(13) The hood manufacturer to supply and set-in-place manual remote pull station for the fire suppression system(s) as required by the local authorities having jurisdiction.

6.11.3.28 Conveyor systems

6.11.3.28(1) Approved Manufacturers

6.11.3.28(1)(a) All conveyor systems to be manufactured by AEROWORKS, HATCH or CONWASH

6.11.3.28(2) Slat belt conveyor

6.11.3.28(2)(a) Belting shall be type "HDF" plastic slat chain belt and shall side-flex to a minimum 610 mm centerline radius as shown on drawings. The plastic slats shall be 190 mm wide and made of a wear-resistant, extra-low friction engineering plastic. Individual slats shall be joined to form a continuous belt be wear-resistant stainless steel pins.

6.11.3.28(3) Top Track

6.11.3.28(3)(a) The belt shall be supported on a standard 2.0 mm, 304 stainless steel No. 4 finish bed with no visible joints. The belt shall ride on high density polyethylene wear strips in the centre line support groove running the full length of the conveyor.

6.11.3.28(4) Return track

6.11.3.28(4)(a) A monorail type return track shall consist of an extruded or machined cross-section of high density poly. Contained in a stainless steel “C” channel arranged in an inverted position so as to support the conveyor belt from it’s tabs in a hanging position. A full-width stainless steel pan under the belt, located approximately 1/8” below the surface of the suspended belt slats shall allow water from the belt wash to be carried to the tail tank by the action of the belt.

6.11.3.28(5) Drive Frame

6.11.3.28(5)(a) All welded stainless steel angle frame with stainless steel 406 sq. mm 150 mm lg. legs and adjustable stainless steel bullet feet.

6.11.3.28(6) Drive Tank (Wash Chamber)

6.11.3.28(6)(a) Wash chamber shall be 2.0 mm stainless steel equipped with one single, large size access door of drop-hinge design to positively prevent splashing and leaking when door is closed. Door to be equipped with positive cabinet-type latch.

6.11.3.28(6)(b) Provide removable, lift-out scrap basket of perforated stainless steel. Scrap basket to be accessible through same access door.

6.11.3.28(6)(c) The drive tank shall support the bearings, drive shaft and sprockets for the transfer of motive power from the motor to the conveyor belt.

6.11.3.28(6)(d) The driving chain shall be number 50 ASA (15 mm pitch) and shall be located on the front side of the conveyor for easy access.

6.11.3.28(7) Drive Housing

6.11.3.28(7)(a) The conveyor drive tank (wash chamber) and drive frame shall be fitted with 1.25 mm ga. stainless steel enclosure panels on the ends (& rear when exposed) and (a) a 1.6 mm ga. stainless steel hinged, screwed shut door on the front to act as a chain guard for the drive sprockets and chain, accessible only by authorized personnel; and (b) a 1.25 mm ga. stainless steel double-wall insulated hinged door also on the front side with spring-loaded cabinet latches. Door to allow easy access to drop-hinge door on drive tank wash chamber and scrap basket.

6.11.3.28(8) Drive Shaft

6.11.3.28(8)(a) Stainless steel drive shaft mounted within wash chamber on double-sealed bearings. (Grease-filled) sealed cartridge inside chamber; standard precision ball bearing flanged unit outside chamber.

6.11.3.28(9) Belt Wash

6.11.3.28(9)(a) Wash system shall consist of spray jets mounted to manifolds inside wash chamber. Manifolds to be located so as to effectively clean the belt and shall be removable without tools.

6.11.3.28(10) Plumbing Cabinet

6.11.3.28(10)(a) A stainless steel cabinet shall be mounted to end of drive cabinet to house required plumbing for the belt wash system.

6.11.3.28(10)(b) Plumbing components shall be 13 mm brass or copper fittings consisting of: hot and cold water shut-off/mixing valve, line strainer, check valve and solenoid valve. (Ensures water is on when conveyor is operating - with selector switch in “Wash” or “Rinse” position).

6.11.3.28(10)(c) Provide adjustable flow liquid proportioning injector to supply detergent from a remote container and inject it directly into the water line before entering the spray manifolds.

6.11.3.28(10)(d) All plumbing and plumbing components to conform to the latest CSA, UL and local codes and standards.

6.11.3.28(11) Drive Motor

6.11.3.28(11)(a) Provide adjustable-speed integral D.C. motor and worm-gear speed reducer. Speed is to be varied by turning control knob on conveyor control panel.

6.11.3.28(12) Control System

6.11.3.28(12)(a) Conveyors shall be controlled by a watertight control centre containing start, stop, detergent and belt spray switches, indicating lights and speed control potentiometer knob.

6.11.3.28(12)(b) The D.C. motor shall be controlled with an “SCR” solid-state controller with overload protection, electronic torque control and an infinitely variable conveyor speed between 0 and 15 metres/min.

6.11.3.28(12)(c) Provide a 3-pole sealed disconnect circuit breaker and control transformer. All components shall be neatly contained in a stainless steel, completely waterproof enclosure. All wiring to conform to latest CSA, UL and local electrical codes and standards.

6.11.3.28(12)(d) Provide auxiliary start-stop panels and accumulation switches where required to assure efficient operation of system.

6.11.3.28(13) Tail Tank

6.11.3.28(13)(a) Provide 2.0 mm stainless steel tail tank 380 mm deep with drop-hinge access door equipped with positive cabinet-type latch. Provide large, lift-out perforated stainless steel scrap basket.

6.11.3.28(13)(b) Tail shaft (stainless steel) and stainless steel sprocket assembly to be contained in tail tank and mounted on slides and equipped with a spring-loaded take-up.

6.11.3.29 Power roller conveyor

6.11.3.29(1) Approved Manufacturers

6.11.3.29(1)(a) All Power roller systems to be manufactured by AEROWORKS, or CONWASH

6.11.3.29(2) Construction

6.11.3.29(2)(a) Support structure shall be constructed on 2.0 mm stainless steel side channels c/w stainless steel covers. Drive unit housing located where shown on plan shall be 2.0 mm stainless steel construction and shall be easily accessible for servicing.

6.11.3.29(3) Rollers

6.11.3.29(3)(a) Rollers shall be 48 mm dia. 1.6 mm stainless steel tubing fitted with self-lubricating acetal bearings. The rollers shall be mounted between the side channels and no part of the roller extending into the side channels.

6.11.3.29(4) Driving System

6.11.3.29(4)(a) The rollers shall be mounted 13 mm dia. stainless steel shafts that extend into the side channels through all-plastic self-lubricating bearings. The drive end of the shaft is fitted with a easily replaceable polyethylene sprocket. The sprocket (& shaft) is driven by a continuous stainless steel chain which runs on polyethylene wear strips on top and return strands.

6.11.3.29(5) Gear Motor

6.11.3.29(5)(a) The conveyor gear motor drive shall be totally enclosed, fan-cooled type with corrosion-resistant finish.

6.11.3.29(6) Controls

6.11.3.29(6)(a) The conveyor shall be controlled by a water-tight panel located under the dishtable or any other suitable location where it is easily accessible to maintenance personnel only. The panel contains all required electrical components including magnetic starter with overload protection and necessary fusing.

6.11.3.29(6)(b) The conveyor is operated by remote start/stop stations located where shown on plan. Interwiring from main control centre to remote panels by Design-Builder.

6.11.3.29(7) Operation

6.11.3.29(7)(a) The conveyor shall operate as a low pressure accumulation system. Rollers shall turn independently of sprocket and shaft combination.

6.11.3.29(8) Gravity roller

6.11.3.29(8)(a) Rollers shall be 48mm dia. blue PVC fitted with polypropylene bearings with stainless steel balls. Rollers shall be spaced at approximately 100 mm centres and where conveyor turns a corner, each roller shall consist of two separate rollers on a common shaft.

6.11.3.29(9) Shafts

6.11.3.29(9)(a) Shafts shall be 11 mm hex. aluminum securely bolted to side rails. “Floating axles” shall not be permitted.

6.11.3.29(10) Guide Rails

6.11.3.29(10)(a) Guide rails to be 2.5 mm X 50 mm stainless steel supported on 12 mm dia. “pins” secured to sides of conveyor bed. Rails to be made in approximately 1200 mm lg. sections to allow conveyor to be lifted out of bed for cleaning purposes.

6.11.3.29(11) Conveyor Bed (Drip Pan)

6.11.3.29(11)(a) Provide 2.0 mm stainless steel conveyor bed/drip pan under conveyor supported on 40 mm dia. stainless steel legs and rails and adjustable stainless steel bullet feet.

6.11.3.29(11)(b) Conveyor bed to be properly pitched to allow baskets to roll freely from powered section to dishwasher.

6.11.3.29(12) Hinged Gate

6.11.3.29(12)(a) Intentionally deleted.

6.11.3.30 Intentionally deleted.

6.11.3.30(1) Intentionally deleted.

6.11.3.30(1)(a) Intentionally deleted.

6.11.3.30(2) Intentionally deleted.

6.11.3.30(2)(a) Intentionally deleted.

6.11.3.30(2)(b) Intentionally deleted.

6.11.3.30(2)(c) Intentionally deleted.

6.11.3.30(2)(d) Intentionally deleted.

6.11.3.30(3) Intentionally deleted.

6.11.3.30(3)(a) Intentionally deleted.

6.11.3.30(3)(b) Intentionally deleted.

6.11.3.30(4) Intentionally deleted.

6.11.3.30(4)(a) Intentionally deleted.

6.11.3.30(5) Intentionally deleted.

6.11.3.30(5)(a) Intentionally deleted.

6.11.3.30(6) Intentionally deleted.

6.11.3.30(6)(a) Intentionally deleted.

6.11.3.30(7) Intentionally deleted.

6.11.3.30(7)(a) Intentionally deleted.

6.11.3.30(8) Intentionally deleted.

6.11.3.30(8)(a) Intentionally deleted.

6.11.3.30(8)(b) Intentionally deleted.

6.11.3.30(9) Intentionally deleted.

6.11.3.30(9)(a) Intentionally deleted.

6.11.3.30(10) Intentionally deleted.

6.11.3.30(10)(a) Intentionally deleted.

6.11.3.30(11) Intentionally deleted.

6.11.3.30(11)(a) Intentionally deleted.

6.11.4. Design and Performance Requirements

6.11.4.1 Delivery and storage of equipment

6.11.4.1(1) Coordinate deliveries of equipment in conjunction with construction activity and progress at the site.

6.11.4.1(2) Obtain and/or hold equipment ready for delivery in accordance with an agreed schedule which will permit completion of the work at the specific date.

6.11.4.1(3) Deliver, unpack and set in place all equipment in the designated position, ready for final connection of services, for units with electrical or mechanical connections.

6.11.4.1(4) Provide all necessary information within adequate time and in proper sequence regarding the exact location of openings, chases and any attachments or other fittings required for foodservice equipment.

6.11.4.1(5) Supply and deliver to the site in sufficient time all inserts, anchors, bolts, sleeves, ferrules and similar items for attaching to, or building into, masonry, concrete and other work for the proper anchorage and fixing of the equipment. Include necessary templates, instructions, directions and/or assistance in the location and installation of all items by other Subcontractors.

6.11.4.2 Installation

6.11.4.2(1) Caulk and seal equipment to walls, base pads, curbs, and adjacent equipment where required.

6.11.4.2(2) Leave installed work neat, cleaned and polished, well fitted into position, level, and in proper operating condition.

6.11.4.2(3) Promptly remove all rubbish and debris from the building and site as the work proceeds and on completion.

6.11.4.2(4) Activate, test and adjust all equipment and apparatus installed under this Agreement. Refinish and repair any painted and finished surfaces damaged during erection and installation. Hand over the completed installation in first class condition and working order.

6.11.4.2(5) Ensure electrical equipment is accompanied by label or certification of approval by Canadian Standards Association, Hydro Electrical Power Commission or Local Authority.

6.11.4.2(6) Ensure steam pressure equipment is accompanied by a "Certificate of Boiler" to satisfy Federal and Provincial requirements.

6.11.4.2(7) Finished work must be perfectly true and plumb with no warping, buckling or open seams. All edges, hidden or exposed must be ground smooth and rounded. Rivet heads, weld marks, or other imperfections are not acceptable.

6.11.4.2(8) Cutting and repairs for the proper installation of services are part of the work in this Agreement.

6.11.4.2(9) Obtain permits or special inspections.

6.11.4.2(10) Identify equipment with metal plates or labels permanently secured which include, where applicable:

- 6.11.4.2(10)(a) Manufacturer's name or recognized trademark
- 6.11.4.2(10)(b) Complete model identification
- 6.11.4.2(10)(c) Model, serial number and CSA U.L.C. and NSF identifications
- 6.11.4.2(10)(d) Electrical characteristics
- 6.11.4.2(10)(e) Direction of drive
- 6.11.4.2(10)(f) Controls
- 6.11.4.2(10)(g) Circuits, lines.
- 6.11.4.2(10)(h) Specific operating instructions

6.11.4.2(11) Identify equipment with temporary labels showing location and Item number per Specifications.

6.11.4.2(12) After installation has been completed and all items checked and adjusted where necessary for satisfactory operation, arrange for inspection of equipment. If items are found unsatisfactory, make necessary corrections and adjustments.

6.11.4.3 Protection and cleaning

6.11.4.3(1) Protect properly and efficiently all work against any damage. Repair any damage to equipment and/or building. Cooperate at all times to keep the area clean and free of all rubbish and debris. At the end, clean all equipment to permit immediate use by the Design-Builder. without further cleaning.

6.11.4.3(2) In areas where quarry tile is applied as a floor finish, ensure that no stainless steel is present if Muriatic Acid is being used to clean the tiles.

6.11.4.4 Maintenance manuals

6.11.4.4(1) Supply four (4) sets of manuals, bound and labeled, incorporating operating and maintenance instructions, including spare parts list and optional accessories for all items specified.

6.11.4.4(2) Identify each item, arrange in proper sequence and ensure that the numbers correspond to the specifications and drawings.

6.11.4.4(3) Provide an itemized lead sheet at the front of the manual with a list of the contents and the name and phone number of the service company.

6.11.5. Walk-in Coolers and Freezers

6.11.5.1 Scope of Work

6.11.5.1(1) Include detailed design, manufacturer, supply, installation, inspection and testing of:

6.11.5.1(1)(a) Refrigerated and frozen storage room assemblies.

6.11.5.1(1)(b) Mechanical refrigeration systems for refrigerated and frozen storage room assemblies.

6.11.5.1(2) Electrical Work Provided by Electrical Division

6.11.5.1(2)(a) Electrical work related to the food service equipment, refrigerated and frozen storage room assemblies, mechanical refrigeration systems for refrigerated and frozen storage room assemblies shall be and include:

6.11.5.1(3) In liquid tight flexible conduit and concealed within building walls and/or ceilings wherever possible.

6.11.5.1(4) From the building source or distribution point of power, through disconnect switches or starters to the terminals, connection box, circuit breaker panel or plug receptacles located on the equipment as per applicable codes.

6.11.5.1(5) All electrical control wiring required for the mechanical refrigeration systems including but not limited to inter-connections from remote condensing units, compressors or compressor parallel pack as specified, to the walk-in refrigerators and freezers.

6.11.5.1(6) Electrical wiring for the walk-in refrigerator and freezer including power supply to interior lights, light switches, door heaters, temperature alarms, evaporator coils, drain line heaters, electric defrost and solenoid valves.

6.11.5.1(7) Electrical inter-wiring of all walk-in refrigerator and freezer temperature alarms to building annunciator system, building security system and/or central refrigeration monitoring system as required.

6.11.5.1(8) Emergency power supply to all food service equipment as required to maintain food services during a power outage.

6.11.5.1(9) Supply and installation of all electrical receptacles located in floors, ceilings or walls.

6.11.5.1(10) Supply and installation of all electrical receptacles, junction boxes or sub-panels in millwork service counters.

6.11.5.1(11) Supply and installation of all motors integral with equipment complete with starters, internal thermal overload protection and disconnect switches.

6.11.5.1(12) Supply and installation of all internal wiring on custom fabricated items in a concealed and well supported manner and terminated inside circuit breaker panels or junction boxes ready for final connection by the electrical trades. All equipment shall be inspected by the local hydro authority and carry CSA and ULC approval.

6.11.5.1(13) Tag each multiple electrical wire or cable used in any custom fabricated piece of equipment to indicate the item serviced. When circuit breaker panels are used, identify each circuit.

6.11.5.1(14) Supply and installation of cords and plugs on equipment as required and match the plug with the respective receptacle.

6.11.5.2 Mechanical Work Provided by Mechanical Plumbing Division

6.11.5.2(1) Mechanical work related to the food service equipment, refrigerated and frozen storage room assemblies, mechanical refrigeration systems for refrigerated and frozen storage room assemblies shall be and include:

6.11.5.2(2) Concealed within building walls and/or ceilings wherever possible.

6.11.5.2(3) Supply, installation, rough-in, and connection of all supply and return lines as per code from building supply to the point of connection required for the complete operation of equipment.

6.11.5.2(4) Supply and installation of shut off valves, back flow preventers, line strainers, shock absorbers, pressure, temperature and pressure gauges and control valves or devices.

6.11.5.2(5) Supply and installation of chilled glycol water supply and return piping if required for the refrigeration systems.

6.11.5.2(6) Supply and installation of drain lines, traps, vent piping, clean outs connected drains for equipment, floor drains with funnels for open drains on equipment, floor drains with funnels and drain lines for evaporator coils.

6.11.5.2(7) Supply and installation of all floor drains for general drainage purpose, maintenance and cleaning, throughout the Facility.

6.11.5.2(8) Use chrome plated piping wherever exposed.

6.11.5.3 Mechanical Work Provided by Mechanical HVAC Division

6.11.5.3(1) HVAC/mechanical work related to the refrigerated and frozen storage room assemblies, mechanical refrigeration systems for refrigerated and frozen storage room assemblies.

6.11.5.4 Work Provided by Other Trades:

6.11.5.4(1) Supply and installation of floors, floor leveling materials and floor finishes throughout the foodservice areas as well as those required for, but not limited to, prefabricated insulated walk-in type refrigerated and frozen room assemblies.

6.11.5.4(2) Provision of all floor depressions required for foodservice equipment.

6.11.5.4(3) Provision of concrete curbs and bases around and under foodservice equipment.

6.11.5.4(4) Provision of sleepers with vibration isolation for refrigeration systems.

6.11.5.4(5) Provision of all building floor slab depressions, slab insulation, flexcell expansion joints and slab ventilation system(s) for prefabricated, insulated walk-in refrigerated or frozen room assemblies where specified.

6.11.5.4(6) Supply and installation of extruded styrofoam – Foamular 1000 or equal insulation in floor depressions or under concrete slab for all prefabricated, insulated walk-in type refrigerated and frozen room assemblies.

6.11.5.4(7) Supply and installation of in-fill concrete topping inside prefabricated, insulated walk-in refrigerated and frozen room assemblies which have depressed prefabricated insulated floor panels or extruded tyrofoam so as to make floor level with outside floors (allowing for floor finish thickness).

6.11.5.4(8) Supply and installation of all floor tile or other specified flooring finishes inside prefabricated, insulated walk in type refrigerated and frozen room assemblies including coving up inside and outside of prefab walls.

6.11.5.4(9) Supply and setting of sleeves in floors, walls and ceiling (as well as any related core drilling) for electrical, mechanical refrigeration, plumbing lines.

6.11.5.4(10) Supply and installation of structural supports or sleepers for roof top condensing units, condensers or evaporative condensers, exhaust and make-up air units as specified.

6.11.5.4(11) Supply and installation of structural support beams to anchor hanging rods for roof panels of all prefabricated, insulated walk-in refrigerated and frozen room assemblies and exhaust hoods.

6.11.5.4(12) Work related to the pre-fabricated insulated walk-in refrigerated and frozen storage room assemblies and mechanical refrigeration systems shall be, and include:

6.11.5.4(13) Supply, installation and erection of all prefabricated insulated panels required to insulate building structural columns that occur within walk-in type refrigerated and frozen room assemblies.

6.11.5.4(14) Supply and installation of internal and external bumpers as required.

6.11.5.4(15) Supply and installation of low temperature fluorescent lights with quick start.

6.11.5.4(16) Supply and installation of stainless steel flashings as required to conceal openings in prefabricated insulated walk-in type panels.

6.11.5.4(17) Supply and installation of stainless steel corner guards at all interior and exterior outside corners and insulated panels around building structural columns.

6.11.5.4(18) Supply and installation of viewing windows (heated for freezers) on sliding and hinged doors.

6.11.5.4(19) Supply and installation of removable enclosure panels from top of insulated walk in type refrigerated and frozen storage room assemblies to finished ceiling. Color and finish to match color and finish of room assemblies.

6.11.5.4(20) Supply and installation of insulated liquid refrigerant supply, hot gas and suction return lines required to interconnect mechanical refrigeration system components including piping runs from indoor and/or outdoor air cooled condensing units, compressors, compressor parallel packs to evaporator coils within prefabricated, insulated walk-in type refrigerated and frozen room assembly required in order to form a complete operating mechanical refrigeration system.

6.11.5.5 Miscellaneous

6.11.5.5(1) Conform to all laws, bylaws, rules, regulations and requirements of all authorities having jurisdiction.

6.11.5.5(2) All electrical equipment must conform to the Canadian Electrical Code, the Electrical Inspection Department Bulletins, the Electric Safety Code and the Canadian Standards Association. All equipment must have a C.S.A. approval label. Equipment that is not C.S.A. approved will be rejected, removed from the site and substituted for at no additional cost to the Contract.

6.11.5.5(3) Any plumbing or drainage systems shall conform to the Plumbing Code.

6.11.5.5(4) Each piece of equipment shall be accompanied by a label or certificate of approval.

6.11.5.5(5) All mechanical refrigeration system shall be supplied with safety relief valves, shut-off valves for each piece of equipment, refrigerant leak detectors and all other items as required by local regulations.

6.11.5.5(6) Equipment design and fabrication must conform with the National Sanitation Foundation and Provincial as well as Local Municipal Health Department Regulations.

6.11.6. PART 2 - Products

6.11.6.1 Materials

6.11.6.1(1) Fit all portable and mobile electrical equipment with cord and plug suited for the electrical characteristics and outlets specified for the equipment. Include grounding conductor in the cord.

6.11.6.2 Miscellaneous

6.11.6.2(1) All sealants shall be one-part silicone type, tackfree in less than one hour with complete cure achieved to 6mm depth in less than 24 hours. Sealant must not significantly alter its properties when set.

6.11.6.2(2) Sealant to remain flexible and resistant to damage from all normal environments of a commercial kitchen. It must not support the growth of bacteria, mould or fungi or discolor.

6.11.6.2(3) Sealant to be clear or as required to suit colour of surrounding materials.

6.11.6.3 Approved Manufacturers

6.11.6.3(1) All walk-in coolers and freezers to be manufactured by CANADIAN CURTIS or NORBEC

6.11.6.4 Prefabricated, insulated walk-in type refrigerated and frozen room assemblies

6.11.6.4(1) Materials

6.11.6.4(2) Stainless steel sheet metal (min. 24 ga): to CSA G1110.6 1968 type 304 with No. 4 finish.

6.11.6.4(3) Galvanized steel sheet metal: commercial grade to ASTM A526-M81 with galvanized zinc coating to ASTM A525-M80, designation Z275.

6.11.6.4(4) Mild steel: cold rolled sheet to SAE 1010 to 1020 suitably prepared for the specified finish.

6.11.6.4(5) Aluminum sheet metal: utility sheet with "stucco" pattern finish unless otherwise indicated.

6.11.6.4(6) Sealant: silicone sealing compound, eg. Dow Corning Silastic 732 RTV silicone adhesive/sealant.

6.11.6.4(7) Asphaltic paint: to CGSB 1-GP-108c, type 1.

6.11.6.4(8) Insulation shall be foamed-in-place polyurethane injected into the panels to form a rigid wall without the use of wood or metal structural members. Insulation shall have a "K" thermal conductivity factor of not more than 0.86 watts per square metre per degree Kelvin for a temperature difference of 38□C (100□F) and shall be rated as self extinguishing, fire retardant type. Overall wall thickness shall be a minimum of 76mm (3"), having a density of 40 kg per cubic metre.

6.11.6.4(9) Factory fabricate the exterior and interior walls, ceilings and floor panels using steel pressure dies and maintain uniformity.

6.11.6.5 Construction

6.11.6.5(1) All pre-fabricated insulated wall and ceiling panels shall bear a stamp indicating ULC approval.

6.11.6.5(2) Panel sections shall consist of exterior and interior metal pans with die formed flanged edges. Section edges shall have a matching tongue and groove profile to ensure self-alignment and to provide a continuous foam-to-foam airtight contact, when panels are locked into place. Flexible vinyl gaskets may be used in addition to the continuous foam-to-foam airtight contact.

6.11.6.5(3) Silicone between all panel joints to provide a clean finished appearance and to form air-tight vapour-proof joints. No wood framing to be used in wall or ceiling panels.

6.11.6.5(4) Panel sections shall be of modular design, assembled with eccentric locking devices, or approved equal, actuated from the interior of any of the rooms and enabling sections to be erected within 38mm of any building room, column and ceiling.

6.11.6.5(5) Steel for all panels to be painted shall be Satincoat or approved alternative, 0.595mm thick minimum. Paint shall be baked white enamel in two coats. All exterior panels not exposed to normal view to be 0.792mm core galvanized steel.

6.11.6.5(6) Door panels shall be insulated and finished as per exterior and interior panels with a minimum 865 x 1980mm clear door opening. Ensure that doors will close and seal opening.

6.11.6.5(7) Infitting flush hinged type doors (swing as indicated in item description) to fit door openings, insulated and finished same as panels, complete with 1015 high x 1.6mm thick stainless steel kick plates on both exterior and interior, as well as soft thermoplastic gaskets with magnetic steel core at top and both sides and adjustable rubber wiper gasket at bottom. Gaskets to be oil, fat, water and ultra violet resistant and to be replaceable.

6.11.6.5(8) Door hinges shall be self-closing type, with stainless steel pin and nylon cam-type bearing, of satin finished aluminum.

6.11.6.5(9) Latches to match hinges, for opening door by breaking force of trigger-action door closer and magnetic gasket. Latch to be capable of being locked with padlock and to have safety release handle. Adjustable sliding gasket on the bottom of each door. The magnetic force of the gasket must be sufficient to keep the door closed and airtight.

6.11.6.5(10) Foot treadles to match hinges and latches, for opening door without use of hands.

6.11.6.5(11) One trigger-action positive door closer, located on exterior, to assist in positive closing of door.

6.11.6.5(12) Anti-condensation heater cables shall be supplied and installed on all walk-in doors at gasket contact area, in snap-on channel, providing sufficient heat to prevent condensation and frost formation. Heaters across sill shall be protected with removable 1.60 stainless steel cover plates or angles. Heaters shall be inter-wired at factory, terminating in a junction box located on top of prefabricated insulated refrigerated and frozen room assemblies, ready for connection by electrical trades.

6.11.6.5(13) Provide appropriate number of fluorescent fixtures to ensure a 70 foot/candle (light intensity) at working level.

6.11.6.5(14) Where 4' long double tube fluorescent lights are specified for walk-in type refrigerated and frozen room assemblies provide CBM AW248 CWHO vapor proof type fixtures with electronic rapid start low temperature ballasts (-29 C) and standard 120 Volt switches. Double tube 4' long fluorescent fixtures to operate on 120/60/1. Terminate wiring for lights in junction boxes located on top of the prefabricated insulated refrigerated and frozen walk - in type room assemblies, ready for final connection by electrical trades. Use three way switches if more than one door is specified.

6.11.6.5(15) Provide and mount additional light fixtures for rooms with a floor area greater than 80 sq. ft. (7.43 metres square).

6.11.6.5(16) Each door panel section shall have on the latch side, approximately 1676mm above the finished floor, an operating toggle switch and pilot light, inter-wired within the panel to an interior fluorescent vapour proof light fixture complete with light tubes and suspended from ceiling panels.

6.11.6.5(17) Wiring shall terminate in a junction box on top of the prefabricated walk-in room, ready for connection by electrical trades. Use three-way switches if more than one (1) door is specified.

6.11.6.5(18) Provide L.E.D. readout thermometers to provide temperature readings from -40 C to +15 C and mount on latch side of door panel approximately 1525mm from floor. Cover sensing bulb with protective metal cover, same finish as walk-in.

6.11.6.5(19) Two-way pressure relief port shall be installed in freezer door panel and refrigerator door panels in rooms operating at +2 C or less. Anti-sweat heater cables in frame of port to prevent intake and exhaust ports from freezing. Vent port to be pre-wired within panel.

6.11.6.5(20) Where walk-in rooms are floor less, wall panels are to be fastened to screeds in lieu of floors; 76mm high screeds are to be of similar construction material and insulation to wall and ceiling panels. Screeds are to be installed plumb and level and secured to finished building floor.

6.11.6.5(21) Supply and installation of an alarm system for each prefabricated walk-in refrigerated and frozen storage room. Install the removable alarm system control box on the outside of each room. Supply and install inter-wiring from alarm system to junction box installed on top of each room. Alarm system shall be equipped with one contact for auxiliary remote alarm. Equip with temperature sensor, mounted inside prefabricated rooms and connect to the alarm system control box. Immerse capillary tube sensor in glycol bath. Run all wiring between the alarm system and junction box on top of prefabricated room through conduit and down inside of prefabricated wall panels to alarm system. Exposed wire is not acceptable and will be rejected.

6.11.6.5(22) Removable closure panels shall be installed from lower edge of erected ceiling panels to finished building ceiling and cover strips or angles to extend from building floor to ceiling closure panels between exposed ends of walk-in boxes and building wall. Closure panels, cover strips or angles to match finish of exposed exterior wall panels. Provide removable ventilation panels in front of each condensing unit.

6.11.6.5(23) Supply and installation of bumpers on all exposed exterior walls. Bumpers constructed of a solid hardwood base, 50mm X 200mm, clad with 1.6mm stainless steel. Fasten to pre-fabricated walk-in refrigerators and freezers with matching brackets mounted 300 mm from centre to finished building floor. Tops and vertical ends, where bumper makes contact with wall panels, are to be sealed.

6.11.6.5(24) Supply and installation of a 1.6 mm stainless steel protective plate 300mm high at 100mm above the finished floor, No. 4 finish all around the interior of each prefabricated refrigerated or frozen storage room. Factory mount a 1.3mm galvanized steel reinforcement in the interior of the prefabricated walls.

6.11.6.5(25) Supply and installation of 2.8mm stainless steel corner guards 150mm x 150mm x 1830mm H on all exposed exterior and interior corners.

6.11.6.5(26) Openings through walls or ceilings for electrical, plumbing or refrigeration lines must be sleeved, fit with grommets and sealed with an approved sealant.

6.11.6.5(27) Prefabricated walk-in refrigerated and frozen storage rooms covered under this section of the specification shall be fabricated to comply with Canadian Standards Association. The CSA label shall be affixed to the interior door jamb.

6.11.7. Mechanical refrigeration systems

6.11.7.1 Supply and installation of all mechanical refrigeration equipment and controls for refrigerators and freezers to form a complete and functional system.

6.11.7.2 Each individual system shall be sized by Design-Builder to suit the internal space, ambient temperatures and humidity levels of surrounding areas, product type and load, heat infiltration and temperature of incoming product in order to maintain the specified holding temperatures. The equipment supplier must verify all of this information with the Design-Builder and/or the Engineer of Record during the bidding period. Equipment sizes specified are to be used as a guideline only. Should an adjustment in the size of any refrigeration equipment be required, advise the Engineer of Record during the bidding period so that an addendum may be issued.

6.11.7.3 Design compressor and coil capacity on a 16 to 18 hour day compressor operation in 32.8 C ambient temperature maximum.

6.11.7.4 Design refrigeration equipment for use with Freon R404 for refrigerators and freezers (high, medium, and low temperature applications). Refrigeration equipment for use with Freon R22 will not be accepted.

6.11.7.5 All condensing units 3/4 H.P. or greater if specified, shall be Scroll type with motor, condenser, receiver, compressor, suction and discharger valves, oil separator, high/low pressure controls and all other necessary components with all service valves and controls readily accessible and easily serviceable.

6.11.7.6 Evaporator (coil) to be forced convection unit cooler type, made to be suspended from ceiling panels. Forced air discharge to be parallel to ceiling. Air circulation motor, multi-fin with tube type coil and grill to be assembled within protective housing. Expansion valve, with strainer, heat exchanger inlet and outlet service valve connections also to be contained within housing.

6.11.7.7 Construct evaporator entirely of non-corrosive materials. Air circulation motors to be life-time sealed and entire unit-cooler assembly readily accessible for cleaning.

6.11.7.8 Evaporator (coil) shall be equipped with mounting brackets, stainless steel drip pan, drain connection and required controls for a safe and satisfactory operation.

6.11.7.9 Mechanical refrigeration systems used for freezer applications shall have an automatic electric system for defrosting including heaters and time control. Defrost to be time initiated and temperature terminated with built in fail safe control and fan delay switch.

6.11.7.10 Thermostatic type expansion valves, all metal, moisture proof with gas charged bulb clamped to suction end of evaporator (coil). Freezers with 10 P.S.I. expansion valves.

6.11.7.11 Equip each prefabricated walk-in refrigerated or frozen storage room and refrigerated preparation/assembly rooms with a room thermostat to control solenoid valve. Mount solenoid valves on liquid lines, close to the cooling unit to control flow of refrigerant.

6.11.7.12 Condensate drain lines from evaporators (coils) to ensure a fall of 25mm in 610mm.

6.11.7.13 Install a PVC sleeve in the walk-in refrigerator wall where any pipe passes through. The sleeve shall be larger than the penetrating pipe to allow for a "permagum" packing and vapour seal.

6.11.7.14 All refrigeration piping shall be type "L" copper tubing hard drawn with "silfos" brazed joints, verified free of leaks. Completely dehydrate piping before charging with refrigerant.

6.11.7.15 Joints at equipment on lines 16mm O.D. and smaller shall be made with flareless compression fittings, Swagelock or Imperial "Hy-Seal". Joints on lines larger than 16mm O.D. shall be wrought copper solder joint fitting, with adaptor fittings where screwed connections are necessary.

6.11.7.16 Installation of piping shall conform to applicable requirements of ANSI code for Pressure Piping, Section on "Refrigeration Piping" and CSA Standard for "Mechanical Refrigeration Code". Refrigerant piping to obtain a pressure drop of less than 23 kPa per 50 metres in suction lines and 47 Kpa per 50 metres in liquid lines. To increase the velocity and assure proper oil return, install smaller diameter vertical risers on suction lines.

6.11.7.17 All new refrigerant piping is to be pressure tested with dry nitrogen and properly evacuated before recharging with refrigerant.

6.11.7.18 All refrigerant piping shall be properly identified as to service and direction of flow.

6.11.7.19 Use ‘home-run” refrigerant piping design.

6.11.7.20 Insulate suction lines with 16mm thick Armaflex, 19mm thick on freezer system; or approved equivalent fire retardant pipe covering, installed in strict accordance with the manufacturer's recommendations. Tape liquid and suction lines together.

6.11.7.21 Testing and evacuation procedure shall conform to ANSI B31.5 and test pressure shall be in accordance with CSA Code.

6.11.7.22 Evacuation shall be accomplished by the use of a vacuum pump to ensure removal of all moisture and non-condensable gases.

6.11.7.23 Provide all refrigerant required for charging and placing the system in proper operation. Charging shall be done through a new filter dryer and completed by a licensed refrigeration contractor holding a valid ODP.

6.11.7.24 If specified, equip all water cooled condensing units on a re-circulating building-chilled glycol water system with a three-way flow control valve. Balance control valve on the water line entrance and discharge valve filter before water flow valve, thermometer on water entrance and discharge. Supply and install three (3) gauges to measure the pressure in the water circuit: one (1) before the filter; one (1) after the filter; one (1) at discharge end of condenser. Operating conductors shall be closed loop cooling, 8.9 C supply water, 15.5 C return water.

6.11.8. Design and Performance Requirements

6.11.8.1 Delivery and storage of equipment

6.11.8.1(1) Coordinate deliveries of equipment in conjunction with construction activity and progress at the site.

6.11.8.1(2) Obtain and/or hold equipment ready for delivery in accordance with an agreed schedule which will permit completion of the work at the specific date.

6.11.8.1(3) Deliver, unpack and set in place all equipment in the designated position, ready for final connection of services, for units with electrical or mechanical connections.

6.11.8.1(4) Provide all necessary information within adequate time and in proper sequence regarding the exact location of openings, chases and any attachments or other fittings required for foodservice equipment.

6.11.8.1(5) Supply and deliver to the site in sufficient time all inserts, anchors, bolts, sleeves, ferrules and similar items for attaching to, or building into, masonry, concrete and other work for the proper anchorage and fixing of the equipment. Include necessary templates, instructions, directions and/or assistance in the location and installation of all items by other Subcontractors.

6.11.8.2 Installation

6.11.8.2(1) Caulk and seal equipment to walls, base pads, curbs, and adjacent equipment where required.

6.11.8.2(2) Leave installed work neat, cleaned and polished, well fitted into position, level, and in proper operating condition.

6.11.8.2(3) Promptly remove all rubbish and debris from the building and site as the work proceeds and on completion.

6.11.8.2(4) Activate, test and adjust all equipment and apparatus installed under this Agreement. Refinish and repair any painted and finished surfaces damaged during erection and installation. Hand over the completed installation in first class condition and working order.

6.11.8.2(5) Ensure electrical equipment is accompanied by label or certification of approval by Canadian Standards Association, Hydro Electrical Power Commission or Local Authority.

6.11.8.2(6) Ensure steam pressure equipment is accompanied by a "Certificate of Boiler" to satisfy Federal and Provincial requirements.

6.11.8.2(7) Finished work must be perfectly true and plumb with no warping, buckling or open seams. All edges, hidden or exposed must be ground smooth and rounded. Rivet heads, weld marks, or other imperfections are not acceptable.

6.11.8.2(8) Cutting and repairs for the proper installation of services are part of the work in this Agreement.

6.11.8.2(9) Obtain permits or special inspections.

6.11.8.2(10) Identify equipment with metal plates or labels permanently secured which include, where applicable:

- 6.11.8.2(10)(a) Manufacturer's name or recognized trademark
- 6.11.8.2(10)(b) Complete model identification
- 6.11.8.2(10)(c) Model, serial number and CSA U.L.C. and NSF identifications
- 6.11.8.2(10)(d) Electrical characteristics
- 6.11.8.2(10)(e) Direction of drive
- 6.11.8.2(10)(f) Controls
- 6.11.8.2(10)(g) Circuits, lines.
- 6.11.8.2(10)(h) Specific operating instructions

6.11.8.2(11) Identify equipment with temporary labels showing location and Item number per Specifications.

6.11.8.2(12) After installation has been completed and all items checked and adjusted where necessary for satisfactory operation, arrange for inspection of equipment. If items are found unsatisfactory, make necessary corrections and adjustments.

6.11.9. Protection and cleaning

6.11.9.1 Protect properly and efficiently all work against any damage. Repair any damage to equipment and/or building. Cooperate at all times to keep the area clean and free of all rubbish and debris. At the end, clean all equipment to permit immediate use by Design-Builder. without further cleaning.

6.11.9.2 In areas where quarry tile is applied as a floor finish, ensure that no stainless steel is present if Muriatic Acid is being used to clean the tiles.

6.11.10. Maintenance manuals

6.11.10.1 Supply four (4) sets of manuals, bound and labeled, incorporating operating and maintenance instructions, including spare parts list and optional accessories for all items specified.

6.11.10.2 Identify each item, arrange in proper sequence and ensure that the numbers correspond to the specifications and drawings.

6.11.10.3 Provide an itemized lead sheet at the front of the manual with a list of the contents and the name and phone number of the service company.

6.12 Furnishings (Division 12)

6.12.1. Millwork, Casework, Clinical Systems Furniture and Systems Furniture

6.12.1.1 In addition to the Design-Builder's obligation to provide Category B and E Equipment, the Design-Builder will provide and install all millwork, casework, clinical systems furniture, systems furniture and accessories as required to support the programs and functions described in Appendix 1A Clinical Specifications, as required to support the operation of the Facility, and in accordance with Mandatory and Advisory requirements contained within CSA -Z8000.

6.12.1.2 Appendix 1B Furniture and Medical Equipment lists the locations in which millwork, casework, clinical systems furniture or systems furniture are required. Subject to Sections 6.13.1.5(1) and 6.13.1.6(1), the Design-Builder may use millwork, casework, clinical systems or systems furniture interchangeably to satisfy the requirements of Appendix 1B Furniture and Medical Equipment. The Design-Builder will submit an initial layout and configuration submittal by the Authority.

6.12.1.3 The Design-Builder will establish which option (millwork, casework, clinical systems or systems furniture) best meets the Authority's functional needs for each space and will achieve the most appropriate level of flexibility, re-configurability, serviceability, and reusability between all areas of the Facility.

6.12.1.4 Millwork means custom fabricated wood or metal cabinetry and counter components and accessories that are installed with little or no modification. Millwork or casework may require mechanical, electrical power and data service connections.

6.12.1.5 Millwork or casework components can include but are not limited to work surfaces (such as counters and work benches) and storage (such as cabinetry, files, drawers, wardrobes and cabinets).

6.12.1.5(1) The Design-Builder will provide the following as millwork:

6.12.1.5(1)(a) kitchen and pantry counters, upper and lower cabinets, drawers and shelving;

6.12.1.5(1)(b) utility room counters, storage cabinetry and shelving;

6.12.1.5(1)(c) patient room wardrobes, including shelving, drawers, coat rods, counters and cabinets;

6.12.1.5(1)(d) workroom counters and storage;

6.12.1.5(1)(e) security kiosks; and

6.12.1.5(1)(f) vanity counters containing sinks.

6.12.1.5(1)(g) any other locations identified in Appendix 1A Clinical Specifications.

6.12.1.6 Modular Casework means a composition of factory produced, quickly installed parts that are easily replaceable, reconfigurable and interchangeable. Casework can be rearranged to change configuration or to include additional modules as needed.

6.12.1.6(1) The Design-Builder will provide the following as modular casework:

6.12.1.6(1)(a) lab casework;

6.12.1.6(1)(b) pharmacy casework;

6.12.1.6(1)(c) Intentionally deleted.

6.12.1.6(1)(d) Intentionally deleted.

6.12.1.7 Clinical systems furniture means a factory produced, component system designed to be replaceable, reconfigurable, and interchangeable, and designed for specific use in health care facilities. Clinical furniture systems can be rearranged to change the configuration or to include additional modules and accessories as necessary. Clinical systems furniture requires electrical power and data service connections.

6.12.1.7(1) Without limitation, the Design-Builder may use clinical systems furniture for the following:

6.12.1.7(1)(a) nursing workstations;

6.12.1.7(1)(b) charting alcoves;

6.12.1.7(1)(c) triage desk;

6.12.1.7(1)(d) unit clerk stations;

6.12.1.7(1)(e) team care stations;

6.12.1.7(1)(f) registration cubicles;

6.12.1.7(1)(g) adjustable height workstations;

6.12.1.7(1)(h) reception desks;

6.12.1.7(1)(i) information desks; and

6.12.1.7(1)(j) triage desks.

6.12.1.8 The Design-Builder will provide all accessories, storage, cabinetry, upper and lower shelving, keyboard trays and counters necessary to facilitate efficient clinical operations.

6.12.1.9 Systems furniture means a composition of factory-produced wall mounted or partition components that are easily reconfigurable and interchangeable. Systems furniture is designed for office or commercial use and includes accessories and attachments which complete its functionality. Systems furniture requires electrical power and data service connections.

6.12.1.9(1) Without limitation, the Design-Builder may use systems furniture for the following:

6.12.1.9(1)(a) office workstations including desks, shelving, cabinets, keyboards and accessories;

6.12.1.9(1)(b) cubicle partitions;

6.12.1.9(1)(c) reception desks;

6.12.1.9(1)(d) information desks; and

6.12.1.9(1)(e) work/study carrels.

6.12.2. Furniture

6.12.2.1 Furniture means loose or unattached items that can be rearranged to suit various activities and includes:

6.12.2.1(1) coffee tables and side tables;

6.12.2.1(2) unattached seating (such as chairs and stools);

6.12.2.1(3) waiting room seating;

6.12.2.1(4) sofas and lounge chairs and

6.12.2.1(5) office desks.

6.12.2.2 All furniture and millwork supplied by The Design-Builder will meet the following requirements:

6.12.2.2(1) Flexibility

6.12.2.2(1)(a) Products must offer modular solutions that will enable flexibility and LEAN principles to be practiced. Furniture pieces should:

(a)..1 allow for individualization;

(a)..2 possess the ability to be used in different applications or flex easily for future use;

(a)..3 use non-handed solutions that work in multiple configurations, when possible.

6.12.2.2(2) Durability

6.12.2.2(2)(a) Activity, waiting, and dining room furniture will be engineered for high traffic use.

6.12.2.2(2)(b) Patient room furniture will be designed in conjunction with healthcare professionals and facility residents and be tested to ensure durability and function.

6.12.2.2(2)(c) Furniture will conform to Upholstery Section under “Cleaning and Ease of Maintenance” for additional criteria related to durability.

6.12.2.2(3) Construction

6.12.2.2(3)(a) The quality and make of the product (its construction, finish materials, and maintenance requirements) will be suitable for long term use and be designed for intense performance.

6.12.2.2(3)(b) Products with replaceable components are preferred.

6.12.2.2(3)(c) Wood furniture should be avoided, particularly in clinical areas (such as patient rooms, waiting rooms, unit offices, nurses’ stations, staff rooms and conference rooms). Where utilized, wood pieces should be constructed of:

(c)..1 Solid wood frames of kiln dried wood for added strength and long term durability.

(c)..2 A frame capable of supporting varying weights and body types and offering ease and reassurance to both patients and care providers.

(c)..3 Plastic laminates can be used in place of real wood when a wood-look is desired.

6.12.2.2(4) Seating

6.12.2.2(4)(a) In waiting room and patient seating, steel tube construction and spring-seat construction are preferred.

6.12.2.2(4)(b) Seating with wall-saver legs or a wall-saver back design is preferred.

6.12.2.2(4)(c) Seating products with arms should include polyurethane arm caps rather than upholstered arm caps.

6.12.2.2(4)(d) See upholstered notes referenced throughout this document for information on upholstered seating products.

6.12.2.2(5) Tables

6.12.2.2(5)(a) For durability in waiting rooms and high traffic areas, horizontal table surfaces of solid surface material tops or plastic laminate are preferred.

6.12.2.2(5)(b) Low VOC polyurethane sealed woods can be used on vertical surfaces if plastic laminate is not available.

6.12.2.2(5)(c) Edges will feature an ergonomic profile for user comfort and be of durable material composition and construction.

6.12.2.2(6) Workstations/Desks

6.12.2.2(6)(a) Refer to individual specifications for material composition and finish information.

6.12.2.2(6)(b) When installed, two adjoining end panels of work surfaces will be leveled so work surfaces sit at the same height.

6.12.2.2(6)(c) Tack board, if specified with desk and/or workstation, between hutch and worktop, will span from work surface top to underside of overhead cabinetry leaving no visible gaps, while, at the same time, managing task light wires, if specified with assembly.

6.12.2.2(6)(d) Front edge of keyboard platform will be set back from front edge of work surface and/or table.

6.12.2.2(6)(e) Any “smart” or “hardwired” furniture will be fully coordinated for proper circuitry and any other building requirements.

6.12.2.2(7) Filing / Storage

6.12.2.2(7)(a) Filing is for letter filing, unless specified otherwise. In order to maximize filing capacity, files will be set up for side-to-side filing.

6.12.2.2(7)(b) During installation, the conversion parts of the files will be left in the file to allow for front-to-back / side-to-side conversion at a later time.

6.12.2.2(7)(c) Filing will be equipped with hanging frames at the time of installation.

6.12.2.2(7)(d) At a minimum, two-drawer files will include a counter- balance package as recommended by the product manufacturer.

6.12.2.2(7)(e) Lockable storage will be keyed as per the building keying system. Keying schedule to be determined with the Authority.

6.12.2.2(8) Filing / Storage Systems (Compact Shelving)

6.12.2.2(9) Cleaning and Ease of Maintenance

6.12.2.2(9)(a) The size, shape, and design of the furniture will allow easy access for cleaning.

6.12.2.2(9)(b) Materials, upholstery, and finishes will be capable of withstanding institutional grade detergents, cleaners, and disinfectants with no effect on the appearance, integrity, or life of the product. Selection should be based on the understanding of the principles of decontamination and maintenance requirements (able to withstand multiple applications of diluted disinfectants over time).

6.12.2.2(9)(c) The Design-Builder will request that manufacturers provide detailed cleaning and disinfection guidelines prior to the Design-Builder's purchase along with a thorough listing of which cleaning products can be used on their products. The Design-Builder will review instructions to ensure they are clear and cleanable with Authority approved detergents and disinfectants.

6.12.2.2(9)(d) Other upholstered soft furnishings will have the following characteristics:

(d)..1 Be seamless where possible or have double stitched seams located on the non-contact areas of the furniture or sealed.

(d)..2 Limited pleating.

(d)..3 Upholstered furniture in care areas will be covered with fabrics that are fluid-resistant, non-porous and can withstand cleaning with hospital grade disinfectants.

(d)..4 Seating will have removable seat cushions for cleanability and/or “clean-out” spaces between the seat and back for lounge seating applications.

(d)..5 Seating will have removable upholstery covers for both the seat and back, if applicable. Attic stock of the removable upholstery covers will be ordered with the original purchase, in the amount of 5% of the total waiting room and patient room seating.

(d)..6 Have high-destiny foam cores with a moisture barrier and resistance to mold.

6.12.2.2(9)(e) Upholstery will:

(e)..1 be impermeable to water and quick-drying;

(e)..2 be anti-microbial, and/or have anti-microbial inhibitor technology;

(e)..3 have a good abrasion rating for high-use areas (with a minimum of 100,000 DR (ASTM D4157- 02 Wyzenbeek Test Method);

(e)..4 have a high-rating for color-fastness, exceeding 40 hours (AATCC Method 16A);

(e)..5 be stain-resistant;

(e)..6 be latex-free;

(e)..7 have low volatile organic compounds;

(e)..8 contain no heavy metals;

(e)..9 have no halogenated flame retardant materials or perfluorinated chemicals;

(e)..10 have limited use of polyvinyl chloride, avoiding use of polyvinyl chloride where possible, subject to 6.13.5.(9)(c)

6.12.2.2(10) Infection Prevention and Control

6.12.2.2(10)(a) Organic finish substances (e.g. wood), which can be exposed to a liquid, and upholstered furnishings, will be avoided, or at least minimized, in areas where immunocompromised patients are present.

6.12.2.2(10)(b) The use of impermeable upholstery (such as vinyl) is permitted in high-risk areas (high-risk applies to any areas specifically used by patients/residents/clients, including patient rooms and waiting rooms) and any area where a healthcare worker goes after providing direct patient care (including team care station, staff lounge, report area, conference rooms and office within patient care areas). Polyurethane fabrics are preferred, if they meet the requirements of the application.

6.12.2.2(10)(c) Durable, cleanable fabrics are appropriate in low risk areas. A low level of risk applies to any office areas where staff members are not providing direct patient care, or return to after providing direct patient care.

6.12.2.2(11) Environmentally Sensitive

6.12.2.2(11)(a) Products will be GREENGUARD certified, and be designed to achieve reduced environment impact.

6.12.2.2(11)(b) If wood products are used, lumber should come from responsibly managed forests, with each piece utilized to its full capacity. Wood should have low formaldehyde emissions with little to no CFC's used in the production of the materials.

6.12.2.2(11)(c) Furnishings should follow the LEAN principles outlined in Section 3.4 of this Schedule and the LEED Gold Certification Requirements of Section 2.9 Construction Documents.

6.12.2.2(12) Comfort, Ergonomics, and Safety

6.12.2.2(12)(a) Waiting room furniture will be designed to promote comfort and long term durability.

6.12.2.2(12)(b) The product construction and design should avoid stress and fatigue to the patient.

6.12.2.2(12)(c) Seating will have the stability to assist the patient or visitor in entering and exiting the chair.

6.12.2.2(12)(d) All items of furniture (including tables) will be stable and will not move or tip over when touched by a person requiring support.

6.12.2.2(12)(e) Furniture will not constitute a hazard for persons who have visual limitations and will be usable by persons with varying abilities and disabilities.

6.12.2.2(12)(f) Products will accommodate and facilitate comfort and well-being.

6.12.2.2(12)(g) Back support will be provided on seating pieces, through the use of a high or mid back, to provide adequate back support to various populations.

6.12.2.2(12)(h) A minimum of 20% of seating will be designed to meet bariatric requirements of 720 lbs.

6.12.2.2(12)(i) Task seating will be ergonomically correct with respect to the seat height and pan depth. Seating will be height adjustable, with height adjustable lumbar support to maintain correct body alignment, adjustable back rest tilt, adjustable seat pan depth, height, width, and swivel adjustable armrests. The seat pan will have a waterfall edge on the seat pan or a radius front seat cushion to avoid restriction of circulation to the lower legs. The overall dimensions will be appropriate for the vast majority of users.

6.12.2.2(12)(j) General meeting room seating will have a backrest recline function, be stackable, mobile, cleanable and durable.

6.12.2.2(12)(k) Boardroom seating will be height adjustable, feature a backrest recline function, be stackable, mobile, cleanable and durable.

6.12.2.2(12)(l) Waiting room seating will include armrests to aid sitting and standing and have a raised seat pan for hip and knee considerations.

6.12.2.2(12)(m) All Behavioural Areas will receive furniture that are not harmful or will not allow patients to injure themselves or others. Security and safety are the main concern.

6.12.2.2(13) Office and Workstation Allocation Guidelines

6.12.2.2(13)(a) Single-user or Multi-user workstations for computer, reading, and writing:

(a)..1 Allow leg clearance and movement under the work surface and keyboard to be placed at elbow height for most users (27- 1/4 inches, 692mm).

(a)..2 Depth: Allow room for keyboard, document holder between the keyboard and monitor and monitor positioned for comfortable viewing (30 inches, 760 mm). Additional depth may be required depending on the tasks completed at the workstation.

(a)..3 Width: Accommodate keyboard and mouse, telephone, writing and reading areas (min. 27.6 inches, 700mm). Additional width depending on tasks completed at the workstation.

6.12.2.2(13)(b) The Design-Builder will be responsible for verifying field measurements to ensure proper clearance for fitting items per the specifications and drawings.

6.12.2.2(14) Supplemental Standards and/or Guidelines:

6.12.2.2(14)(a) In addition to the above listed features, furnishings will be designed and specified in accordance with all appropriate ergonomic design principles and best design practices of the Authority. Products should also meet minimum criteria set out in BC Building Code and in accordance with the Occupational Health and Safety Regulations and the Ergonomics (MSI) Requirements of WorkSafe B.C.

6.12.2.2(14)(b) The Facility and its components must be accessible by people with different functional capacitates including, children, the elderly, handicapped, and the disabled as defined in the BC Building Code. The Design-Builder will apply “Universal Design” principles in the design and planning to ensure the furnishings are usable by all people without the need for specialized design or adaptation. Counters, desks, and work surfaces in non-office areas will include wheelchair access for both patients and the public.

6.12.2.2(14)(c) Products, including foam and upholstery, will be fire retardant to meet applicable building code requirements.

6.12.2.2(14)(d) In undertaking the design and construction of work stations, incorporate the recommendations set out in the Authority document entitled “Sitting and Standing Workstations: Recommended Heights, Widths, Depths and Clearances” dated October 2009.

6.12.2.2(15) Furniture List and Specifications

6.12.2.2(15)(a) The furniture is described in the Equipment List in generic terms and by a furniture identification number. The quantity column demonstrates the number of identical items in a room. All room numbers, room names, and department names are the same or are derivatives of the Appendix 1: Clinical Specifications.

6.12.2.2(15)(b) Furniture pieces and layouts should follow the accessibility principles of the Facility as a whole. Refer to Accessible Design Section 3.11.

6.12.3. Laboratory Casework

6.12.3.1 General Approach

6.12.3.1(1) Provide laboratory casework:

6.12.3.1(1)(a) for the specific and particular functions to be performed by the casework;

6.12.3.1(1)(b) to give the end users a good working ergonomic environment that is suited to their specific needs; and

6.12.3.1(1)(c) with structural rigidity and chemical resistivity to withstand the service conditions for which they are exposed.

6.12.3.1(2) All casework will be modular and consistent throughout the Facility.

6.12.3.1(3) All casework will be lockable.

6.12.3.1(4) Casework will be wood, metal and/or epoxy resin, selected to minimize cleaning and maintenance operations and maximize infection control capabilities. Refer to Section 5.4.1.1(5) regarding use of wood.

6.12.3.1(5) All epoxy resin material bench tops will be acid resistant.

6.12.3.1(6) Provide all lab benches with cabinets for approximately 50% of the length of the benches.

6.12.3.1(7) Lab bench systems will hide and organize instrument tubing, electrical and/or data cables.

6.12.3.1(8) Casework will comply with all applicable standards, including:

6.12.3.1(8)(a) at a minimum, the quality standards of the Architectural Woodwork Manufacturer's Association of Canada (AWMAC) for Premium Grade; and

6.12.3.1(8)(b) the BC Building Code "Building Requirements for Persons with Disabilities".

6.12.3.1(9) Use non-toxic, non-solvent adhesive glue complying with AWMAC Quality Standards Manual, and that of Canadian "Eco-Logo" program or equivalent, with a Total Volatile Organic Carbon (TVOC) emissive content of 20 gr/litre.

6.12.3.1(10) Provide casework anchorage that complies with the seismic restraint requirements of BC Building Code.

6.12.3.1(11) Steel for cabinet construction for laboratory casework will be levelled prime quality furniture grade cold rolled steel.

6.12.3.2 Cabinets

6.12.3.2(1) Kill parts and sub-assemblies (doors, drawers, tracks and back panels) will be interchangeable in the field without requiring special tools. Doors and drawers will be interchangeable with like- sized cabinets. Cabinets will be constructed so that a standard height drawer can be removed and two ½ height drawers installed in its place. Likewise, a cupboard door or doors can be removed and replaced by a like-sized combination of drawers or vice versa. This interchangeability will permit rearrangement in the field of all components in addition to being able to relocate the entire cabinet, should changing needs dictate a revision in the layout of cabinets. All cabinets are to be enclosed with lockable doors; hardware will be stainless steel. Provide modesty panels where the back of the benches are exposed.

6.12.3.3 Wood Laboratory Casework

6.12.3.3(1) Cabinetwork and framing system will be constructed of prime grade selected materials to conform to AWMAC Premium Grade; Flush Overlay Cabinet construction.

6.12.3.3(2) Fabricate cabinets and cases as self-contained modules and in accordance with the best practices of the wood laboratory furniture industry. Finish exterior and interior surfaces to allow for relocation without the need of additional finishing.

6.12.3.3(3) Assemble units with concealed fasteners, or glued and screwed construction, making each unit rigid and self-supporting for use interchangeably in an assembly or for single unit use.

6.12.3.3(4) Use epoxy resin counter/bench tops and splash backs, to be provided in minimum two different colours, black in microbiology and different for the remaining use.

6.12.3.3(5) Finish exposed wood surfaces with a polymerizing two-component catalytic conversion varnish system specially formulated for chemical reagent resistance. The individual components will be chemically compatible to assure perfect adhesion and a top quality, durable finish.

6.12.3.4 Stainless Steel Casework

6.12.3.4(1) Fabricate from Type 316L, No. 4 finish stainless steel.

6.12.3.4(2) Corners will be welded, ground, polished and crevice-free. Joints and welds will be polished to a uniform No. 4 satin finish. No filler or solders will be used. Straight lengths will be one-piece with all seams, including field joints, welded.

6.12.3.4(3) Sound-deaden tops and reinforce with waterproof plywood core, bonded to tops with waterproof contact cement. Seal underside of top (plywood core) with a waterproof finish. The front edges of the tops will be marine edge. Form splashback as an integral part of the tops, radiused where the splashback occurs in the top. Bond all splashbacks to plywood core, bonded the same as specified for the tops. Fabricate countertops, splashbacks, and front aprons out of one piece of stainless steel. Weld counter and sink assemblies into single units without seams or joints. Drill splashbacks, tops and sinks to receive plumbing and electrical fittings.

6.12.3.4(4) Form integral sinks with all-welded rounded corners, seamless construction with all traces of welding removed. Weld stainless steel sinks integrally into tops without seams or joints. Slope tops for sinks and adjacent drain boards to sinks. Provide sinks with drain outlets with removable stainless steel strainer. Stainless steel bench and or counter tops are required where staining or similar procedures are performed.

6.12.3.5 Leg Frame Laboratory Casework System

6.12.3.5(1) The leg frame system will provide complete independent rigid support for all overhead shelving, undercounter suspended cabinets, service cover panels, countertops, sinks and fittings including all mechanical and electrical line work, as necessary to make the assembly operational.

6.12.3.5(2) The concept will permit the addition, relocation or removal of suspended base cabinets, the removal of the entire leg frame module including base cabinet and countertop, leaving intact the separate service strip with all its service fittings, service lines and cover panels as a finished operational component. The countertop height will be designed to be from desk to counter height adjustable without the addition of framing components.

6.12.3.5(3) Base framing modules on basic standard cabinet modules.

6.12.3.5(4) Steel frame will comprise vertical wall channels and independent self-contained pipe chase and leg sets which will allow for the removal and/or interchange of work surfaces, and suspended under-counter mounted cabinets and upper shelving. Determine pipe chase location in consultation with the Authority.

6.12.3.5(5) Fabricate system from prime quality furniture grade cold rolled steel. Form all components to create a rigid interlocking structure. All services will be fully accessible through removable cover panels, no special assembly tools are required. Bench legs to be fully adjustable. All legs will have Leveler bolt. Suspended cabinets will be interchangeable and easily moved from workstation to workstation. Adjustable leg frame modules will be capable of adjusting countertop heights in 25 mm increments from 750 mm height up to 1100 mm height.

6.12.3.5(6) Finish for steel surfaces will be as specified above.

6.12.3.6 Miscellaneous Accessories

6.12.3.6(1) Laboratory casework will include the following accessory items:

6.12.3.6(1)(a) countertops and splashbacks;

6.12.3.6(1)(b) service fittings;

6.12.3.6(1)(c) drying racks;

6.12.3.6(1)(d) pegboards;

6.12.3.6(1)(e) acid storage cabinets;

6.12.3.6(1)(f) flammable storage cabinets;

6.12.3.6(1)(g) glassware drying cabinets;

6.12.3.6(1)(h) framed sliding glass doors;

6.12.3.6(1)(i) sliding glass doors;

6.12.3.6(1)(j) open storage units;

6.12.3.6(1)(k) emergency eye wash;

6.12.3.6(1)(l) emergency shower head;

6.12.3.6(1)(m) safety shower station;

6.12.3.6(1)(n) bin cabinets;

6.12.3.6(1)(o) file drawer cabinets; and

6.12.3.6(1)(p) mobile cabinets.

6.12.4. Window Coverings

6.12.4.1 Provide window coverings as follows:

6.12.4.1(1) all exterior windows are to receive shading devices providing privacy, sun and heat control, that are easy to clean and do not support or provide a surface that encourages spread of infectious disease (i.e. do not become electrostatically charged);

6.12.4.1(2) roller shades are preferred for use on exterior windows.

6.12.4.1(3) all interior windows to receive blinds where privacy may be a concern,; and

6.12.4.1(4) in all inpatient rooms, including general medical and surgical units, maternity, newborn and paediatric units, ICU/Telemetry and mental health units, provide window coverings that prevent visibility into the patient bedrooms at night from the exterior.

6.12.4.1(5) any other locations identified in Appendix 1A Clinical Specifications.

6.12.4.2 Provide roller blinds at all glazed areas.

6.12.4.3 Blinds should be selected to provide optimum privacy, sun and heat control, are easy to clean, are not prone to become electrostatically charged and their surface does not encourage the spread of infectious disease.

6.12.4.4 Window coverings will allow control of exterior light entering the room during daylight hours and provide privacy during daylight and non-daylight hours.

6.12.4.5 Provide black-out window coverings for all patient rooms in the ICU, HDCU and LDRP provide motorized black-out window coverings in the operating rooms.

6.12.4.6 Where window coverings are required for black-out functions, provide materials, tracks, seals, and operation suited to that purpose.

6.12.4.7 Use window coverings manufactured from materials and mechanisms that minimize cleaning and maintenance operations and maximize infection prevention and control.

6.12.4.8 Unicell Horizontal venetian blinds are also discouraged other than for between-glass installation. Roller shades and vertical blinds are preferable.

6.12.5. Window Shade Systems

6.12.5.1 Use manual and motorized roller shades with one piece extruded aluminum roller tube, extruded vinyl fabric spline, aluminum profile hem bars.

6.12.5.2 Install recessed in ceiling pockets, facilitating easy removal and replacement. Use galvanized or zinc-plated steel mounting brackets and non-corrosive fasteners.

6.12.5.3 Use shading fabric of non PVC coated fibreglass yarn and that:

6.12.5.3(1) is waterproof, washable, rot-proof, flame-resistant, fungal and bacteria-resistant, colourfast to light, glare-reducing, and able to control heat gain and provide external visibility;

6.12.5.3(2) conforms to CAN/CBSB-4.162-M, “Hospital Textiles - Flammability Performance Requirements”; and

6.12.5.3(3) is tested in accordance with ASHRAE Standard 74073 for shading coefficient, fungal resistance in accordance with ASTM G21, and bacterial resistance.

6.12.5.4 Audiovisual Light Blocking Shades: Fabricated from black-out shade panel material, designed to eliminate all visible light gaps when shades are fully closed.

6.12.5.5 Manual shade operation with continuous loop bead chain, clutch, cord tensioner and bracket lift operator.

6.12.5.6 Motorized operation utilizing in-tube motor dive, externally located control wheels and manual switch control.

6.12.6. Venetian-Type Blinds between Glazing

6.12.6.1 Provide integral blinds, with controls on both sides, in interior glazing windows in the following rooms:

6.12.6.1(1) intensive care unit/telemetry unit: in between adjacent patient rooms, and from the charting counters at corridor outside;

6.12.6.1(2) medical/surgical inpatient rooms, maternity, newborn and pediatric inpatient rooms, psychiatric inpatient rooms: viewing window from corridor or team care station outside;

6.12.6.1(3) isolation patient rooms: viewing window from corridor or team care station outside;

6.12.6.1(4) viewing windows between ante room into the Isolation Patient Rooms; and

6.12.6.1(5) Emergency department ante room into the decontamination room.

6.12.6.2 In special areas such as the mental health / Psychiatry department, construct windows with blinds suited to the purposes unique to those areas and in accordance with the British Columbia Ministry of Health Standards for Hospital- Based Psychiatric Emergency Services: Observation Units.

6.12.6.3 Provide black-out capable blinds for viewing windows between the scrub sinks and operating room in Ophthalmic Surgery.

6.12.6.4 Blinds for the viewing windows between scrub sinks and Procedure Rooms will be manually operable.

6.12.6.5 Blinds will consist of tempered aluminum alloy slats uniformly spaced and 100% interlaced between cross-ladders on at least one tape. Use tapes with no special end rails required to attach the suspension members from the window opening to the blind.

6.12.6.6 Use a hardware/window design that does not allow air movement from a room to adjacent rooms. Openings in the glazing plane are not allowed.

6.12.6.7 The operator will be a specially constructed, permanent magnet capable of moving the blind assembly from a closed position in one direction to a closed position in the opposite direction.

6.13 Special Construction (Division 13)

6.13.1. Radiation Protection

6.13.1.1 Comply with all applicable requirements of Health Canada Safety Code 35 Safety Procedures for the Installation, Use and Control of X-Ray Equipment in Large Medical Radiological Facilities; and the applicable requirements of section 7 of WorkSafeBC's occupational health and safety regulations.

6.13.1.2 Provide radiation protection in walls, doors, floors, ceilings and windows as required and appropriate to protect staff and patients from x-ray, imaging digitizing, CT scanner, radiology, nuclear medicine radioactive storage decay and other rooms in the radiation protection shield.

6.13.1.3 Provide radiation protection by incorporating lead sheet of appropriate weight and thickness into wall and door assemblies and leaded glass manufactured for radiation shielding purposes into window assemblies.

6.13.1.4 Radiation shielding will be 9.75 kq/m2, not less than 0.9 mm lead to 2.1 m above the floor level as a minimum.

6.13.1.5 For sheet lead, comply with ASTM B749 Standard Specification for Lead and Lead Alloy Strip, Sheet and Plate and meet or exceed Federal Specification QQL-201F Grade C.

6.13.1.6 For lead-lined gypsum board, comply with ASTM C36 or and ASTM C1396/1396M, Type X.

6.13.1.7 For lead glass, meet or exceed Federal Specification DD-G-451.

6.13.1.8 For cassette transfer cabinets, meet or exceed MIL-C-3673 (DM) Radiation shielded.

6.13.1.9 For radiation shielded doors, meet or exceed American National Standards Institute/ National Woodworkers Manufacturers Association (ANSI/NWMA) Industry Standard for wood doors and NCRP Report #49.

6.13.1.10 Fabricate radiation-shielded doors using a single layer of sheet lead with wood core laminated on each side of the lead. Bond cores using poured lead dowels at edges.

6.13.1.11 Fabricate radiation-shielded door frames with lead-lining.

6.13.1.12 Lead glass or lead louvers occurring in radiation shielded doors will be equivalent rated to sheet lead in doors.

6.13.1.13 For lead-laminated gypsum wallboard, use a single unpierced sheet of lead.

6.13.1.14 For sheet lead applied directly to partition steel studs, provide a continuous and complete protective shield.

6.13.1.15 Provide radiation shielding barriers, mobile or fixed, modular and transparent barriers to protect medical personnel by providing a full body shield. Provide units with distortion-free, lead-plastic windows.

6.13.2. Magnetic Resonance Protection

6.13.2.1 Comply with all applicable requirements for Magnetic Resonance Imaging (MRI) equipment room shielding per manufacturer's specifications.

6.13.2.2 Provide quench venting per equipment specifications.

6.13.2.3 Provide slab recess to allow for level flooring finish to MRI room.

6.13.3. Cooler and Freezer Rooms

6.13.3.1 Provide walk-in cooler and freezer rooms, with freezer room floors recessed into the slab for "flush" walk-in.

6.13.3.2 Design room enclosure elements to accommodate movement in wall and structural movements without permanent distortion, damage to infills, racking of joints, breakage of seals, water penetration or glass breakage.

6.13.3.3 Design temperatures for cooler and freezer rooms will be as follows:

6.13.3.3(1) for cooler rooms: + 2oC to + 10oC;

6.13.3.3(2) for freezer rooms: -10oC to -25oC, with normal operation at + 4oC +/- ½oC;

6.13.3.4 Design floor, wall and ceiling panels to comply with ULC/ORD-C376 "Fire Growth of Foamed Plastic Insulated Building Panels in a Full-Scale Room Configuration".

6.13.3.5 Design floor, wall and ceiling panels with tongue and groove joints to achieve a maximum air leakage rate of 75 PaoF 0.00 m3/h-m2 and a water vapour permeance rate of 0.00 perms in accordance with ASTM E283 "Air Leakage Rate Testing" and ASTM E96" Water Vapour Permeance Rate Testing".

6.13.3.6 Design ceiling panels with internal reinforcing to provide a maximum deflection of 1/240 of span under uniform loading of 20 psf and to support refrigeration systems.

6.13.3.7 Design room assembly to permit replacement of components.

6.13.3.8 Allow for ceiling, piping, conduit and other interior dead loads imposed on the structure.

6.13.3.9 Provide components and accessories as follows:

6.13.3.9(1) Floor, Wall and Ceiling Panels: fabricated from commercial grade galvanized steel conforming to ASTM A526M with zinc coating to ASTM A525M, designation Z275, and finished on exposed surfaces with manufacturer's standard baked white enamel.

6.13.3.9(2) Panel Insulation: foamed-in-place polyurethane.

6.13.3.9(3) Doors: 915 mm x 2115 mm of same panel construction as panels, with soft perimeter gaskets, manufacturer's standard pre-wired light switch, dial thermometer, heavy duty door closer, spring loaded and self-closing hinges, latch, pull handles, kick-plate and threshold plate. Furnish freezer doors with anti-condensate heater, heated vent and pre-wired sill.

6.13.3.9(4) Provide self-supporting steel shelving racks in cooler rooms.

6.13.3.9(5) Refrigeration System for the kitchen: mini-rack refrigeration system installed in a convenient location for maintenance and serviceability and forced-air evaporators mounted on interior of units. Capacities, air delivery, dimensions to manufacturer's design. The mini rack refrigeration system to include the necessary quantity of low temperature and medium temperature compressors to meet the cooling demands. The mini rack refrigeration system to include one spare low temperature and one spare medium temperature compressor sized to maintain the total cooling demand should one of the compressors fail. Automatic switching between compressors to be provided.

6.13.3.9(6) Lighting: CSA approved vapour proof box with standard incandescent light fixture pre-wired to switch on door frame.

6.13.3.9(7) Alarms: Modulam MT, 1 local and remote to the BMS for each room.

6.14 Conveying Equipment (Division 14)

6.14.1. Codes and Standards

6.14.1.1 The following are essential:

6.14.1.1(1) Elevators shall conform all applicable federal, provincial and local codes, ordinances and bylaws, including the following standards (latest applicable edition and supplements;

6.14.1.1(1)(a) B651 Accessible design for the built environment

6.14.2. Elevators

6.14.2.1 The following are Essential:

6.14.2.1(1) Provide a minimum of two main public elevators which serve three levels (B, G, 2).

6.14.2.1(1)(a) Main public elevator shall have a cab that is hospital configuration (longer than deep) with minimum car dimensions of 1725 mm wide by 2745 mm deep and 3050 mm high.

6.14.2.1(1)(b) Main public elevator shall have a minimum capacity of 2270 kg.

6.14.2.1(1)(c) Main public elevator shall have 1370 mm wide, two-speed side opening doors.

6.14.2.1(1)(d) Main public elevator shall have front doors only.

6.14.2.1(1)(e) Main public elevator shall utilize machine-room-less (MRL) traction equipment with gearless machines.

6.14.2.1(1)(f) Main public elevator shall have rated speeds of not less than 1.0 m/s.

6.14.2.1(1)(g) Main public elevator shall have durable elevator cab finishes suitable for the environment, including stainless steel returns, handrails and bumpers, porcelain tile flooring, texturized stainless steel wall panels, and a mirror above the handrail on the back wall.

6.14.2.1(2) Provide a single main service elevator which serves three levels (B, G, 2) and two simplex service elevators (in Pharmacy, in Surgery) which serve two levels (G, 2).

6.14.2.1(2)(a) Service elevator shall have a cab that hospital configuration (longer than deep) with minimum car dimensions of 1725 mm wide and 2745 mm deep and 3050 mm high.

6.14.2.1(2)(b) Service elevator shall have a minimum capacity of 2270 kg.

6.14.2.1(2)(c) Service elevator shall have 1370 mm wide, two-speed, side-opening doors.

6.14.2.1(2)(d) Service elevator shall have front and rear doors at all levels served.

6.14.2.1(2)(e) Service elevator shall utilize machine-room-less (MRL) traction equipment with gearless machines.

6.14.2.1(2)(f) Service elevator shall have rated speeds of not less than 1.0 m/s.

6.14.2.1(2)(g) Service elevator shall have durable elevator cab finishes suitable for the environment, including stainless steel returns, handrails and bumpers, porcelain tile flooring, and texturized stainless steel wall panels.

6.14.2.1(3) Provide a single loading dock elevator which serves two levels (B, G).

6.14.2.1(3)(a) Loading dock elevator shall have a cab that is hospital configuration (longer than deep) with minimum car dimensions of 2135 mm wide and 2885 mm deep and 2440 mm high.

6.14.2.1(3)(b) Loading dock elevator shall have a minimum capacity of 3640 kg.

6.14.2.1(3)(c) Loading dock elevator shall have 1830 mm two-speed, side-opening doors.

6.14.2.1(3)(d) Loading dock elevator shall have front doors only at all levels served.

6.14.2.1(3)(e) Loading dock elevator shall utilize basement geared traction machines or machine-room-less (MRL) traction equipment with gearless machines.

6.14.2.1(3)(f) Loading dock elevator shall have rated speeds of not less than 0.5 m/s.

6.14.2.1(4) Equipment shall have a proven track record of at least five years in Canada, of satisfactory operation on other installations in similar environments and configurations.

6.14.2.1(5) Arrange that the equipment can be maintained and adjusted by any competent elevator company without the use of proprietary tools, information or equipment or, if such tools, information or equipment are required, provide them (these shall become the property of the Authority). Do not incorporate any running time, cycle counters, or trip counters that would cause the equipment to shut down or alter its operation in any way.

6.14.2.1(6) Elevators shall be provided with security card reader access.

6.14.2.1(7) Elevators shall be provided with CCTV cameras.

6.14.2.1(8) Elevators shall be provided with Hospital Service (aka code blue, Medical Emergency Operation).

6.14.2.1(9) All elevator signage visible to the public, audible messages, braille and tactile messages shall be in English and French.

6.14.2.1(10) Intentionally deleted.

6.14.2.1(11) Provide Emergency Power Operation such that all elevators are fed with emergency power and arrange that at least one elevator per group can operate simultaneously on emergency power. Coordinate with electrical design & requirements.

6.14.2.1(12) Elevators used for support services will be configured with platforms to accommodate easy movement of material carts.

6.14.2.1(13) Provide all permits, labour, materials, products, equipment, services and all else necessary for the design, manufacture, delivery, installation and services required for a complete and fully functioning elevator system.

6.14.2.1(14) Obtain and pay for design submission, registration, inspection and permit, as required (except for ownership and operating license), and make such tests as required by the British Columbia Safety Authority prior to licensing.

6.14.2.1(15) Refer to Sections 7.1, 7.4, 7.5, and 7.6 for requirements related to programming elevators to integrate with communication, networks, fire alarms and other systems in the Facility, to the approval of the Authority.

6.14.3. Scope of Work

6.14.3.1 Supply and install vertical transportation equipment.

6.14.3.2 Arrange and pay for all necessary permits, certificates, approvals, variances, and inspections.

6.14.4. Warranty

6.14.4.1 Warrant work of this Section for a period of 2 years against defects and/or deficiencies.

6.14.4.2 Maintain the manufacturer’s warranties on all communications systems equipment and ensure that the warranties are assignable to the Authority.

6.14.5. Maintenance

6.14.5.1 Provide full maintenance of the equipment for a period of 24 months after Substantial Completion.

6.14.5.2 Within one month following Substantial Completion, perform a complete clean-down of the hoist way, car top and machine room of each elevator.

6.14.5.3 Perform monthly maintenance at a minimum.

6.14.5.4 Provide twenty-four hour a day, seven days a week call-back service, including overtime callbacks.

6.14.6. Drawings and Submittal

6.14.6.1 Provide to the Authority Submittal in accordance with Schedule 2.

6.14.6.2 Submittal, as a minimum, the following drawings and Submittal:

6.14.6.2(1) General elevator arrangements;

6.14.6.2(2) Details of areas where the work joins the work of other trades;

6.14.6.2(3) Machine room layouts showing the location of the equipment;

6.14.6.2(4) Hoist way layouts drawings including the overhead, pit, car, frame and entrances details;

6.14.6.2(5) Cab details including the cab shell, platform, interior panels, ceiling, entrance, lighting and finishes, lanterns and position indicators;

6.14.6.2(6) Details of control panels such as hall stations, car stations, central control consoles or fire control panels showing the layout and detailing the design of switches and indicator lights;

6.14.6.2(7) Details of any display devices complete with examples of proposed displays, symbols and layout;

6.14.6.2(8) Show on the general arrangement or separately, details of frames, doors, sills and supports, lanterns and gongs, including views showing the relationship of hall stations, lanterns and entrances.

6.14.6.2(9) Provide as-built information at job completion prior to Substantial Completion.

6.14.6.3 Submit documentation to verify compliance with Project's LEED objectives and requirements.

6.14.7. Wiring Diagrams

6.14.7.1 Supply to the Authority wiring diagrams and data as required for the execution of the Work including schematics for speed control, dispatching system, interfaces, printed circuit boards.

6.14.7.2 Incorporate, as part of the schematic diagrams, a reference index ('road map') giving the location of electrical components and wiring interconnections for relay coils, relay contacts, field equipment, integrated circuits and other such devices, so that the position on the schematics of any of these items can be readily determined.

6.14.7.3 Supply, prior to the Substantial Completion inspection, three prints and one reproducible copy of the wiring and schematic diagrams revised to show changes that have been made.

6.14.7.4 Supply, prior to the Substantial Completion inspection, a PDF copy of the wiring and schematic diagrams revised to show changes that have been made.

6.14.7.5 If changes are subsequently made to the wiring or control, supply an additional two sets of marked-up prints and an additional PDF copy of marked-up prints of the schematics and field wiring diagrams showing the changes.

6.14.8. Operation and Maintenance Manuals

6.14.8.1 Supply to the Authority prior to Substantial Completion operation and maintenance manuals.

6.14.8.2 The operation and maintenance manual shall incorporate, at a minimum:

6.14.8.2(1) A cover page including Project title, address;

6.14.8.2(2) An index;

6.14.8.2(3) Contact details for the installer and manufacturer(s);

6.14.8.2(4) A warranty letter signed by a representative of Design-Builder having authority to bind the company;

6.14.8.2(5) Controller and drive manuals, including:

6.14.8.2(5)(a) A description of the controller user interface;

6.14.8.2(5)(b) The installation and user’s manuals;

6.14.8.2(5)(c) A list of fault and error codes;

6.14.8.2(5)(d) Troubleshooting and diagnostic procedures, methods of use and the adjustment of programmable parameters together with their settings at the time of final adjustment.

6.14.8.2(5)(e) As-Built wiring diagrams;

6.14.8.2(6) The operation of the equipment including special features, dispatching sequences, and such items as intercom systems and security systems;

6.14.8.2(7) Step-by-step instructions for the operation for special features such as Hospital Service, Firefighters' Emergency Operation, Independent service and Emergency Power service;

6.14.8.2(8) As-Built diagrams and drawings of operating panels (e.g. car panels, central control consoles) with descriptions of the function of switches and indicators;

6.14.8.2(9) A copy of the final submission to the authority having jurisdiction;

6.14.8.2(10) A copy of the final inspection report from the authority having jurisdiction;

6.14.8.2(11) Operation and maintenance manuals for other major components, including:

6.14.8.2(11)(a) Door operator;

6.14.8.2(11)(b) Emergency brake;

6.14.8.2(11)(c) Communication system;

6.14.8.2(11)(d) Safeties & governor;

6.14.8.2(11)(e) Hoist machine & motor.

6.14.8.2(12) Supplier and part name for other parts (ex: travelling cable, restrictors, retainers, interlocks, car top inspection station, guide means), excluding minor or generic items such as screws, bolts, hinges;

6.14.8.2(13) Full instructions for any special maintenance procedure, repair protocol, adjustment or test not addressed in CSA B44 Safety Code for Elevators and Escalators, the ASME A17.2 Guide for Inspection or the Elevator Industry Field Employee's Safety Handbook;

6.14.8.2(14) Manufacturers' recommended maintenance intervals for each major component.

6.14.8.2(15) A copy of the Maintenance Control Program.

6.14.9. Training

6.14.9.1 Provide a training session for the Authority's staff after Substantial Completion consisting of a review of the documentation and operation of the equipment and features.

6.14.10. Trademarks

6.14.10.1 Do not apply trade marks, company name or logo visible to the general public on any piece of equipment.

6.14.11. Fixtures and Finishes

6.14.11.1 Provide signal fixtures, such as push buttons and position indicators, with LED illumination.

6.14.11.2 Provide push buttons, with tactile plates corresponding in size.

6.14.11.3 Provide push buttons with metal targets.

6.14.11.4 Provide vandal resistant buttons, including:

6.14.11.4(1) An enclosure rating of not less than IP54 (per EN 60529);

6.14.11.4(2) A positive stop on the back of the button to prevent excessive force from transferring to the contact.

6.14.11.4(3) Buttons compliant with EN 81-71 Class 2.

6.14.11.5 Provide, unless otherwise indicated, stainless steel number four finish for visible natural metal finishes.

6.14.12. Operating Environment

6.14.12.1 Provide material and equipment to function normally when the ambient temperature is between 3.5 and 36.0 degrees Celsius (38 and 97 degrees Fahrenheit).

6.14.12.2 Provide material and equipment to function normally when the ambient relative humidity is between 25% and 100%.

6.14.12.3 Provide material and equipment to function normally when the supply voltage is within minus 10% and plus 8% of the nominal voltage and the frequency is within 5% of the nominal frequency.

6.14.13. Seismic Requirements

6.14.13.1 Comply with Section 6.14.13 (Elevator Safety Requirements for Seismic Risk Zone 2 or Greater) of the B44 Safety Code for Elevators and any other code which may govern the installation.

6.14.14. Generic Maintenance

6.14.14.1 Arrange that the equipment can be maintained and adjusted by any competent elevator company without the use of proprietary tools, software, information or equipment.

6.14.14.1(1) If such tools, software, information or equipment are required, provide them as “on board” equipment or as separate devices and these shall become the property of the Authority.

6.14.14.2 Provide a customer tool or such similar device if necessary to carry maintenance and testing activities (e.g. for temporarily bypassing the appropriate circuits for full load overspeed safety tests).

6.14.14.3 Do not incorporate any running time, dates, cycle counters or trip counters that would cause the equipment to shut down or alter its operation in any way.

6.14.15. Inspections

6.14.15.1 Arrange and pay for an acceptance inspection by the authority having jurisdiction prior to placing each elevator into public use, in accordance with CSA B44 Safety Code for Elevators and Escalators section 6.14.15 requirements as well as the requirements of the authority having jurisdiction.

6.14.15.2 Complete a commissioning inspection for contract compliance by a specialist in elevating devices having a QEI Elevator Inspector license from NAESA International.

6.14.15.3 Supply to the Authority the final acceptance inspection reports from the authority having jurisdiction and commissioning report(s) from the QEI Elevator Inspector.

6.14.15.4 Provide assistance as necessary for inspections by the Authority to verify that the work is in compliance with the Specifications.

6.14.16. Machine Room Equipment – Traction Elevators

6.14.16.1 Provide a machine of the gearless electric traction type or a basement geared traction hoisting machine (provide gearless for all MRL applications) including an AC motor, electromechanical brake, steel sheave shaft and traction sheave.

6.14.16.2 Provide a spring applied electric brake, held open by an electro-magnet actuated by the controller. Design the brake to automatically apply in event of interruption of power supply from any cause.

6.14.16.3 Provide an automatic reset governor located in the hoist way that can be maintained from the car top. When the governor has tripped, arrange that it will be reset when the car is moved in the up direction.

6.14.16.4 Provide sound and vibration isolation pads such that there is no direct contact between the machine and the building structure.

6.14.16.5 Provide a spring applied electric brake, held open by an electro-magnet actuated by the controller. Design the brake to automatically apply in event of interruption of power supply from any cause.

6.14.16.6 Provide an emergency brake to stop the elevator if it overspeed's or if it moves more than 500 mm (20") away from the floor with the doors open.

6.14.16.7 Provide a solid state regenerative drive complete with isolation transformers, filters (to meet IEEE Standard 519-1992 for Special Applications), and isolation pads.

6.14.16.8 Provide a digital velocity encoder on the motor, giving feedback to the controller on motor speed and position.

6.14.16.9 Provide a microprocessor based controller consisting of relays, contactors, switches, capacitors, resistors, fuses, circuit breakers, overload relays, power supplies, circuit boards, static drive units, wiring terminal strips, and related components all enclosed in a cabinet with hinged door panels.

6.14.16.10 Provide an electrically released brake system, to permit momentary nudging of elevator within the hoist way under test or emergency conditions.

6.14.16.11 For MRL applications, locate the controller room adjacent to the top of the elevator hoist way or remotely at roof level, immediately above, or in near proximity to elevator core.

6.14.17. Hoist way Equipment

6.14.17.1 Provide entrances consisting of doors, frames, sills, sight guards, door hangers, tracks, interlocks, door closers, gibs, and all other equipment required for a complete installation.

6.14.17.2 Provide entrance doors and frames finished in brushed stainless steel.

6.14.17.3 Provide standard 'T' section steel guide rails for the car and counterweight with brackets fastened to the building structure.

6.14.17.4 Provide spring mounted car and counterweight roller guides for elevators with a contract speed in excess of 0.76 m/s (150 fpm).

6.14.17.5 Provide suspension means of sufficient size and number to lift the load and ensure proper wearing qualities. Ensure that where ropes are provided, all ropes for a particular installation are from the same manufacturing run.

6.14.17.6 Provide a counterweight to counterbalance the elevator for smooth and economical operation with cast iron or steel plate weights contained in a structural steel frame, balanced to between 45 and 50 percent of the rated capacity.

6.14.17.7 Provide fascia from each hall sill to the entrance header below, extended into the pit and the overhead.

6.14.17.8 Provide a car frame constructed of steel channels and a platform constructed of steel channels with a wood or metal sub-floor.

6.14.17.9 Isolate the frame and platform from one another so that there is no metal to metal contact in order to prevent the transmission of noise and vibration.

6.14.17.10 Mount the elevator cab shell on the platform in alignment with the hoist way entrances. Isolate the cab from the car frame and platform.

6.14.18. Cab Equipment

6.14.18.1 Provide car doors, jambs, headers, hangers, tracks, door closers, gibs, electrical contacts, and all other equipment required for a complete installation.

6.14.18.2 Provide swing return car stations incorporating floor push buttons, door open and close buttons, an alarm button, a phone button, and other fixtures required for normal operation.

6.14.18.3 Provide for each floor button a call registered light and momentary audible tone.

6.14.18.4 For Patient Transfer/Service Elevators and dedicated surgical processing elevators provide Door Hold Open Push Button in car stations.

6.14.18.5 Provide a firefighters' emergency operation panel.

6.14.18.6 Provide in the car station a locked service cabinet containing devices other than those used for normal operation.

6.14.18.7 Engrave the car station with the elevator capacity, identification number, government installation number, and other markings required by code.

6.14.18.8 For each elevator with front and rear doors provide two car stations. Otherwise, provide one car station per elevator.

6.14.18.9 Provide a digital (dot matrix or segmented) car position indicator located above each car station with a minimum 50 mm (2") high display.

6.14.18.10 Do not install any certificates or licenses in the cab. Arrange and pay for a variance from the authority having jurisdiction for this, if required.

6.14.18.11 Provide a voice synthesizer for each elevator with automatic verbal announcement of each floor at which the elevator stops. Provide a system that is capable of providing a variety of other messages and indications as may be required by the Authority at a later date.

6.14.18.12 Provide a multiple infra-red beam door detector device capable of reliably detecting carts, wheelchairs of varying heights and finishes, including chrome.

6.14.18.13 Provide battery operated emergency cab lighting.

6.14.18.14 Provide a two speed exhaust fan mounted in the cab top.

6.14.18.15 Provide a heavy duty closed loop door operator to open and close the car and hoist way doors simultaneously with an average opening speed of 600 mm (24") per second and an average closing speed of 300 mm (12") per second.

6.14.18.16 Provide a linear door operator with either one or two permanent magnet synchronous AC drive motors rated at a total of 250 W minimum.

6.14.18.17 Provide a hands-free two-way voice intercommunication / telephone system. Provide communication from each car to the building's security station located in the Hospital.

6.14.18.18 Provide pad hooks in each main public elevator. Provide one set of cab protective pads that cover all walls and the cab front return panel.

6.14.18.19 Provide in each main public elevator an LCD video screen capable of displaying programmable messages and video.

6.14.19. Hall Equipment

6.14.19.1 Provide hoist way access switches located in the entrance frame or in the hall door sight guard at the terminal landings for each elevator regardless of the elevator speed or floor-to-floor heights of the elevator.

6.14.19.2 Provide hoist way door unlocking devices (by lunar key) on the hall doors at all floors.

6.14.19.3 Provide one riser of hall stations for each group of elevators.

6.14.19.4 For each elevator, provide a digital (dot matrix or segmented) hall position indicator located above the main floor entrance with a minimum 50 mm (2") high display.

6.14.19.5 For the Main Public elevators, provide hall lanterns with electronic tones at each entrance.

6.14.19.6 For single elevators, provide either in-car lanterns with electronic tones or hall lanterns with electronic tones at each entrance.

6.14.19.7 Provide a remote fire recall switch for each group of elevators at the CACF (or Fire Alarm Panel).

6.14.19.8 Provide, at the CACF (or Fire Alarm Panel), a lobby panel for the elevators that includes car position indicators, in-service pilot lights, parking switches, emergency power indicators, Firefighter's Emergency Operation indicators, voice communication and other elements required by the Specifications.

6.14.19.9 Arrange that the elevators are tied into the BMS for monitoring. At a minimum, an elevator management system shall be provided that will monitor the elevator operation and status, generate fault log reports, and provide the ability to lock-out service (car and hall calls) to any floor.

6.14.20. Electric Wiring

6.14.20.1 Provide copper wiring to connect the equipment.

6.14.20.2 Run the wire in metal conduit, duct or electrical metallic tubing.

6.14.20.3 Provide travelling cable between car stations and the controller in the machine room.

6.14.20.4 Provide at least eight pairs of spare shielded wires and two spare coaxial conductors in the travelling cable. This is in addition to the wiring identified elsewhere in this specification and required for the basic operation of the elevators.

6.14.20.5 Provide at least ten percent spare wires in each travelling cable.

6.14.20.6 Provide on the controller a separate junction box for non elevator devices such as telephones, cameras, and security systems.

6.14.21. Operational Features

6.14.21.1 Provide for installation of security cameras in the elevators. Install and wire the security cameras provided by another trade. Provide the required wiring in the travelling cable run between the car top and the controller as well as power to the car top for the camera.

6.14.21.2 Provide equipment and labor for the future installation of a card reader security system to control car calls. Provide the required wiring between the card readers and the elevator security box in the machine room along with appropriate elevator controller connections and circuits for the security system (including floor tracking). Arrange that the elevator system functions without restriction by the security system until such time that that the security system is installed.

6.14.21.3 For Main Passenger Elevators and the patient transfer (Pharmacy, Surgery) elevators provide Hospital Service (also known as code blue or Medical Emergency Service) and Priority Service Operation with key switches at each all floors served, in each cab, and provisions for remote activation of these features.

6.14.21.4 For all elevators providing access to patient care areas provide Wandering Patient System Operation and Infant Abduction System Operation such that the elevator is locked down when activated.

6.14.21.5 Provide independent service.

6.14.21.6 Provide Firefighters' Emergency Operation (Phase 1 and Phase II) for all elevators.

6.14.21.7 Provide emergency power operation of the elevators such that all elevators are fed with emergency power and arrange that at least one elevator per group can operate simultaneously on emergency power.

6.14.21.8 Provide equipment and features complying with the applicable seismic requirements of the Code.

6.14.22. Performance

6.14.22.1 Cause the car to stop automatically at floor level, without overshoot, regardless of load or direction of travel so that the car sill is level, within 6 mm, with respect to the hoist way sill.

6.14.22.2 Arrange that the horizontal acceleration front to rear or side to side measured in the car with the elevator travelling, with a load of less than 10 per cent of capacity, from top to bottom and bottom to top does not exceed 0.15 m/s2 measured between two consecutive points of opposite value.

6.14.22.3 Arrange that the vertical acceleration measured in the car with the elevator travelling, with a load of less than 10 per cent of capacity, from top to bottom and bottom to top at contract speed, does not exceed 0.10 m/s2 measured between two consecutive points of opposite value.

6.14.22.4 Adjust the door equipment so that the noise level is less than 60 decibels during a full door open and door close operation. Measure the noise levels using a sound level meter set to the "A" scale for a fast response.

6.14.22.4(1) Arrange the machine room equipment so that the noise level with the elevator running is less than 78 decibels. Measure the noise levels using a sound level meter set to the "A" scale for a fast response.

PART 7. FACILITY SERVICES SUBGROUP SPECIFICATIONS

7.1 Fire Suppression (Division 21)

7.1.1. Fire Protection

7.1.1.1 Basic Requirements

7.1.1.1(1) Provide all required fire protection for the Facility.

7.1.1.1(2) Fire protection sprinkler and standpipe systems (if required by code) will be combined systems with 65mm fire department hose connections for the standpipes located in exits in accordance with applicable codes and standards.

7.1.1.1(2)(a) If required, additional hose connections will be provided to meet the area limitations as indicated by NFPA 14.

7.1.1.1(3) Installation of the sprinkler systems will be in accordance with applicable codes and standards.

7.1.1.1(4) 65mm fire department hose connections will also be required at the highest landing of stairways with stairway access to a roof or on roofs with a slope less than 4 in 12 where stairways do not access the roof.

7.1.1.1(5) The Facility will be divided into sprinkler zones that coincide with smoke control and fire alarm zones.

7.1.1.1(5)(a) Each sprinkler zone will be served by a zone control valve connected to the fire line riser.

7.1.1.1(5)(b) Fire protection sprinkler zone areas in the Facility containing patient sleeping rooms will match the Facility fire compartment floor areas as defined by the BCBC. Maximum area of each zone will be 1,000 m2.

7.1.1.1(6) Seismic bracing will be provided for all fire protection systems.

7.1.1.1(7) The fire protection systems and equipment will be designed to the occupancy classification that it protects.

7.1.1.1(8) The sprinkler system is to be designed as per NFPA 13 and the BCBC.

7.1.1.1(9) The primary sources of water for fire protection systems will be fed from two different Municipal water services.

7.1.1.1(9)(a) Connections will have premise protection consisting of approved detector-type double check valve assemblies with approved listed OS&Y gate valves on both sides complete with tamper switches.

7.1.1.1(10) Incorporate redundancy in the installation to maintain uninterrupted Facility operation while cleaning, servicing, repairing, or replacing devices.

7.1.1.1(11) Design-Builder to confirm if a fire pump is required based on lowest available water pressure from each municipal service.

7.1.1.1(12) The fire pump will be complete with a fire pump controller with integral transfer switch for essential system power supply. The fire pump assembly will be approved by UL, ULC, FM, CSA and comply with NFPA 20. Each fire pump will be complete with a pressure maintenance pump (jockey pump) and controller installed in compliance with applicable Standards.

7.1.1.1(13) Provide dry-type sprinkler heads and / or a dry-type sprinkler system in all areas that may be subject to freezing temperatures. Wet sprinkler piping serving dry-type sprinkler heads will run within heated spaces.

7.1.1.1(13)(a) Heat tracing of branch lines will not be permitted.

7.1.1.1(14) Provide a double interlocked pre-action sprinkler system complete with detection devices in critical rooms where water damage will affect the operation of key areas/equipment, including the following rooms.

7.1.1.1(14)(a) Main electrical transformer and switchgear room(s);

7.1.1.1(14)(b) Primary and Secondary equipment and Communications room(s);

7.1.1.1(14)(c) Rooms with medical imaging equipment;

7.1.1.1(14)(d) Auto-line in the lab services area; and

7.1.1.1(14)(e) All IT rooms.

7.1.1.1(15) All sprinkler system piping, hangers, sprinkler heads and accessories installed in MRI spaces will be non-ferrous. Sprinkler heads will be listed and approved for installation in MRI spaces.

7.1.1.1(16) Provide water curtain sprinklers or other fire protection measures necessary to maintain fire ratings at or near adjacent buildings, along paths of egress, and/or as required for any code equivalencies.

7.1.1.1(17) Provide concealed pendant quick-response type sprinkler heads in all areas with dropped ceilings with temperature ratings to suit the specific hazard area. Escutcheon plate to be chrome plated. Concealed sprinkler heads within operating rooms, clinical spaces, laboratories and cleanrooms will be provided with an air and dust seal as provided by the sprinkler head manufacturer for an acceptable sprinkler seal in these clean areas.

7.1.1.1(18) Provide wire cage guards over sprinkler heads in areas where sprinkler heads are susceptible to damage. Provide wire cage guard for all sprinkler heads in all IT rooms.

7.1.1.1(19) Provide all fire extinguishers as required under applicable Standards and any additional as required by the local Fire Department. Fire extinguishers will be selected and installed based on the hazard classification of the space it serves. Fire extinguishers in finished areas will be installed within fully recessed cabinets. Fire extinguisher cabinets in mental health areas will have a lockable door without glass, accessed by key (held by Staff and FMO).

7.1.1.1(20) Provide fully recessed sprinkler zone control cabinets with shut-off valves, flow switches and flow switch test connections that are readily identifiable and accessible from the floor level. Zone control valves are not to be located in ceiling spaces. Cabinets will have recessed hinges and latches.

7.1.1.1(21) Fire department connection(s) and location(s) will be approved by the authority having jurisdiction. Type of hose inlet connections (threaded or Storz) will be as required by the Fire Department.

7.1.1.1(22) Provide spare sprinkler heads of each type and a wrench suitable for each head type.

7.1.1.1(22)(a) 6 extra sprinkler heads for less than 300 sprinklers,

7.1.1.1(22)(b) 12 for 300 to 1000 sprinklers, and

7.1.1.1(22)(c) 24 for over 1000 sprinkler heads of each type.

7.1.1.1(23) Provide fire suppression systems for all commercial kitchen NFPA 96 range hoods.

7.1.1.1(23)(a) Each individual hood will be served by a separate system.

7.1.1.1(24) Fire suppression systems supply piping will be routed away from areas where a leak or a break could endanger vulnerable patients, equipment or supplies. Fire suppression piping will not be run within or through IT rooms except for piping required to service the IT rooms.

7.1.1.2 Performance Criteria:

7.1.1.2(1) All fire protection systems will be hydraulically sized to NFPA standards. Hydraulic calculations will include the applicable inside/outside hose stream allowance for the hazard served.

7.1.1.2(2) All fire protection equipment will be ULC approved.

7.1.1.2(3) All fire protection equipment installations will be in accordance with manufacturers' requirements and will be in compliance with all BCBC and applicable NFPA requirements.

7.1.1.2(4) Design-Builder installer will be licensed and regularly engaged in the installations of fire protection systems and will install, test, commission and certify all fire protection systems and equipment. Commissioning will include the kitchen exhaust hoods fire suppression systems.

7.2 Plumbing (Division 22)

7.2.1. Site Services

7.2.1.1 Basic Requirements

7.2.1.1(1) Provide the following services to the Facility:

7.2.1.1(1)(a) Municipal water service, for domestic water use and fire protection. Natural gas, sanitary, and storm services as required to meet the usage needs of the Facility, plus 20% additional capacity in each service for future allowance.

7.2.1.1(1)(b) Coordinate locations of these services with the requirements of Part 4 and the municipal service providers.

7.2.1.1(2) Water supply to the Facility will be provided by two separated and isolatable Municipal water services for full redundancy to the site.

7.2.1.1(2)(a) Each water supply will be complete with pairs of 100% redundant premise isolation backflow prevention stations.

7.2.1.1(2)(b) Each water supply will combine into a common main within the Facility, complete with isolation valve, upstream of required PRV station and domestic water booster pumps.

7.2.1.1(2)(c) Each water service will be capable of supplying the domestic and fire service demands plus an additional future demand of 20%.

7.2.1.1(3) Provide new medical oxygen services from the designated bulk oxygen site to the Facility.

7.2.1.1(4) Provide flexible pipe connection on all water and sewer, natural gas and medical gas services at the exterior face of the Facility. Flexible connectors will be specifically designed to withstand seismic activity and will have the ability to accommodate both vertical and horizontal seismic movement.

7.2.1.1(5) Sub Surface Drainage

7.2.1.1(5)(a) A geotechnical engineer is required to be retained by Design-Builder to determine the extent and scope of ground water subsurface drainage that will need to be handled from the site.

7.2.1.1(5)(b) If it is determined that subsurface drainage will be required to alleviate water pressure exerted onto the bottom of the foundations and/or floor slabs all work will proceed with the recommendations of the geotechnical engineering report.

7.2.1.1(5)(c) All under slab drainage will be required to be collected into a sediment sump chamber and / or pump chamber, which will be capable of handling the maximum design flow rate, and delivering the discharge to the site storm system.

7.2.1.1(5)(d) All elements of the under slab drainage system are to be co-ordinated with the Structural design.

7.2.1.1(6) Provide utility meters for domestic water and natural gas services to the Facility. The location of the water and gas meters will be coordinated with the appropriate utility provider. Each meter will have the ability to connect to the Facility BMS system and will also have remote readers compatible with the Municipal water meter program.

7.2.1.2 Performance Criteria

7.2.1.2(1) Municipal water services provided to the Facility will meet the water quality requirements outlined in applicable codes and standards.

7.2.1.2(2) Installation of the new water service will also be required to meet the requirements of NFPA for all fire services supply mains.

7.2.1.2(3) Installation will incorporate redundancy to maintain uninterrupted Facility operation while cleaning, repairing, or replacing devices.

7.2.1.2(4) Domestic water pressure serving the Facility will be as provided by the Municipal water systems and should be considered constant under all normal operating and seasonal conditions.

7.2.1.2(5) If domestic water system pressure exceeds the acceptable delivery pressure noted in the BCBC of 80 PSI, then pressure reducing valves will be required with 100% redundancy.

7.2.1.2(6) Place the pressure reducing valves in an accessible locations with in the mechanical room.

7.2.1.2(7) All service piping within the Facility will be accessible. No service piping inside or outside the Facility will run in or under any concrete slabs.

7.2.2. Plumbing Distribution Systems

7.2.2.1 Basic Requirements

7.2.2.1(1) Design the plumbing distribution systems to avoid disruption to the operation of the Facility during maintenance or repairs and so that, as much as possible, rooms do not need to be entered when performing these functions. Locate all isolation, maintenance, balancing, and other service valves in the corridor ceiling spaces or behind lockable security access panels and ensure they are accessible to the maintenance staff.

7.2.2.1(2) Provide solenoid type water shutoff valves to groups of fixtures in high risk secure rooms, mental health and Inpatient Units. Valves are to be controllable from the team care station and to be monitored and controllable from the BMS. Install manual valves upstream of the solenoid valves for maintenance purposes. Access to water shutoff valves is not permitted within the secure room.

7.2.2.1(3) Cross-connect all water service mains within the Facility to allow for seamless Facility operation from either water service. There will be no dead-legs in any service mains or branch lines to prevent stagnant water.

7.2.2.1(4) All backflow preventers will be installed and located in areas where maintenance and testing of the devices can be properly and easily addressed.

7.2.2.1(5) Drainage for all backflow preventors will be provided in the immediate vicinity of the backflow prevention stations and are to be sized to handle both the maintenance and operational flow rates from the backflow preventers in full operational mode.

7.2.2.1(6) In locations throughout the facility where back flow preventers are required to serve equipment in finished areas, the entire assembly will be installed in a stainless steel cabinet with a solid door with a key access. The cabinet will have a drain connection adequately sized to accommodate the discharge from the backflow preventer relief ports. All downstream drainage piping will be sized to accommodate the relief port flow.

7.2.2.1(7) Distribute domestic water and recirculation systems by means of risers to each floor area, two risers between :0 and L1, and four risers (two pairs) between L1 and L3. Provide isolation valves to limit on-floor areas served by each zone valve from the riser to a maximum of 18% of the total floor area in each zone. Each pair of risers will interconnect on each floor, all risers will interconnect on L3 and L1, with a minimum 50mm water connection for each service. The interconnection at the top of the risers will be valved and locked during normal operation.

7.2.2.1(8) Provide self-cleaning strainers on each incoming domestic water service.

7.2.2.1(9) Provide water softening systems on water services to the domestic hot water system, steam generation, and cooling tower make-up. Provide N+N redundancy such that there is no disruption in either water service when maintenance or replacement of components is required.

7.2.2.1(10) Provide turbine style water meters with remote readers and be capable of connection to the facility BMS.

7.2.2.1(11) The incoming water stations will incorporate 100% redundancy to maintain uninterrupted Facility operation while cleaning, repairing, or replacing devices including PRVs within the water station.

7.2.2.1(12) Place the valves stations in accessible locations within the mechanical rooms with provisions for adequate drainage of all components in the immediate vicinity of the stations.

7.2.2.1(13) Pressure reducing valves dedicated to specific equipment throughout the facility with specific pressure requirements may be mounted beside the equipment served and do not require redundancy.

7.2.2.1(14) If the lowest expected Municipal service pressure is insufficient to meet the worst case pressure requirements, provide a domestic water booster pump system, in an N+1 configuration, to serve the Facility.

7.2.2.1(14)(a) The number and arrangement of pumps will be such that peak demand will be met in the event of failure of any one pump. The number of pumps in the pump package will address both high and low flow conditions and the associated issues related to variable speed capabilities. If all conditions cannot be met, then additional pumps will be required to be added to the package.

7.2.2.1(14)(b) Pumps will be connected to delayed essential power and will be required to provide minimum pressure requirements on the top floor. Include the domestic water pumping system in the emergency generator calculations. The system will provide uninterrupted water service and constant pressure under all conditions including during the post disaster period.

7.2.2.1(14)(c) The domestic water booster pump system serving the Facility will be capable of operating during post disaster conditions where a tanker water supply will be provided.

7.2.2.1(15) Domestic water service, to point of use filtration for most applications, will utilize filters with 5 microns cartridges and will be designed with redundancy to allow for filter replacement without affecting water flow to equipment. Specialized equipment including scope washers and Ice machines will require finer level of filtration and water treatment. Provide charcoal filtration for water and ice machines. Refer to manufacturers' literature for additional requirements. Filter housing will be stainless steel and have pressure gauges and pressure sensors installed (to BMS) before and after filters.

7.2.2.1(16) Provide isolation valves for all plumbing services to fixtures and equipment. Clearly identify the location of all valves, both on site and on the "Record Documents".

7.2.2.1(17) Valves will be located, at a minimum, at each set of piping branches from the main distribution line, at all locations where the branches serve group of rooms with similar uses, to each patient washroom group, on branches serving individual speciality equipment and fixtures and on all branch lines to hose bibs.

7.2.2.1(18) All systems will be clearly labeled, and colour coded in accordance with industry standards including painting and labelling of all pipes, ceiling identification dots, valve tagging, flow directions and emergency valve identification signage.

7.2.2.1(19) The water systems within the Facility will ensure water is supplied at the required pressures for optimal fixture operation to all water outlets. Minimum water pressure will be maintained at 35 PSI to the most remote fixture and is to be demonstrated during commissioning.

7.2.2.1(20) Durable piping materials will allow for 24 hour a day operation with minimal downtime and ensure an operational life of at least 50 years.

7.2.2.1(20)(a) Domestic water piping will be type k copper or stainless steel.

7.2.2.1(21) Provide flushing and disinfection of domestic water systems to CSA Z317.1 requirements. Review the requirements of CSA infection control standards to ensure that all aspects of flushing and disinfection have been addressed. Provide independent testing of piping systems once flushing and cleaning has been completed and provide documentation of testing to the approval of the Authority.

7.2.2.1(22) Provide appropriately sized domestic water supply connections for equipment and fixtures that are installed throughout the Facility. The design should keep in mind that the plumbing code sizing is a minimum and that hospital facilities are constantly changing.

7.2.2.1(23) Provide all accessories needed to make the connection suitable for the intended use, to meet relevant Standards, and to meet manufacturer's requirements for any connected equipment. This includes shut off valves, point-of-use micron filtration, pressure reducing valves, thermostatic mixing valves, backflow preventers.

7.2.2.1(24) Provide plumbing connections to all medical and food services equipment. Refer to Appendix 1B Furniture and Medical Equipment and Appendix 1H(I) Food Services Equipment List.

7.2.2.1(25) Ensure the plumbing systems are designed to accommodate the requirements of commercial spaces. Make allowance within the base Facility systems for any future plumbing systems needed for future tenant fit-outs of the commercial spaces.

7.2.2.1(26) Ensure the domestic cold water and domestic hot water quality is within the required conditions of the applicable codes, standards, and manufacturer's recommendations for all equipment.

7.2.2.1(27) Plumbing system design, fixtures and values will comply with requirements of CSA-Z8000 CSA Standards, and the BCBC.

7.2.2.1(28) All sanitary sumps located in the Facility will have bolted-down lids and be gasketed to be air tight.

7.2.2.2 RO Water Systems – Non Dialysis

7.2.2.2(1) Provide an RO (Reverse Osmosis) filtered water system for use in each the following Non Dialysis areas of the Facility:

7.2.2.2(1)(a) Laboratory - serving laboratory equipment and faucets- maximum of 2 stations.

7.2.2.2(1)(b) MDRD - serving MDRD cleaning systems.

7.2.2.2(1)(c) Central plant - servicing the steam systems including Sterilizer makeup in MDRD and humidification throughout the Facility. Effective sterilization in health care settings by steam process for use of steam in MDRD sterilization process.

7.2.2.2(2) RO systems serving non-dialysis areas can be from a central RO water plant or by distributed systems serving each area/department.

7.2.2.2(3) Each system will be sized for the current system demands plus an additional 20% future demand.

7.2.2.2(4) Each system will be complete with redundant components that will allow for the systems to maintain full capacity during all maintenance and cleaning and disinfection.

7.2.2.2(5) Each system will be separate and not interconnected to any other system.

7.2.2.2(6) Each system will be a complete package unit supplied from one manufacture which will produce 2 mg ohm Type II DI resistive water which is to be continuously circulated throughout the distribution loop(s).

7.2.2.2(7) Install distribution piping in accessible locations to allow replacement with minimal disruption of patient care areas.

7.2.2.2(8) All piping for the entire system will be type 316 L stainless steel with orbital welded joints or PVDF.

7.2.2.2(9) All welding of the stainless steel piping will include for pickling and passivation after the welding process.

7.2.2.2(10) All stainless steel piping installation will make allowances for expansion and contraction of the piping system when the piping is subjected to a maximum disinfection cycle of 90°C.

7.2.2.2(11) Each system will include the following minimum components:

7.2.2.2(11)(a) Backflow prevention;

7.2.2.2(11)(b) Tempered Water supply;

7.2.2.2(11)(c) Particulate filtration;

7.2.2.2(11)(d) Dechlorination system;

7.2.2.2(11)(e) Pumps;

7.2.2.2(11)(f) UV Sterilizers;

7.2.2.2(11)(g) Bacterial Traps;

7.2.2.2(11)(h) Storage tanks;

7.2.2.2(11)(i) De-ionation filter beds,

7.2.2.2(11)(j) RO filtration; and

7.2.2.2(11)(k) all necessary valves and fittings.

7.2.2.2(12) Base building drainage will be required to be provided to meet all the drainage needs of the entire RO water assembly.

7.2.2.2(13) All drain piping systems will be of the appropriate material for the quality of water discharged and will be sized to handle the maximum flow that would be anticipated from the system.

7.2.2.3 RO Water Systems – Renal Dialysis

7.2.2.3(1) Provide a separate central RO or infrastructure for portable systems (depending on area), as described below, with filtered water system for use in each of the following locations:

7.2.2.3(1)(a) Renal dialysis wards;

Provide a complete system with RO Plant, storage and mixing tanks, recirculation system, non-corrosive drainage and purpose built dialysis wall boxes;

7.2.2.3(1)(b) Critical Care Units (CCU)

Provide electrical connections for portable RO units “Prismax”. The number of units will be as per Appendix 1A: Clinical Specification.

7.2.2.3(1)(c) Intentionally deleted.

7.2.2.3(1)(d) Intentionally deleted.

7.2.2.3(1)(e) Emergency department- renal requirements

Provide electrical connections for two portable RO units “Prismax”..

7.2.2.3(1)(f) Each of the systems will be sized for the current system demand plus an additional 20% future demand.

7.2.2.3(1)(g) Each renal dialysis system will be a complete package unit supplied from one manufacture which will meet the current standard of ISO /FDIS 13959 and be capable of providing ultrapure dialysis continuously circulated throughout the distribution loop(s).

7.2.2.3(1)(h) Each system will be complete with redundant components that will allow for the systems to be maintained at full capacity during all maintenance cleaning and disinfection.

7.2.2.3(1)(i) Install distribution piping in accessible locations to allow replacement with minimal disruption of patient care areas.

7.2.2.3(1)(j) All piping for the entire system will be type 316 L stainless steel with orbital welded joints or PVDF.

7.2.2.3(1)(k) All welding of the stainless steel piping will include for pickling and passivation after the welding process.

7.2.2.3(1)(l) All stainless steel piping installation will make allowances for expansion and contraction of the piping system when the piping is subjected to a maximum disinfection cycle of 90°C.

7.2.2.3(1)(m) Each of the renal dialysis system will be broken into several loops with a maximum of 20 stations per loop.

7.2.2.3(1)(n) Each of the loops will return to a central mixing / storage tank at the central production plant and if there are multiple tanks, each of the tanks will have the ability to be interconnected to each other.

7.2.2.3(1)(o) Each patient station will include a recessed type 316 stainless steel wall box sized to contain the following components:

(o)..1 two stainless steel - type 316 piping inlets with stainless steel type 316 diaphragm valves and Swagelok style quick connections; and

(o)..2 two stainless steel - type 316 piping discharge quick connection through an air gap to noncorrosive piping standpipe firmly connected to the wall box.

7.2.2.3(1)(p) Each standpipe and associated P trap will have a electronic solenoid style trap primer assembly to maintain the trap seal.

7.2.2.3(1)(q) Each wall box will have a removable stainless steel door.

7.2.2.3(1)(r) Each system will include the following as minimum components:

(r)..1 Backflow prevention Tempered Water supply;
(r)..2 Particulate filtration;
(r)..3 Dechlorinating system;
(r)..4 Pumps;
(r)..5 UV Sterilizers;
(r)..6 Bacterial Traps;
(r)..7 Storage tanks;
(r)..8 De-ionation filter beds;
(r)..9 RO filtration; and
(r)..10 all necessary valves and fittings.

7.2.2.3(1)(s) Base building drainage will be required to be provided to meet all the drainage needs of the entire RO water packaged assembly.

7.2.2.3(1)(t) All drains will be appropriate for the quality of water discharged and will be sized to handle the maximum flow that would be anticipated from the system.

7.2.2.3(1)(u) Design all systems to meet the infection control requirements of the Facility.

7.2.2.4 Performance Criteria

7.2.2.4(1) Provide flushing and disinfection of domestic water systems in accordance with CSA Z317.1. Provide soda ash treatment where source water pH is lower than 7.0. Provide independent testing of piping systems once flushing and cleaning has been completed and provide complete documentation of testing to the Authority.

7.2.2.4(2) Water delivered to the Facility will meet the water quality requirements of all applicable standards and laws, including CSA-A317.1 and the Drinking Water Protection Regulation (British Columbia). Filter systems must be capable of operating at high turbidity levels.

7.2.2.4(3) Provide isolation valves for all plumbing services and clearly identify the location of all valves.

7.2.2.4(4) Valves will be located, at a minimum, at each set of piping branches from the main distribution line, and at all locations where the branches serve group of rooms with similar uses and to each patient washroom group. In mental health / Psychiatry Inpatient Units provide isolation valves within the public area in an easily accessible access box to allow access without the need for a ladder or keys.

7.2.2.4(5) Isolation valves for piping 50 mm and smaller will be ball valves with solid bronze body and a chrome plated bronze ball with lever handles. All isolation valves 100 mm and larger will be of a butterfly style with gear operators.

7.2.2.4(6) Ensure that the design of the incoming domestic water station provides for adequate drainage systems that will handle both the maintenance and operational flow rates from the strainer discharge and the backflow preventers in full operational mode.

7.2.2.4(7) Insulate storm drainage, domestic water piping, cooling water and exposed p-traps throughout. Ensure plumbing systems are not installed in locations subject to freezing. Heat tracing is not allowed.

7.2.2.4(8) Water delivered to the Facility will meet the water quality requirements of all applicable standards and laws, including CSA-A317.1 and the Drinking Water Protection Regulation (British Columbia). Filter systems must be capable of operating at high turbidity levels.

7.2.2.5 Domestic Hot Water Systems

7.2.2.5(1) Basic Requirements

7.2.2.5(1)(a) Provide a domestic hot water system with sufficient capacity and recovery rate for the hot water requirements of the Facility. Allow for 20% expansion capacity within each system for future flexibility.

7.2.2.5(1)(b) Calculate domestic hot water demand in accordance with ASPE Plumbing Engineering Design Handbook and to meet the demands of CSA Z317.1.

7.2.2.5(1)(c) Domestic hot water recirculation piping will only be stainless steel piping and meeting the requirements of the BCBC.

7.2.2.5(1)(d) Domestic hot water supply will be of adequate temperature to serve the needs of the Facility and will be stored and circulated at temperatures noted in CSA Z317.1 Table 1.

7.2.2.5(1)(e) Provide a central mixing valve, in N + 1 configuration, to reduce the distributed temperature from stored tank temperature to distribution temperature.

7.2.2.5(1)(f) Provide Pressure balanced/ thermostatic mixing valves, where temperatures are required to be less than 60ºC at point of use as required by CSA Standards.

7.2.2.5(1)(g) Provide fail safe bypass for over temperature water after central mixing valve.

7.2.2.5(1)(h) Provide alarm to BMS for over temperature conditions.

7.2.2.5(1)(i) To permit uninterrupted service provide normally closed bypass around the mixing and diverting valves complete with lockable valve.

7.2.2.5(1)(j) Bypass will connect to piping upstream of over temperature monitoring sensor to permit continuous monitoring of domestic hot water system supply temperature.

7.2.2.5(1)(k) The domestic hot water heating system will be configured to provide N+1 redundancy and will meet or exceed the energy efficiency requirements of ASHRAE 90.1. The domestic water heating system will have a back-up energy or fuel source for use during interruption of the primary electrical or natural gas supply. The dual fuel steam boiler and heat exchanger may be used for back-up fuel source .

7.2.2.5(1)(l) The domestic hot water system must multiple storage tanks with the remaining capacity to be supplied by a minimum of two (2) heat exchangers in an N +1 configuration.

7.2.2.5(1)(m) The design of the domestic hot water system may involve two or more pressure zones depending on incoming pressure and design considerations.

7.2.2.5(1)(n) Each pressure zone will have a separate domestic hot water recirculation system complete with reheat capability to maintain the pressure and temperature integrity of each zone.

7.2.2.5(1)(o) Ensure that the design of the domestic hot water system will provide timely delivery of hot water to all fixtures (within 10 seconds) with no dead legs in the system and will include a recirculation system between the distribution system and the hot water generation equipment.

7.2.2.5(1)(p) Locate pressure / thermostatic mixing valves serving plumbing fixtures will be placed as close as possible to the fixture it serves to minimize dead legs.

7.2.2.5(1)(q) Tempered water, set for 38°C, is to be provided by local under counter mixing valves when serving individual plumbing fixtures.

7.2.2.5(1)(r) Domestic hot water mixing valves when used for temperature sensitive locations within the hospital such as specialty baths or sinks will be required to have visual temperature gauges accessible at the point of use and are to have a high temperature alarm that would be both local and on the BMS.

7.2.2.5(1)(s) Design the domestic hot water system to prevent growth and spread of Legionella bacteria within the hot water generation plant, piping, fixtures, or any other component. Design methods may include heat-based control, active treatment systems, eliminating dead-leg piping; flush to drain valves; and minimizing uncirculated piping by connecting the circulation system as close as possible to fixtures. Designs will conform to the latest ASHRAE / NSF/ ASPE standard on Legionella Design for health care facilities.

7.2.2.5(1)(t) Install copper-silver ionization systems on each new domestic hot water system to treat the water and prevent the proliferation of legionellosis.

7.2.2.5(1)(u) Each new unit installed will be an N+1 redundancy configuration.

7.2.2.5(2) Performance Criteria

7.2.2.5(2)(a) Provide a domestic hot water generating plant and hot water storage equipment to meet the requirements of CSA Z317.1 and within the design guidelines as mentioned above.

7.2.2.5(2)(b) Recirculate domestic hot water from the distribution system(s) back to the generating equipment within each appropriate pressure zone.

7.2.2.5(2)(c) Piping and valves will be appropriately sized to ensure adequate flow which does not promote stagnation or accelerated pipe erosion.

7.2.2.5(2)(d) Monitor hot water temperatures, at the storage tank and in the supply piping, via the BMS and provide alarm outputs when the temperature exceeds or drops below the design set point range.

7.2.2.6 Plumbing Fixtures

7.2.2.6(1) Basic Requirements

7.2.2.6(1)(a) Provide fixtures as described in the Schedule 1 Statement of Requirements and as needed to comply with all applicable codes and regulations.

7.2.2.6(1)(b) Provide all plumbing fixtures made of impervious, durable materials suitable for a hospital facility. Select fixtures with proven acceptable hospital performance from previous installations.

7.2.2.6(1)(c) All plumbing fixtures will be supplied complete with all hangers, accessories for mounting, water supplies and shutoffs, flexible connectors, drain waste and vent connections, water hammer arrestors, all low voltage wiring supplies, wall boxes and access panels.

7.2.2.6(1)(d) All low voltage wiring, cables will be mounted in junction boxes located within the wall below the fixture and will include stainless steel face plates with vandal proof screws.

7.2.2.6(1)(e) All line voltage plugs to low voltage wiring connections will be concealed in access boxes that are not accessible to the public or in concealed ceiling locations that are not visible without removal of an access panel.

7.2.2.6(1)(f) Select fixtures as determined with the Authority and pay special attention to performance relative to infection control and prevention of the spread of diseases.

7.2.2.6(1)(g) Where possible, provide fixtures with anti-microbial coatings.

7.2.2.6(1)(h) Provide all appropriate services and connections to all equipment for Patient care areas and all other areas. Provide all accessories as needed.

7.2.2.7 The following design information applies to lavatory and faucet selections for the Facility:

7.2.2.7(1)(a) The lavatory fixtures will be either a wall hung style fixture, a drop- in style vitreous china basin, (where located in non-clinical / non patient washrooms) or a solid surface fixture which is molded into a countertop.

7.2.2.7(1)(b) Counter mounted lavatory basins will have all surfaces which slope into the basin.

7.2.2.7(1)(c) All openings required for the faucet installation will be factory installed.

7.2.2.7(1)(d) Select all lavatory and faucet combinations to minimize the potential for splatter and contamination.

7.2.2.7(1)(e) Faucets will have laminar flow design to minimize the splatter.

7.2.2.7(1)(f) High profile gooseneck lavatory faucet fittings will be provided for all lavatory basins and the faucets will have anti-splash, anti-aerosolizing, faucet fittings (i.e. laminar flow) that do not retain air. Avoid low profile gooseneck faucet fittings.

7.2.2.7(1)(g) Ensure that the faucet on Hand Hygiene sinks does not discharge directly into the drain opening.

7.2.2.7(1)(h) Lavatory basins, are not permitted, by CSA Z317.1, to have an overflow opening installed in the body of the basin. Lavatories with overflow outlets that are plugged with aftermarket plugs will not be accepted.

7.2.2.7(1)(i) Fixtures not equipped with overflows will need to be provided with a waste tailpiece that does not have overflow openings.

7.2.2.7(1)(j) All public lavatory basins will not have drain plugs but will be installed with PO perforated drain openings.

7.2.2.7(1)(k) All lavatory basins will have the water and waste fittings below the fixture protected with a skirt, provided by the manufacturer, to hide the plumbing components and to address infection control. The design of the skirt will be in conformance with the requirements of the Accessibility Requirements of the BCBC.

7.2.2.7(1)(l) Washroom lavatory fixtures are to have electronic hands-free type faucets with single temperature discharge that can be adjusted and set to the desired temperature, at the mixing valve, below the fixture. Initial temperature setting - 38°C.

7.2.2.7(1)(m) Electronic faucets will be connected to the base building power source - delayed vital - hard wired with concealed power boxes and transformers.

7.2.2.7(1)(n) Washroom lavatory fixtures on the mental health and adaptive floors are to have electronically operated ligature resistant faucets with single temperature discharge that can be adjusted and set to the desired temperature, at the mixing valve, below the fixture. Initial temperature setting - 38°C.

(n)..1 Electronic faucets will be connected to the base building power source - delayed vital - hard wired with concealed power boxes and transformers.

(n)..2 Access for the plumbing and electrical to these fixtures will be provided external to the actual washroom complete with access panels.

(n)..3 Fixtures selected for these applications are to have totally enclosed basins and skirts and be specifically designed for ligature resistant applications.

7.2.2.7(1)(o) Lavatories provided for Bariatric applications will be constructed as a wall mounted epoxy coated stainless steel sinks suitable for installation in a Bariatric room and will be capable of withstanding a downward pressure of 500 k on the front of the fixture. The lavatory deck may be either epoxy coated stainless steel or be a solid surface material.

(o)..1 Bariatric fixtures will not be support from the Facility walls, but must be supported by an independent support structure that is attached to the floor on which the fixture is installed.

(o)..2 Bariatric washroom lavatory fixtures are to have electronic hands-free type faucets with single temperature discharge that can be adjusted and set to the desired temperature, at the mixing valve, located below the fixture. Initial temperature setting 38°C.

(o)..3 Electronic faucets will be connected to the base building power source - delayed vital - hard wired with concealed power boxes and transformers.

7.2.2.8 The following design information applies to sinks and sink / faucet selections for the Facility:

7.2.2.8(1) Stainless Steel Sinks – Utility Sink, Process Sink, Kitchen Sink and Scrub Sink., used in a clinical setting throughout the facility, will be either a stand-alone wall hung stainless steel fixtures with wall hangers or will be stainless steel bowls which have been integrally welded into a continuous stainless-steel counter.

7.2.2.8(1)(a) The grade of the stainless steel used for the fixture will need to be selected to match the application in which the fixture will be used. The size, depth and number of bowls for each fixture will need to be selected in consultation with the Authority to accommodate the intended use of the fixture.

7.2.2.8(1)(b) The bowls of the sink will have fully rounded corners and will be complete with a drain assembly which is appropriate for the intended end use of the fixture.

7.2.2.8(1)(c) Drop in or under mounted stainless-steel sinks will not be considered in all clean area.

7.2.2.8(1)(d) Drop in style stainless steel sinks can be considered for locations such as nutrition stations, staff room, non-patient rooms and workshops. All drop in stainless steel sinks will have a back ledge included with all necessary punching's to accommodate the selected faucets.

7.2.2.8(1)(e) Sinks will meet the requirements of CSA Z8000 including materials, size, construction, location, controls, backsplash, soap and lotion dispensers, and accessibility.

7.2.2.8(2) Pharmacy sinks in all areas of the Facility including modular clean rooms, scrub rooms, ante rooms, and dispensary areas, provide a type 316 stainless steel sink with an underdeck mounted, 150 mm manual blade handle faucets and gooseneck laminar flow spout.

7.2.2.8(3) Scrub sinks for treatment and examination roomswill be a single basin stainless steel scrub sink with integral backsplash, hands-free faucet, and soap dispenser for hand hygiene. The scrub sink will be suitable for a user conducting surgery or other sterile procedures and supplied as a proprietary equipment item by a medical equipment manufacturer.

7.2.2.8(3)(a) The faucet will have sufficient clearance and height to allow for proper surgical scrubbing to occur and will have a spray head that will provide no splash coverage during usage.

7.2.2.8(3)(b) Electronic hands-free type faucets will be specific to the needs of surgical scrubbing procedures and will remain on as required by the user.

7.2.2.8(3)(c) Faucet will have a single temperature mixing valve to supply integral temperature control that can be user adjusted.

7.2.2.8(3)(d) Electronic faucets will be connected to the base building power source - delayed vital - hard wired with concealed power boxes and transformers.

7.2.2.8(3)(e) Access for the plumbing and electrical to these fixtures will be provided below the scrub sink complete with access panels. Fixtures selected for these applications are to have totally enclosed basins and skirts and be specifically designed for scrub procedures.

7.2.2.8(4) Operating room scrub sinks will be two compartment stainless steel sink located in an alcove adjacent to each of the OR's.

7.2.2.8(4)(a) Scrub sinks for operating rooms will be two basin stainless steel scrub sink with integral backsplash, hands-free faucet, and soap dispenser for hand hygiene. The scrub sink will be suitable for a user conducting surgery or other sterile procedures and supplied as a proprietary equipment item by a medical equipment manufacturer.

7.2.2.8(4)(b) The faucet for each sink compartment will have sufficient clearance and height to allow for proper surgical scrubbing to occur and will have a spray head that will provide no splash coverage during usage.

7.2.2.8(4)(c) Electronic hands-free type faucets will be specific to the needs of surgical scrubbing procedures and will remain on as required by the user.

7.2.2.8(4)(d) Faucet will have a single temperature pressure balanced mixing valve to supply integral temperature control that can be user adjusted.

7.2.2.8(4)(e) Electronic faucets will be connected to the base building power source - delayed vital - hard wired with concealed power boxes and transformers.

7.2.2.8(4)(f) Access for the plumbing and electrical to these fixtures will be provided below the scrub sink complete with access panels.

7.2.2.8(4)(g) Fixtures selected for these applications are to have totally enclosed basins and skirts and be specifically designed for hospital scrub procedures.

7.2.2.8(5) Laboratory sinks, including nuclear medicine and bio-hazardous waste sinks, provide type 316 stainless steel sink with under deck mount faucets with 150 mm blade handle and gooseneck spout. Sinks will be large and deep enough to accommodate the intended application.

7.2.2.8(6) Equipment cleaning sinks and other utility sinks, provide sinks with underdeck mounted, 200 mm manual blade handle faucets and gooseneck laminar flow spout. Ensure that sinks are large and deep to accommodate proper washing of equipment and that materials and waste piping are suitable for the intended application of the sink.

7.2.2.8(7) Hand washing sinks or hand hygiene stations for nursing stations, patient care areas, examination rooms, food services, emergency room, Soiled Utility Rooms and other similar function rooms will have electronic hands-free type faucets with either a gooseneck wall mounted spouts or an ozonated bubbler systems that will supply single temperature water to the sink.

7.2.2.8(7)(a) The water supply is to be pre adjusted and be set for a temperature of 35 C / 95 F.at the concealed mixing valve.

7.2.2.8(7)(b) The basin of the sink will be adequately sized as per CSA Z8000 for proper washing and scrubbing of hands.

7.2.2.8(7)(c) Hand Hygiene sink will be a wall hung fixture that is constructed in compliance with CSA Z8000 including size, construction, location, backsplash, soap and lotion dispensers and accessibility.

Hand hygiene sinks basins will be vitreous china.

7.2.2.8(7)(d) Provide a single temperature, electronic sensor, gooseneck faucet. Electronic sensor faucets for hand hygiene sinks will not have means for user to adjust water temperature but will have a temperature and pressure balanced mixing valve located below the sink.

7.2.2.8(7)(e) Refer to Best Practices for Hand Hygiene Facilities & Infrastructure in Healthcare Settings.

7.2.2.8(8) Faucets for lunchrooms, staff rooms, and general purpose work rooms may be deck mounted, 200mm center to center with gooseneck spout and 150 mm manual blade handles.

7.2.2.8(9) Faucets for all other areas will be chosen to ensure that infection control is addressed but will include underdeck mounted faucet body, gooseneck spout with laminar flow discharge and either electronic control or 200 mm long blade handles.

7.2.2.8(9)(a) Stainless steel combination lavatory / toilet anti ligature security fixtures will be required where psychiatric patients may be present and unsupervised. All aspects of these fixtures will be designed to meet anti ligature requirements.

7.2.2.8(9)(b) The combination lavatory / toilet will include an elongated bowl with contoured seat, ligature resistant skirt, blowout style operation, oval shaped bowl, ligature resistant piezo electric operated bubbler / filler, slow drain, and a 4 point anchor system for installation in a service chase.

7.2.2.8(10) Performance Criteria

7.2.2.8(10)(a) Select all wall mounted sinks for Patient and handicap use to have a removable purpose-built skirt to house the water and drain components. Skirt to be designed to allow for handicap access of the fixture, to protect patients from touching hot objects and for ease of maintenance.

7.2.2.8(10)(b) Barrier-free plumbing fixtures, fittings, and carriers are to be provided where required and will need to be suitable for use by bariatric users. Water closets not designated specifically for bariatric use will be wall mounted.

7.2.2.8(10)(c) Barrier-free plumbing sink fixtures, fittings, and carriers are to be provided where required in the Clinical Specifications and will be installed in accordance with the BCBC requirements.

7.2.2.9 The following design information applies to water closet selections for the Facility:

7.2.2.9(1) Water closets are to be constructed of either vitreous china or stainless and should be selected from fixtures that will reduce the spread of infection. The bowl must be designed to accommodate the flow rate of the flush valve and to minimize the aerosolization of the toilet contents. All water closets must meet a certified MAP rating of 1000.

7.2.2.9(1)(a) All wall-hung fixtures are to be designed for installation in accordance with the manufacturer recommendation.

7.2.2.9(1)(b) No requirement for Recessed Bedpan Flushers to be installed with water closets.

7.2.2.9(1)(c) All water closets that are designated as located in mental health areas will incorporate Anti Ligature design in all the components.

7.2.2.9(1)(d) Provide seat covers on all patient and accessible water closets. Ensure that all flush valve operators extend above the height of the open cover. All water closet seats are to be heavy duty construction with stainless steel posts and self-sustaining hinges.

7.2.2.9(1)(e) Public water closets will consist of wall mounted elongated bowls with an open front seat with no cover

(e)..1 Flush valve will be exposed electronic, hands-free flush valves with manual override.

(e)..2 Flush valve connection to the water closet will be through an exposed top spud.

(e)..3 height to be 430 to 480 mm from floor to rim of seat.

7.2.2.9(1)(f) Patient water closets will consist of wall mounted elongated bowls, with an open front seat and with cover.

(f)..1 Flush valve will be exposed manual high/low dual flow flush valves.

(f)..2 Flush valve connection to the water closet will be through an exposed top spud.

(f)..3 Mounting height to be 430 to 480 mm from floor to rim of seat.

7.2.2.9(1)(g) Accessible water closets will consist of wall mounted elongated bowls, with an open front seat, with cover

(g)..1 Flush valve will be exposed manual high/low dual flow flush valves.

(g)..2 Flush valve connection to the water closet will be through an exposed top spud.

(g)..3 Mounting height to be 430 to 480 mm from floor to rim of seat.

(g)..4 The location of the flush valve will be accordance with the accessibility requirements of the BCBC

7.2.2.9(1)(h) In secure rooms provide a white power coated stainless steel, floor mounted, back discharge, anti-ligature, one-piece sink / toilet combination unit with hemispherical penal filler/bubbler with mouth guard, integral seat, push button controls and in wall concealed flush valve.

(h)..1 The secure room fixture will include anti-flood device with either piezo electric or pneumatic controls on supplies/waste to toilet and/or lavatory components.

(h)..2 Refer to the Provincial Quality, Health and Safety Standards and Guidelines for secure rooms in designated Mental Health Facilities under the B.C. Mental Health Act for additional requirements.

7.2.2.9(1)(i) Provide barrier-free plumbing fixtures, fittings where required and ensure they are suitable for use by bariatric users.

7.2.2.9(1)(j) Provide designated Bariatric Patient washrooms with floor mounted elongated bowls, with an open front seat, with cover, with a minimum load for Bariatric Residents.

7.2.2.9(1)(k) Bariatric water closets shall be chosen and positioned to allow for the use of Commodes.

7.2.2.9(1)(l) Floor mounted bariatric water closets will require special water closet carriers that are extra heavy duty and will require additional wall space for installation.

7.2.2.10 The following design information applies to urinal selections for the Facility:

7.2.2.10(1) Urinals will be wall-hung vitreous china Institutional fixture with wing walls to contain splashing.

7.2.2.10(2) The fixture will be complete with a low-consumption concealed electronic hands-free flush valve operation.

7.2.2.10(3) Each urinal will be installed with a separate urinal carrier that is floor mounted and independent of the wall systems.

7.2.2.11 The following design information applies to Soiled Utility Room plumbing fixture selections for the Facility:

7.2.2.11(1) Supply all Soiled Utility Rooms with a plumbed eyewash station at the hand-washing sink.

7.2.2.11(2) Each Soiled utility room will have a large stainless steel sink for use in wash up of equipment and hospital goods. This sink will be an integral part of a larger stainless steel counter.

7.2.2.11(3) The size of the sink will need to be appropriate to the size of the equipment and goods to be washed. Minimum depth to be 250 mm.

7.2.2.11(4) The size, depth and number of bowls for each fixture will need to be selected in consultation with the Authority to accommodate the intended use of the fixture.

7.2.2.11(5) Each sink is to have a below deck mounted faucet with gooseneck spout and 200 mm manual blade handles on the hot and cold water supply.

7.2.2.11(6) Each sink will also have a hot and cold water wall mounted pre rinse spray with 200 mm manual blade handles on the hot and cold water supply.

7.2.2.11(7) Each Soiled Utility Room will have a wall mounted closed system waste disposal system.

7.2.2.11(8) Appliance installation will be flush to the wall with a mounting frame.

7.2.2.11(9) The appliance must have hot and cold water connections for a concealed application.

7.2.2.11(10) Water, drainage and sanitary vent piping to be installed in accordance with the BCBC and the manufacturer's recommendations.

7.2.2.11(11) Each soiled Utility room will be supplied with a plumbed in wall mounted exposed emergency eyewash station positioned next to the Hand Hygiene Sink.

7.2.2.11(12) Each Soiled Utility Room will have a Hand Hygiene Sink located in the Room.

7.2.2.12 The following design info applies to housekeeping service sinks for the facility:

7.2.2.12(1) Supply all housekeeping rooms with a plumbed eyewash station at the hand-washing sink.

7.2.2.12(2) Each housekeeping room will have a floor mounted molded stone sink for use in general housekeeping within the facility.

7.2.2.12(3) The size of the sink will be 600 mm x 900 mm x 250 mm deep and will be complete with rigid vinyl protective caps on exposed sides and have a heavy duty stainless steel wall guard on the walls.

7.2.2.12(4) Each fixture will have a two sets of wall mounted faucets each with manual cross blade handles on the hot and cold water supply.

7.2.2.12(5) The one set of faucets will be with a top pail brace, integral vacuum breaker, hose end and integral stops for general water supply to mop pails.

7.2.2.12(6) The second faucet will be complete with 12 mm reduced pressure back flow preventors on the hot and cold supply, hose end supply, integral stops, hose end connections to allow for connection of chemical mix tanks

7.2.2.12(7) The reduced pressure back flow preventors will be mounted in a stainless steel box with hinged solid door located within the walls of the housekeeping room and will have a direct drain from the box to the utility sink.

7.2.2.13 The following design information applies to plaster room sinks for the facility

7.2.2.13(1) Single compartment, wall hung, type 304 stainless steel, minimum dimensions to be 850 mm x 375 mm x 200 mm interior dimensions.

7.2.2.13(2) Wall mount sink faucet, 200 centers gooseneck spout with laminar flow outlet, manual 100mm wrist blade handles, and mounted on wall behind the sink.

7.2.2.13(3) Wall mounted pre rinse spray assembly with heavy duty hose and hose retainer. Water supply to be compete with a thermostatic mixing valve with temperature set for 38°C.

7.2.2.13(4) Plaster room sink is to be complete with a stainless steel solids interceptor with perforated removable stainless steel basket. The interceptor is to be mounted on a stainless steel dolly with ball caster and is to have valves and couplings on both inlet and outlet to allow for removal and cleaning.

7.2.2.14 The following design information applies to shower selections for the Facility:

7.2.2.14(1) Patient Shower - Mental Health

7.2.2.14(1)(a) Provide Patient showers within Psychiatry IPU with electronically controlled pressure balanced and high temperature limit shower valves, for tempered water supply through single push button (piezo) that are flush to ensure anti-ligature safety

7.2.2.14(1)(b) Shower to be complete with a single anti-ligature fixed shower head.

7.2.2.14(1)(c) Provide additional soft seated check valves on each of the water supplies.

7.2.2.14(1)(d) Locate mixing valve away from Patient reach within secured cabinet while reducing dead-leg to shower.

7.2.2.14(1)(e) Design shower bases to ensure that the water is sloped towards the shower drain and is contained within the shower area.

7.2.2.14(1)(f) ADA accessible Patient showers must be free of barriers with no lip between the washroom floor and shower.

7.2.2.14(1)(g) Install a floor drain in the drying area outside of each shower stall.

7.2.2.14(2) Patient Shower

7.2.2.14(2)(a) Patient showers stalls must be free of barriers with no lip between the washroom floor and shower.

7.2.2.14(2)(b) Shower will be provided with a pressure balanced and high limit shower mixing valve with additional soft seated check valves on each of the water supplies.

7.2.2.14(2)(c) Handheld shower hoses must a have smooth easy to clean surface.

7.2.2.14(2)(d) The length of the shower hoses to be sized to ensure the shower head cannot be submerged in any adjacent plumbing fixture.

7.2.2.14(2)(e) If the shower stall is a fixed architectural stall, ensure that a floor drain is installed with the floor sloped to the drain.

7.2.2.14(2)(f) Install a floor drain in the drying area outside of each shower enclosure.

7.2.2.14(2)(g) Slide bars provided for handheld showers must be designed and load rated to act as grab bars.

7.2.2.14(2)(h) Shower bases must ensure that the water is sloped towards the shower drain and contained within the shower area and drain fully without puddling.

7.2.2.14(2)(i) Shower bases constructed of fiberglass or acrylic will not be considered.

7.2.2.15 Staff Showers

7.2.2.15(1) Showers for staff use may be fiberglass or acrylic but must not be less than 1200 mm x1200 mm.

7.2.2.15(1)(a) Staff Showers will be provided with a pressure balanced and high temperature limit shower mixing valve with additional soft seated check valves on each of the water supplies.

7.2.2.15(1)(b) Staff showers will be handheld style with a slide bar and locking mechanism.

7.2.2.15(2) Handheld shower hoses must have smooth easy to clean surface.

7.2.2.15(3) The drying area adjacent to the shower stall must also contain a floor drain.

7.2.2.16 The following design information applies to Patient bath / shower selections for the Facility:

7.2.2.16(1) Patient bathtubs with showers are to be selected to suit the function for the room involved. The length, depth and function of the bathtub is to be selected on the bases of location, and suitability of the patient involved – i.e. maternity, pediatric, and handicap.

7.2.2.16(2) Bathtubs are to be an enamelled steel fixture of institutional quality. The bathtub is to be complete with all drain fittings and an overflow assembly. The drain will have a touch tap open / close plug assembly.

7.2.2.16(3) Bathtub shower will be provided with a pressure balanced and high limit shower mixing valve with additional soft seated check valves on each of the water supplies.

7.2.2.16(4) Each Bathtub shower will have a hand held shower head on a sliding bar and a separate tub filler spout - each which will be controlled by the mixing valve with a diverter. The sliding bar will be anchored and sized to allow it to function as a grab bar as defined in the Accessibility standards.

7.2.2.16(5) The location of the shower valve and tub controls will be in compliance with the Accessibility requirements of the BCBC.

7.2.2.16(6) Ensure that a floor drain is installed in the shower / bathroom.

7.2.2.17 The following design information applies to institutional bathtubs in bathing rooms selections for the Facility:

7.2.2.17(1) Institutional bathtubs will be as required by the Facility and located in a separate bathing room(s).

7.2.2.17(2) Institutional bathtubs will be provided with water services that are one pipe size larger than what is requested in the manufacturer installation manuals.

7.2.2.17(3) Water supply to the institutional bathtub is to be supplied through a thermostatic mixing valve with digital readout and high temperature limit alarm which is connected to BMS in addition to a local alarm.

7.2.2.17(4) The mixing valve assemble will be concealed within the adjacent walls with a stainless steel front access panel. The shower valve assembly will include separate shut off valves and additional soft seated check valves.

7.2.2.17(5) The institutional bathtub installation will require a high flow drain connection located below the tub with an additional floor drain within the room.

7.2.2.18 The following design information applies to LDRP Tubs selections for the Facility:

7.2.2.18(1) For LDRP rooms with a requirement for a bathtub, the tub will be a free standing acrylic or high density fiberglass deep tub. The tub will be completely free standing and will allow for walking clearance around the tub.

7.2.2.18(2) Provide a fill spout and tub filler with cross handles. LDRP tub is to be provided with water services that are one pipe size larger than what is requested in the manufacturer installation manuals.

7.2.2.18(3) Water supply to the LDRP tub is to be supplied through a thermostatic mixing valve with digital readout and high temperature limit alarm which is connected to BMS in addition to a local alarm. The mixing valve assemble will be concealed within the adjacent walls with a stainless steel front access panel.

7.2.2.18(4) The LDRP bathtub will also include for a Patient shower in the near vicinity of the tub. All requirements for the Patient shower will be the same as outlined above except that the shower hose assembly will be double length.

7.2.2.18(5) The bathtub installation will require a high flow drain connection located below the tub with an additional floor drain within the room.

7.2.2.19 The following design information applies to institutional whirlpool / hydrotherapy tubs, for extremities only, in clinical treatment rooms within the Facility:

7.2.2.19(1) Institutional tubs will be provided with water services that are one pipe size larger than what is requested in the manufacturer installation manuals.

7.2.2.19(2) Water supply to the institutional tub is to be supplied through a thermostatic mixing valve with digital readout and high temperature limit alarm which is connected to BMS in addition to a local alarm.

7.2.2.19(3) The mixing valve assemble will be concealed within the adjacent walls with a stainless steel front access panel. The shower valve assembly will include separate shut off valves and additional soft seated check valves.

7.2.2.19(4) The institutional bathtub installation will require a high flow drain connection located below the tub with an additional floor drain within the room.

7.2.2.20 The following design information applies to emergency eyewash and shower stations.

7.2.2.20(1) Emergency showers and eyewashes stations are to be located and designed to supply tempered water within an acceptable time frame in accordance with the Occupational Health and Safety legislation of British Columbia. Provide signs identifying location and directions for their use.

7.2.2.20(2) Where standalone emergency eyewash stations are required, the fixtures are to be a stainless steel wall hung assembly complete with a water receptor, two soft spray eye wash spray heads with caps, tempered water supply and drain piping.

7.2.2.20(3) The eyewash station will have a highly visible hand paddle that will operate the eyewash upon activation.

7.2.2.20(4) Where emergency eyewash stations are required to be located with a plumbing utility sink, the fixture will be a highly visible, swing away assembly that contains two soft spray heads, caps, and tempered water service.

7.2.2.20(5) The eyewash station will be activated when pulled down into position over the sink.

7.2.2.20(6) The selection of the emergency eyewash will require coordination of the size of the sink and location of the faucet and eyewash to ensure that all components can be safely operated in an emergency.

7.2.2.20(7) The emergency shower / eyewash stations located within public and finished work areas of the Facility are to be an exposed highly visible shower head dropped below the ceiling to the appropriate height. Activation of the shower will be from a wall mounted lever adjacent to the shower assembly.

7.2.2.20(8) The eyewash component of the shower station will be a wall mounted concealed assembly which will be pulled down out of the wall and will activate upon dropping down. The waste from the eyewash will be hard piped back into the wall and connected to the sanitary waste system.

7.2.2.20(9) Floor drain will be required for the emergency shower.

7.2.2.20(10) Emergency shower and eyewash assemblies are to be supplied by an approved thermostatic mixing valve assembly that are specifically designed for safety equipment installation. The mixing valve assembly will be certified to ANSI Z358.1, will be sized to serve the demand of the fixtures served and will fail safe to cold water.

7.2.2.20(11) The hot water recirculation system will be installed as close as possible to the mixing valve assembly.

7.2.2.20(12) With each 5 emergency shower assemblies installed in the facility a test cone will need to be provided to the Facility for monthly testing of the equipment.

7.2.2.21 The following design information applies to cold water hose bibbs used throughout the Facility:

7.2.2.21(1) Exterior hose bibb / hydrants serving outdoor spaces will be encased non-freeze concealed type with lockable hinged doors. Apply and implement anti-ligature and vandal proof design features. Each hose bibb/ hydrant will require an individual shut off on the branch line servicing the fixture located in a non freeze location within the building.

7.2.2.21(2) The Facility water supply will be protected by an approved backflow prevention device.

7.2.2.21(3) Interior hose bibb/ hydrants for workshops and mechanical room will be exposed chrome plated ball valve with hose end fitting and cap securely anchored to the structure.

7.2.2.21(4) Hose bibb/ hydrants located on the roof to service equipment maintenance and the cooling towers will be non freeze upright roof hydrants with shut off valves and drains located internal to the building.

7.2.2.21(5) Spacing of hose bibb/hydrants around the exterior of the Facility will be at 30 meters so all areas can be accessed by a 15 meter hose.

7.2.2.21(6) Provide an irrigation system for automatic (via timed/condition-controlled system) watering for all garden plots, except for the mental health courtyard on Level 2. Provide a hose bib for the mental health courtyard to accommodate manual watering of all planters.

7.2.2.22 The following design information applies to the morgue plumbing system:

7.2.2.22(1) In the Morgue, provide plumbing services to all Morgue plumbing fixtures.

7.2.2.22(2) All water services suppling the Morgue plumbing fixtures will require a reduced pressure back flow preventor on the main service to the Morgue zone. The backflow stations will need to be located exterior of the Morgue in a location that allows for proper maintenance.

7.2.2.22(3) All sanitary waste piping and all floor drains / trench drains will be required to be constructed of stainless steel with mechanical couplings.

7.2.2.23 For the Scope Processing/decontamination room MDRD

7.2.2.23(1) Provide endoscope reprocessor equipment connection to a potable water system and drain connection per the manufacturer's recommendations. The water supply will have a thermostatic mixing valve with temperature display and bypass valve piped to the drain. Provide a wall mounted pre-filter assembly with isolation valves. Filter assembly will be sized based on the source water and final treatment requirements.

7.2.2.23(2) Provide two height adjustable double-bowl sink with clean up counter (Steris Amsco or equal). Unit to come with sink dimensions: 24" W X 17" L X 10" D (610 X 432 X 254); one water saving faucet with hot and cold water; one pure water faucet; one air gun for cleaning tubes; and three, 3-foot (76.2) flexible hoses to connect to water supplies.

7.2.2.24 Performance Criteria

7.2.2.24(1) Ensure all electronic sensor activated fixtures meet the following requirements:

7.2.2.24(1)(a) All sensors will be hardwired and served by the delayed vital electrical system, so water is available during a power outage;

7.2.2.24(1)(b) The duration of sensor faucet flow will be adjustable. All sensors will be set at 10 seconds but will be able to operate for a minimum of 45 seconds without interruption of flow, to facilitate proper hand washing.

7.2.2.24(1)(c) Sensors will retain the ability to turn off automatically when hands are no longer in the sensor range.

7.2.2.24(1)(d) The domestic hot water recirculation system will be connected to the fixture's hot water supply immediately next to the fixture shut-off at the wall.

7.2.2.24(1)(e) Provide water hammer arresters on the cold water and hot water supply to each fixture or bank of fixtures served by a single branch in accordance with PDI Standards.

7.2.2.24(1)(f) Ensure fixtures with electronic flush valves also have a manual flush operator. Pressure assist flush valves will not be used.

7.2.2.24(1)(g) If system pressure exceeds the acceptable delivery pressure, then provide pressure reducing valves with 100% redundancy. Place the valves in accessible locations.

7.2.2.24(1)(h) Where possible, provide fixtures with anti-microbial coatings.

7.2.2.24(2) Provide plumbing fixtures that comply with the following requirements:

7.2.2.24(2)(a) Toilets (Patient) - 4.8 L/flush (1.2 gpf);

7.2.2.24(2)(b) Toilets (public) - 4.8 L/flush (1.2 gpf)

7.2.2.24(2)(c) Urinals - 1.9 L/flush (0.5 gpf)

7.2.2.24(2)(d) Staff showers – 7.8 L/min (2.0 gpm)

7.2.2.24(2)(e) Patient showers – 7.8 L/min (2.0 gpm)

7.2.2.24(2)(f) Hand hygiene sinks – 6.8 L/min (1.7 gpm)

7.2.2.24(2)(g) Sinks and lavatories – 5.7 L/min (1.5 gpm)

7.2.2.24(2)(h) Metering faucets – 0.95 L/cycle (0.25 gallons/cycle)

7.2.2.25 Plumbing Drainage and Venting Systems

7.2.2.25(1) Basic Requirements

7.2.2.25(1)(a) Provide sanitary, storm, specialty drainage, and venting systems to avoid disruption to the operation of the Facility or interference with other services during operation and maintenance activities. Design the systems so that, as much as possible, Type I and Type II rooms do not need to be entered when performing these functions. Refer to CSA Z317.2 for space Type definitions.

7.2.2.25(1)(b) Design all drainage systems such that the system connects to the site drainage services, utilizing gravity drainage wherever possible.

7.2.2.25(1)(c) Design pumping systems for subsurface, storm, or sanitary drainage with 100% redundancy (one redundant unit for each active unit) and supply related equipment with emergency power. Design the sump with twin compartments (separate chambers for settling and pumping) and size the sump to prevent short cycling of the pump.

7.2.2.25(1)(d) Provide engineered packaged pumping system(s) complete with controls and alarms including high water level and pumps failure alarms. Provide local alarms annunciation with audible and visible alarms indication and remote connection via the BMS.

7.2.2.25(1)(e) All pump chambers will have premanufactured access lids in either single or double configuration with hydraulic assist lift chambers. Design of the access lids will require consideration regarding the loads that will pass over the installation and be supplied accordingly.

7.2.2.25(1)(f) Provide drainage and venting piping and fittings of a material suitable for the expected effluent.

7.2.2.25(1)(g) All pipe materials acceptable by the BCBC for drainage systems are acceptable.

7.2.2.25(1)(h) All vents will terminate outdoors; the use of air admittance valves will not be permitted.

7.2.2.25(1)(i) All piping will be installed parallel to Facility lines. Vertical piping will be installed plumb and horizontal piping level or graded as required by code for sanitary or storm systems. Provide support under all wyes located at ends of branches and all p-traps.

7.2.2.25(1)(j) Conceal all sanitary, waste, and water piping in walls. Only trap arms and water supply piping will be permitted to be exposed below fixtures.

7.2.2.25(1)(k) Fixture outlet piping for adjustable height fixtures will be installed so that no water can collect in the piping at any fixture height.

7.2.2.25(1)(l) Provide solid supply tubing or stainless steel braided flex to sinks and lavatories for ease of cleaning.

7.2.2.25(1)(m) Drainage piping material may only be changed downstream at the following points:

(m)..1 where the hazardous properties of the effluent is reduced so a different piping material is suitable: i.e. the branch connects into a main drain line, such that the additional effluent flow dilutes the discharge; and

(m)..2 where a device is placed in-stream to reduce the hazard of the discharge, such as an acid neutralizer.

7.2.2.25(1)(n) All piping at risk of freezing will not be located outside of a heated space. Heat tracing is not allowed.

7.2.2.25(1)(o) Provide a non-corrosive drainage system suitable for discharge from dialysis equipment and wall boxes where dialysis water connections are provided, plus any locations designated for connection of portable dialysis machines.

(o)..1 Each of the wall box standpipes are to be provided with an air gap between the box and the standpipe.

(o)..2 Each standpipe is to have a flushing connection which will provide a flushing cycle of water twice a day.

7.2.2.25(1)(p) Provide floor drains in all mechanical rooms, laboratory, kitchen, workshop, mechanical rooms, all wet areas, service spaces and as noted. Other rooms where water spillage from equipment or operations is expected will require floor drains to minimize maintenance and housekeeping issues.

7.2.2.25(1)(q) Floor drains will be sized to handle the maximum anticipated flows including sprinkler test full flow and from backflow preventer relief ports at full flow rated as noted in the manufacturer's information.

7.2.2.25(1)(r) Provide floor or hub drains for all devices that may discharge water, including, emergency showers and backflow prevention devices.

7.2.2.25(1)(s) Ensure all equipment drain piping is terminated at floor drains with the proper air gap. Ensure that drains are properly selected and of adequate size to prevent spillover of the waste product into adjacent areas.

7.2.2.25(1)(t) Provide electronic trap primers that are controlled by electronic time clocks or BMS or other equally effective means as approved by the AHJ at drains that are subject to losing the trap seal, including infrequently used fixtures and p-traps in negatively pressurized rooms, mechanical rooms, housekeeping or Soiled Utility Rooms, floor drains for emergency showers, or floor drains without a dedicated load from equipment or fixtures. Locate trap primers in a location where they will easily be accessed, inspected, and repaired. Trap primers which rely on fixture use or pressure drop will not be accepted.

7.2.2.25(1)(u) Any machinery/service rooms located below grade will be fitted with fast acting, free flowing drains to rapidly disperse flood waters arising from both outside the Facility (such as severe weather), and also from any internal fluid system breaches. Drainage flow capacity will exceed that of the calculated maximum flow from the worst case system breech. A means of cooling high-temperature heating water before it flows into public areas will also be included to minimise hazards of scalding. Drains will be configured such that water cannot back-flood up into machinery/service rooms (e.g. from river flooding).

7.2.2.25(2) Provide accessible clean-outs for all sinks and lavatories above the flood-level of the sink.

7.2.2.26 Provide neutralizers, interceptors and sediment traps to intercept oil, grease, dirt and solids where necessary and as required by the BCBC and municipal requirements.

7.2.2.26(1) Provide interceptors in accordance with the manufacturer's specifications.

7.2.2.26(2) Sizing of the interceptors/ neutralizer will be in accordance with the guidelines set out in the ASPE Design manuals, municipal guidelines, Plumbing Drainage Institute (PDI) design guidelines or the local AHJ.

7.2.2.26(3) Install plaster traps for all process sinks where cast / splint procedures are required. Install blood traps for all morgue areas. Refer to Appendix 1A Clinical Specifications.

7.2.2.26(4) Plaster trap installations are to be designed to allow for removal of the entire trap and taken to a maintenance location where the interceptor can be cleaned and returned to service.

7.2.2.26(5) Provide grease interceptors to serve all sinks and floor drains in Food Services areas. Run an independent drainage system sloped at a minimum 2%. Locate interceptors outside the actual food preparation area to allow for servicing of the fixture.

7.2.2.26(6) Each grease trap installation in the kitchen will be complete with 50 mm stainless steel vacuum suction line running from the grease trap to a designated location at the loading dock. Each end of the vacuum tubing will have Camlock fittings attached.

7.2.2.26(7) Each grease trap installation will be complete with a 20 mm hot water hose bibb on the wall in the general vicinity of the grease trap that will be connected to the 60°C hot water system.

7.2.2.26(8) Grease interceptors located in nutrition stations throughout the Facility will be sized to accommodate the anticipated design loads. Each unit is to be mounted on a wheeled platform to allow the equipment to be removed and relocated to the maintenance shop for cleaning. Each of the inlet / outlet connections on the Interceptor are to have union fittings that will allow for removal and replacement of the equipment.

7.2.2.26(9) One additional grease interceptor will be required to be provided for the facility to allow for uninterrupted operation when any one of the interceptors needs to be taken out for service.

7.2.2.26(10) Provide acid neutralizers at either the point of acid discharge to the drainage system or at the acid waste drainage system termination.

7.2.2.26(11) Provide appropriate fuel oil interceptors systems at all fuel storage tanks and filling stations to prevent fuel leakage beyond the designated containment area, and in accordance with all applicable standards.

7.2.2.26(12) Drainage from ambulance garage will be linked to sump pumps/panels and oil receptors as required.

7.2.3. Medical Gas Systems

7.2.3.1 Basic Requirements

7.2.3.1(1) All medical gas systems will be designed and constructed to CSA Z7396.1 Medical gas pipeline systems - Part 1.

7.2.3.1(2) Medical gas systems will include the following oxygen, medical vacuum, medical air, nitrous oxide, nitrogen, carbon dioxide, instrument air, and AGSS.

7.2.3.1(3) Provide manifold systems for medical oxygen system reserve, medical air reserve, nitrous oxide, nitrogen and carbon dioxide gas systems.

7.2.3.1(4) Provide an oil-free medical vacuum system.

7.2.3.1(5) Provide an active AGSS to serve the entire facility where anaesthetic gas systems or other volatile anaesthetic agents are used.

7.2.3.1(6) Provide Diameter Index Safety System (DISS) type outlets for all medical gases. Medical gas outlets within mental health areas will have secure covers. Medical gas outlets provided in the ambulance garage will be concealed.

7.2.3.1(7) Each medical gas outlet will have a permanently marked, colour-coded non-interchangeable index system so as to prevent the connection of the wrong gases. Provide a secondary check valve to hold the line pressure if the primary valve is removed for maintenance.

7.2.3.1(8) All medical gas outlets in procedure and patient rooms will be provided with a patient reference grounding system in conformance with the Canadian Electrical Code.

7.2.3.1(9) All oxygen outlets to be dual connect style (two ports).

7.2.3.1(10) Medical gas piping will be degreased copper, type 'L' or type 'K'.

7.2.3.1(11) Provide a compound for exterior central bulk oxygen storage to serve the Facility. Coordinate the compound and oxygen bulk tank requirements with the supplier, including dimensions, fencing, piping connections, electrical connections, alarm wiring, and safety measures. Locate the compound exterior to the Facility in a location in compliance with the requirements of NFPA that can be accessed by a standard oxygen refueling truck. Provide all piping between the central bulk oxygen storage and the Facility including flexible connection at the entry point to the building.

7.2.3.1(12) Provide a connection for oxygen on the exterior of the Facility for supply into the Facility from external bulk storage oxygen tanks or truck as described in Post Disaster Design.

7.2.3.1(13) Provide bottle medical gas reserve capacity within the Facility within a separate room for centralized bottle manifold supply systems for the following medical gases: medical air, oxygen, nitrogen, nitrous oxide, and carbon dioxide based on anticipated usage from the Appendix 1A Clinical Specifications.

7.2.3.1(14) Manifolds for nitrogen, nitrous oxide, and carbon dioxide will be sized to hold a minimum of one week's capacity with additional 20% spare capacity in manifold sizing. Design the centralized bottle manifold supply systems so that they will, when required, automatically switch to the spare bank of bottles (and that switching to the spare bank is alarmed at the master alarm). Only medical gas piping and valves necessary for the installation of bottle manifolds will be included in the manifold supply room.

7.2.3.1(15) Manifold room will have designated storage space and racking for spare bottles equal to 72 hours capacity for each system not connected to the manifolds.

7.2.3.1(16) Include in the Facility adequate space at the loading dock for the storage and exchange of medical gas bottles for helium, mixtures of gases such as oxygen/helium, oxygen/nitrous oxide or other gases as may be required by the Authority. Quantity of each gas will be as determined by the Authority. Provide all racks to secure bottles. A piping system for these gases not required.

7.2.3.1(17) Provide new central medical air and medical vacuum systems. Medical air and medical vacuum systems will each consist of at least three (3) interconnected sources of supply. Systems will be capable of supplying the system flow with any two (2) sources of supply out of service. Provide 'fail-safe' controls: all units will continue to run and maintain service in the event of failure of the electronic controls, without human intervention. Provide multi and/or variable speed systems to allow for varying conditions. Provide for 20% increase in a capacity, including control panels, for future.

7.2.3.1(18) Connect new central medical air and medical vacuum systems to the essential system power supply in conformance with CSA Z32. Provide an essential system power supply from at least two (2) separate circuits such that these essential services are maintained in the event a motor control centre is de-energized.

7.2.3.1(19) Medical air compressors will be equipped with a carbon monoxide alarm system to measure the level of carbon monoxide in parts per million by volume in the medical air. The system will initiate an alarm and provide a means to prevent gas from entering the piping system if the level exceeds 10 parts per million by volume. Alarm will notify the BMS.

7.2.3.1(20) Air intakes for medical air compressors will be provided with carbon filters with pressure drop alarm notifying the BMS.

7.2.3.1(21) Where laboratories or any other non-clinical area requires an air or a vacuum system, these systems will be independent from the medical air and medical vacuum systems. Non-medical compressed air systems will include the following:

7.2.3.1(21)(a) Instrument air with N+1 redundancy for non-patient use will be clean and dry and used in such areas as MDRD/Biomed/Pharmacy/Labs, braking systems on ceiling columns and operating door open and door close on sterilizers. Connect to emergency power. System pressure will depend on requirements of final devices and equipment procured. Outlet pressures will be adjustable by the Authority. Instrument air supply and piping systems will comply with the requirements of CSA Z7396.1.

7.2.3.1(21)(b) Utility compressed air system used in mechanical rooms and maintenance shops for pneumatic tool operation will include reciprocating or rotary screw air compressors, air dryers and receiver tank. Point of use quick connect outlets will include upstream filters and pressure regulators. Depending on the tools used, lubricators may be required.

7.2.3.1(22) Provide a dedicated active AGSS for all points of anaesthetic gas use and locations where other volatile anaesthetic agents will be used. Gas scavenging systems will be designed to applicable standards including CSA-Z7396.1. AGSS will include at least three (3) vacuum producers and will be capable of supplying the system design flow with any two (2) vacuum producers out of service. Vacuum producers will be connected to emergency power. System will have 20% spare capacity to permit future extension.

7.2.3.1(23) Service isolation valves will be valves of three piece bolted construction for medical gas service and will have ULC listing and CRN number. Valves will be labelled showing the appropriate gas service & pressure rating. All ball valves will have a quarter turn from closed to open and swing out during installation. Shut off valves exceeding 65mm used for medical vacuum systems may be butterfly valves. Provide degreased copper tube stubs with purge ports.

7.2.3.1(24) Area zone shut off valves will be housed in a single steel box comprised of multiple shut off valves with tube extensions, removable window incorporating a centre pull out ring. Provide pressure/vacuum gauges for each service. Provide label stating rooms served by valves. Boxes will be designed so that the shut off valve handles prevent the closure of the box door or replacement of the cover when the valve is in the off position. The boxes will be large enough to permit the manual operation of the shut off valves. The valves will be arranged such that the operation of one valve will not interfere with the proper operation of other valves located in the same box.

7.2.3.1(25) Floors will be served from a minimum of three (3) separate sets of medical gas risers. The mains serving these risers will be looped such that either set of risers can feed the floor if one riser is out of service. The loop mains will be provided with service valves so sections of the floor can be isolated without affecting the remaining floor operation.

7.2.3.1(26) Provide nitrogen at the necessary supply pressure to operating rooms to accommodate the use of speciality tools and the equipment procured.

7.2.3.1(27) Medical gas supply equipment for the operating rooms, Emergency and Inpatient rooms will be sized to allow for 20% growth in capacity.

7.2.3.1(28) Decontamination/soiled medical device reprocessing areas, general laboratories, media preparation and tissue culture labs may require instrument air or nitrogen. Design-Builder will provide the services required to meet the requirements of the final equipment and devices procured.

7.2.3.1(29) Nitrogen generators with air compressors for use with the Facility mass spectrometers will be provided. Nitrogen generators and air compressors will provide the quantity and purity of nitrogen required to suit the equipment procured.

7.2.3.1(30) Medical gas outlets in secure rooms will be behind lockable anti-ligature enclosure(s).

7.2.3.2 Performance Criteria

7.2.3.2(1) Provide medical gas outlets in conformance with the Clinical Specifications and meeting the requirements of CSA Z7396.1 and CSA Z9170.1.

7.2.3.2(1)(a) Provide medical gas outlets on both sides of beds (2 headwalls) for a minimum 12 IPU patient rooms (2 bariatric, 10 IPU), and all LDRP rooms.

7.2.3.2(1)(b) Provide medical gas outlets at each baby care area in each LDRP room.

7.2.3.2(2) Medical Gas System

7.2.3.2(2)(a) Provide a zone control valve box complete with zone alarm panel and removable window with pull-out ring at each zone.

7.2.3.2(2)(b) Provide a main alarm panel to monitor all the medical gas systems installed in the Facility.

7.2.3.2(2)(c) Supply systems will be equipped with alarm sensors as required by CSA Z7396.1. Sensing devices will also initiate audible and visual alarms on the control panels for the medical air compressor system, medical vacuum system, instrument air system and the AGSS. All alarms will notify the BMS. Provide BMS alarm interface signal to the Facility central system for critical alarms such as high or low pressure. Auditory alarm signals will be clearly audible and produce a sound level of not less than 70 dBA at a distance of 2 metres and will require manual silencing.

7.2.3.2(2)(d) Provide the medical gas system so that there is a minimum of one zone shut off valve per programmed area or room as per CSA Z7396.1 zoning requirement. In addition to CSA requirements, allow for (10) dedicated zone valves that will be serving rooms that are unique in operation, and will required dedicated zone valve.

7.2.3.2(2)(e) All piping and components of the pipeline distribution systems which come into contact with the medical gases will be supplied clean and free from oil, grease and particulate material and capped or sealed to prevent contamination. On site cleaning of medical gas piping will not be permitted.

7.2.3.2(2)(f) Provide a local alarm panel for each zone. Alarm panels will be connected to the essential system power supply in conformance with CSA Z32. Provide a master medical gas alarm panel to monitor all medical gas functions. Remote alarm annunciation will be provided at a location with 24 hour continuous monitoring by personnel. Provide an interconnected status and alarm point and signal to the BMS.

7.2.3.2(2)(g) All master alarm panels will be individually connected to the BMS. Provide an alarm interface signal to the BMS for critical alarms such as low or high pressure. Master alarms will be connected to the essential system power supply in conformance with CSA Z32.

7.2.3.2(2)(h) All medical gas systems will be certified in accordance with CSA standards and reviewed by an independent and qualified testing agency (provided by the Authority).

7.2.3.2(2)(i) All systems components requiring electrical power will be connected to the essential system power supply in conformance with CSA Z32.

7.2.3.2(2)(j) The medical gas supply system will be for patient consumption only. If equipment and/or procedure(s) require instrument air, then provide separate dedicated source equipment, piping, valving and monitoring to accommodate that application.

7.2.3.2(2)(k) Design-Builder will conduct all installation tests of the medical gas supply systems required by CSA Z7396.1 including leak tests and cross connection tests.

7.2.3.2(2)(l) Zone valves will be installed immediately outside each anaesthetizing location.

7.3 Heating, Ventilating and Air Conditioning (Division 23)

7.3.1. Heating Plant:

7.3.1.1 Basic Requirements

7.3.1.1(1) The heating plant will be designed to meet the peak coincident load with the largest heating source unit out of operation (N+1 redundancy). The redundancy may be shared with the steam plant redundancy.

7.3.1.1(2) Pumps, heat exchangers and other ancillary equipment redundancy will match that of the main equipment. Ensure that no failure of any single pump, fan, variable frequency drive (VFD), or central system control valve will be able to prevent heating of the Facility to the required design conditions.

7.3.1.1(3) Heating and steam boilers will be of dual fuel design and will be capable of operating on natural gas or No. 2 fuel oil by operation of valves and controls only.

7.3.1.1(4) Apply energy heat recovery systems to offset plant heating requirements. Refer to section 7.3.9.1(15) for additional requirements.

7.3.1.1(5) Provide treatment equipment for introducing cleaners and/or corrosion inhibitors. Provide side stream filters for hydronic systems.

7.3.1.2 Performance Criteria

7.3.1.2(1) Design the heating equipment to sufficiently meet the maximum simultaneous Facility demand for all systems served by the central plant.

7.3.1.2(2) Ensure the plant is capable of controlling and responding to periods of low usage.

7.3.1.2(3) In addition to CSA Z32 and CSA Z317.2 requirements, heating plant equipment will be connected to the delayed vital essential electrical system in such a way that at least two-thirds of plant capacity is available at all times.

7.3.2. Heating Hot Water System

7.3.2.1 Hot water for heating will be provided using a primary heating water loop running at optimal temperatures for the selected equipment. Redundancy will be based on meeting the final plant capacity with one boiler out of service.

7.3.2.2 Heating water boilers will be of dual fuel design, high efficiency and configured for condensing operation when operated on natural gas. Provisions will be made to allow the boilers to operate safely on fuel oil, condensing mode is not required.

7.3.2.3 Boilers will be forced draft type, fully modulating, low NOx, complete with variable speed burner fan, continuous oxygen trim and utilizing electronic ignition and flame sensing. Boilers will include a control package which will monitor all safety functions and will communicate with the overall process control system.

7.3.2.4 Provide primary hot water pumps with VFDs in a quantity that matches that of the boilers, plus one redundant, to distribute hot water throughout the primary loop. Primary pumps to be piped into common supply/ return headers such that any pump can serve any boiler. Boiler system to operate on variable flow principles governed by secondary loop demands.

7.3.2.5 Provide dedicated secondary pumping systems to serve the required loads and to maximize the temperature differential before the water is returned to the central plant.

7.3.2.6 Reheat systems will be based on low temperature distribution to maximize primary hot water loop temperature differential and to provide opportunity to use recovered heat.

7.3.2.7 Provide automatic isolation valves on the inlet of each boiler.

7.3.2.8 Provide coalescing type dirt and air separator on the primary hot water supply main in the central plant.

7.3.2.9 Provide energy metering to measure the heating load at the supply/ return mains.

7.3.2.10 Modular expansion tanks are to be provided in accordance with system volumes at Substantial Completion as well as future system volume. The allowance for future system volume is an additional 10% over Substantial Completion volumes. Make-up water will be measured via flow meter.

7.3.2.11 Provide humidification for the Facility as required to meet space humidity as outlined in Table 1 of CSA Z317.2.

7.3.2.11(1) Provide standalone steam generation equipment for all humidification and process steam requirements within the Facility.

7.3.2.11(2) Ensure the feed water quality to steam generators is within the required conditions of the applicable codes, standards, and manufacturer's recommendations for both the generator and the downstream equipment. Steam quality must be condensate free and minimum 97% saturated vapour.

7.3.2.11(3) Provide connections in the steam system near the point-of-use, which can be used to access the steam for quality measurement.

7.3.3. Steam System

7.3.3.1 Provide steam generators/boilers for all steam demands within the Facility. Each steam system whether a single plant or multiple individual systems will provide sufficient steam to meet the maximum simultaneous demand on that system, plus an additional 30% spare capacity per each system. Redundancy on each steam system will be based on meeting the final plant capacity with the largest boiler in the system out of service.

7.3.3.2 Steam boilers will be either high mass fire tube-type (dual fuel), or electric. If electric, the load of the boilers will be factored in to the sizing of the generators.

7.3.3.3 If gas-fired boilers are used, burners will be high efficiency, forced draft type, fully modulating, low NOx, complete with variable speed burner fan, continuous oxygen trim and utilizing electronic ignition and flame sensing.

7.3.3.4 Boilers will include a control package which will monitor all safety functions and will communicate with the overall process control system. Provide both surface and drum blowdown systems and all safety features.

7.3.3.5 Provide steam separators to achieve ideal dryness on outlet of each boiler.

7.3.3.6 Blowdown collection tank will be capable of recovering heat back into the boiler feed water.

7.3.3.7 Provide a main condensate tank with capacity to suit the installed boiler capacity.

7.3.3.8 Condensate transfer pumps will be configured with at least one pump per boiler plus N+1 redundancy.

7.3.3.9 Provide a main deaerator with a capacity to suit the installed boiler capacity.

7.3.3.10 Boiler feed pumps will be configured with at least one pump per boiler plus N+1 redundancy.

7.3.3.11 Pipe the condensate return system such that boiler operation can be maintained if the deaerator is out of service.

7.3.3.12 Where high pressure condensate accumulates in the plant space, provide flash tank with operating pressure of 35 kPa (5 psi) and recover steam to deaerator.

7.3.3.13 Include steam flow meter on plant main outlet to measure production.

7.3.3.14 Include water flow meter to measure steam plant make-up water demand.

7.3.3.15 Supply pressure reducing valve stations in a 1/3, 2/3 arrangement when load exceeds 700 kg/hr (1500 pph). For loads below 700 kg/hr (1500 pph), provide full size PRV and globe valve bypass. All PRVs will have isolation valves up and down stream as well as strainers, relief valves, drip-pan elbows and vents to outdoors. Vents of different pressure reliefs will not be combined.

7.3.3.16 PRVs for humidifier operation will be installed locally and provide steam at 70 kPa (10 psi).

7.3.3.17 Blowdown tank size will be in accordance with National Board of Boiler and Pressure Vessel Inspectors.

7.3.3.18 Provide steam filters and moisture separators at each sterilizer, disinfector, cart washer and at other steam consuming devices as recommended by the manufacturer.

7.3.4. Flues

7.3.4.1 All flues will be accessible without the need for temporary ladders. Provide fixed structural platform(s) if required.

7.3.4.2 Provide individual flues for each hot water heating boiler, steam boiler and generator. Flues will be individually insulated.

7.3.4.3 Flues will not permit entrainment into Facility air intakes and openings.

7.3.4.4 Wind loading, seismic zone, exposure factor, and deflection will be in accordance with the BCBC.

7.3.5. Fuel Systems - Boilers

7.3.5.1 Provide protected tanks, in capacities not exceeding 45,000L each for the boiler systems backup. All fuel tanks to be dual walled above ground tanks located at the exterior of the building.

7.3.5.2 Final storage capacity will be sufficient for 72 hours of operation at the design load.

7.3.5.3 Include duplex fuel pump package to supply 1.5X the flow of aggregate boiler demand. Duplex set to be run/ standby with dedicated pump control panels for true redundancy.

7.3.5.4 Provide anti syphon valve on the supply line from the storage tanks to the fuel supply header.

7.3.5.5 All storage tank fuel supply lines to be piped into a common header with individual automatic solenoid valves acting as tank selectors. Header to be provided with drain and priming connection.

7.3.5.6 Duplex pump set to send fuel oil through supply loop disseminating fuel to all boilers in parallel. Provide an oil de-aerator complete with oil filter for each boiler.

7.3.5.7 Supply back pressure valve at end of supply main to maintain an upstream pressure on the suction of each burner of no more than 20 kPa or the pressure required by the equipment for proper operation.

7.3.5.8 All excess fuel pumped and returned from boilers will be piped into a common header with individual return lines along with automatic solenoid valves returning fuel to each tank.

7.3.5.9 Provide fully automated fuel management system.

7.3.5.10 Individual fuel fill wall mounted cabinets with overfill alarm and vents will be provided in accessible location for a fuel tanker yet as discreet as possible.

7.3.5.11 Provide new intermediary, let-down pressure station for natural gas to the central plant sized to supply all boilers at peak demand. Location to be screened from view and secured (fenced compound with pad-locked door), and protected with bollards.

7.3.5.12 Provide fully automated fuel filtration system for all fuel storage tanks.

7.3.5.13 Provide minimum 2 X 20 US gallon propane bottles with regulators and protective cage to feed pilots and facilitate fuel oil ignition. Plumb to respective appliances as per manufacturer's requirements. Provide additional bottles or capacity if required.

7.3.6. Fuel Systems - Generators

7.3.6.1 Final storage capacity will be sufficient for 72 hours of operation at full nameplate prime kW rating of all generators combined.

7.3.6.2 Provide dedicated above-grade fuel oil day tanks for each generator along with all safeties, protections, and valves to meet CSA B139 and/or National Fire Code.

7.3.6.3 Provide duplex fuel pump package supplying 2.5X the aggregate flow of generators' demand. Duplex set to be run/ standby with dedicated pump control panels for true redundancy.

7.3.6.4 Provide anti syphon valve on supply line from the storage tanks to the fuel supply header.

7.3.6.5 All storage tank fuel supply lines to be piped to a common header with individual automatic solenoid valves acting as tank selectors. Header to be provided with drain and priming connection.

7.3.6.6 All day tank overflows will be returned by gravity and piped into a common header. Thereafter, individual gravity return lines along with automatic solenoid valves, return fuel to each main storage tank.

7.3.6.7 Provide fully automated fuel management system.

7.3.6.8 Provide fully automated fuel filtration system for all fuel storage tanks.

7.3.7. Cooling

7.3.7.1 Basic Requirements

7.3.7.1(1) Chilled water will be produced in the central plant. The design and operation of the central plant must be optimized to allow energy recovery (for heating purposes) and to minimize the cost of operation.

7.3.7.1(2) Cooling plant equipment will be connected to the delayed vital essential electrical system in such a way that critical cooling and 24/7 cooling loads are served at all times.

7.3.7.1(3) Main Chilled Water and Facility Heat Recovery Chiller System Common Requirements:

7.3.7.1(3)(a) All chillers are to be selected with less than 30 kPa [10' w.c.] water side pressure drop through evaporator and condenser sections. Single and two pass heat exchangers only are acceptable. Three pass and higher are not acceptable.

7.3.7.1(3)(b) Each chiller plant will be configured in a parallel arrangement with means of automatic isolation of each chiller prevent flow through inactive units.

7.3.7.1(3)(c) Each chiller plant will be designed with a temperature differential to minimize pumping power and maximize plant efficiency.

7.3.7.1(3)(d) A primary-secondary piping arrangement is not acceptable. Design each chilled water system with a primary piping configuration only to reduce system pumping power.

7.3.7.1(4) Main Chilled Water System

7.3.7.1(4)(a) Design the cooling plant to meet the maximum simultaneous Facility demand for all systems served by the cooling plant, as well as being capable of controlling and responding to periods of low usage. Systems include air handling units, fan-coil units, and heat recovery coils. All chillers will unload down to 15% of rated capacity, to accommodate Facility part load conditions.

7.3.7.1(4)(b) All chillers are to be institutional grade with expected life span of minimum 30 years.

7.3.7.1(4)(c) Chilled water distribution will be configured to serve the Facility and future loads from supply and return headers located in the chiller room. Provide valved connections for the Facility and two 100Φ connections for future loads.

7.3.7.1(4)(d) Central plant main chillers will be water cooled, high efficiency, electrical centrifugal chillers utilizing magnetic bearings, rated in accordance with AHRI 550/590. No absorption chillers may be used. Chillers will utilize non-CFC refrigerant.

7.3.7.1(4)(e) Chillers will have minimum 10% higher efficiency than called for by ASHRAE 90.1 standard at AHRI testing conditions. The 10% higher efficiency is to be achieved at ASHRAE design conditions for 25%, 50%, 75% and 100% loading. The IPLV rating of each chiller shall be minimum 10% better than required by ASHRAE 90.1.

7.3.7.1(4)(f) Chiller control sequences will include chiller staging to maximize the overall plant efficiency at all loading conditions.

7.3.7.1(4)(g) Chiller control sequences will also include chilled water temperature and system differential pressure reset and variable water flow. Base chilled water temperature and differential pressure reset on tracking position of all control valves (positive feedback).

7.3.7.1(4)(h) Provide continuously available (24/7) cooling for all areas containing specialized equipment (such as Diagnostic Imaging) and continuous internal heat gains such as elevator machine rooms, server rooms, electrical, UPS and communications rooms via a process chilled water loop that can operate either independently or interconnected with the main chilled water system.

7.3.7.1(5) Facility Heat Recovery Chiller System:

7.3.7.1(5)(a) Design the heat recovery chiller plant to meet the maximum simultaneous Facility heating and cooling demand (including heat extracted by heat recovery coils), as well as being capable of controlling and unloading down to 15% of rated capacity to respond to periods of low usage.

7.3.7.1(5)(b) All chillers are to be custom high lift industrial grade with expected life span of minimum 30 years.

7.3.7.1(5)(c) Chillers will be water cooled, high efficiency, electrical screw chillers rated in accordance with AHRI 550/590. Chillers will utilize non CFC refrigerants.

7.3.7.1(5)(d) Chillers will have minimum 10% higher efficiency than called for by ASHRAE 90.1 standard at AHRI testing conditions.

7.3.7.1(5)(e) Heat recovery chillers to be arranged to extract heat from the main chiller condenser water loop downstream of main chillers. Provide by-pass around main chillers such that the heat recovery chillers can be used to extract heat directly from the Facility chilled water system.

7.3.7.1(5)(f) The heat recovery chiller plant will be configured such that units can be added to increase plant capacity. Redundancy will be based on meeting the plant capacity with the largest chiller out of service. The plant will be configured such that 50% of the capacity will be fed from one electrical feeder, and 50% from a second feeder.

7.3.7.1(5)(g) Heat recovery to be provided by separate, multiple-compressor chillers capable of heat recovery operation. Chillers will utilize non CFC refrigerants.

7.3.7.1(5)(h) Chiller redundancy will be such that a failed chiller can be repaired and/or removed and replaced without impacting ongoing operations.

7.3.7.1(5)(i) Optimize heat recovery from the chiller system such that all the heat extracted from the main chilled water system condenser water can be recovered to provide heat to the Facility and the central plant. Recovered heat uses include all Facility heating, reheat, and domestic hot water preheating. Full or partial heat rejection to the cooling towers will be enabled when the ability to use the recovered heat is reduced or not available.

7.3.7.1(6) Provide chilled water pumps with VFDs in a quantity that matches that of the chillers to distribute chilled water throughout the primary Facility loop. Interconnect the supply/return mains with isolation valves such that any pump can serve any chiller. Provide minimum three pairs of supply / return mains between the chillers and the Facility.

7.3.7.1(7) Provide condenser water pumps with VFDs in a quantity that matches that of the chillers. Condenser water piping is to be schedule 80 steel. Interconnect the supply/return mains with isolation valves such that any pump can serve any chiller and cooling tower.

7.3.7.1(8) Ensure that no failure of any single pump, fan, variable frequency drive (VFD), or central system control valve will be able to prevent cooling of the Facility to the required design conditions.

7.3.7.1(9) Provide multi-cell induced draft cooling towers, with condenser water to cells valved to isolate individual cells while keeping the remainder of the cooling tower operational at full design capacity. Locate the cooling towers to ensure cooling tower discharge does not enter the Facility or any other buildings through air intakes or other openings. Provide each tower drain pan as all stainless-steel construction, with a ladder and maintenance access platform to service all sides of each tower. Provide walking platform inside the basin and provide discharge isolation dampers. Make-up water to the cooling towers will be measured via flow meter. Cooling tower frame/structure will be epoxy coated steel.

7.3.7.1(10) Provide energy meters on the main chilled water loop and condenser water loop.

7.3.7.1(11) Provide energy meters on the heat recovery chiller condenser loop to measure the heat recovered from the chillers.

7.3.7.1(12) Chilled water plant is to operate on variable primary flow principles governed by Facility demands. Chillers are to be selected to operate on variable flows through both the evaporator and condenser. Minimum flow limits to be provided by chiller and cooling tower manufacturer.

7.3.7.1(13) For winter operation of chillers, sufficient cooling tower capacity in an N+1 arrangement will be winterized and heat traced. The winterized tower section will be easily isolated from the rest of the array when seasonal equipment is drained.

7.3.7.1(14) Provide automatic isolation valves on the inlet side of each chiller and cooling tower.

7.3.7.1(15) Provide coalescing type dirt and air separator on chilled water supply main leaving the central plant. Provide side stream cartridge filters, chemical pot feeders, and corrosion coupons for all chilled water systems.

7.3.7.1(16) Provide water treatment packages for the condenser water systems. Provide treatment equipment for introducing corrosion inhibitors and biocides into the cooling towers. Provide packaged high efficiency solids separators.

7.3.7.1(17) Modular expansion tanks are to be provided in accordance with designed system volumes. Make-up water to the chilled water system will be measured via flow meter.

7.3.7.2 Performance Criteria

7.3.7.2(1) Provide equipment for all necessary cooling, including the required redundancy in the cooling systems and cooling required by Facility systems in a post disaster event.

7.3.7.2(2) Provide 100% outdoor air for free cooling as the first means of space cooling. Heat recovery strategies may override this requirement.

7.3.7.2(3) Apply sensible and latent energy recovery systems to offset plant cooling requirements.

7.3.7.2(4) Cooling towers will be provided with variable speed controllers on all motors. Provide sump heaters for cooling towers designed to operate in winter.

7.3.7.2(5) Chilled water plant to be controlled to optimize operation based on outdoor temperature and cooling demand.

7.3.7.2(6) Chillers will have multiple individual refrigerant circuits.

7.3.7.2(7) Open-type cooling towers are allowed, if:

7.3.7.2(7)(a) cooling towers are located a minimum 25m away from fresh air intakes;

7.3.7.2(7)(b) cooling towers are provided with effective water treatment systems to protect against the risk of infectious contaminants

7.3.7.2(7)(c) redundant heat exchangers are provided between the open cooling tower loop and the condenser water loop serving chillers and other cooling equipment .

7.3.7.2(8) Chillers and cooling towers will be designed and located so as not to have an adverse effect on the mechanical systems for this Facility or any adjacent building.

7.3.7.2(9) Provide chillers and cooling towers for ease of operation, accessibility for maintenance, safety and appearance.

7.3.8. Space Heating and Cooling

7.3.8.1 Basic Requirements

7.3.8.1(1) Heating, ventilation and air conditioning (HVAC) system will provide a comfortable internal environment for the patients and staff, and will meet the required environmental conditions for the equipment.

7.3.8.1(2) Provide all necessary space, ventilation and process heating for the Facility.

7.3.8.1(3) Space heating and cooling capacity must be sufficient to meet the required indoor design temperature and relative humidity

7.3.8.1(4) Space heating capacity must be sufficient to meet the required indoor design temperatures while using the January 1% outside design temperature for the nearest City as outlined in the BCBC.

7.3.8.1(5) Space cooling capacity must be sufficient to meet the required indoor design while using the July 2.5% outside design wet and dry bulb temperatures for the City.

7.3.8.1(6) Connect sources of heating that serve Type I and Type II spaces to electrical power in accordance with CSA Z32.

7.3.8.1(7) Design pumps to:

7.3.8.1(7)(a) Operate at the system fluid temperature without vapour binding and cavitation;

7.3.8.1(7)(b) Be non- overloading in parallel or individual operation;

7.3.8.1(7)(c) Operate within 25% of the midpoint of published maximum efficiency curve;

7.3.8.1(7)(d) Incorporate a variable frequency drive (VFD) for pumps with 3HP or higher motors for energy savings under part-load conditions.

7.3.8.1(8) Ensure pump construction and installation will permit complete pump servicing without disrupting piping or motor connections.

7.3.8.1(9) Insulate all piping, equipment and accessories in accordance with all applicable standards as a minimum.

7.3.8.1(10) Provide seismic mitigation and Facility separation devices for all piping that crosses Facility and/or utility corridors.

7.3.8.1(11) Provide adequate expansion compensation for heating piping. Locate anchors and guides, design expansion compensation loops and select expansion compensation devices based on a thorough review of piping layout and engineered piping stress analysis.

7.3.8.1(12) Ensure that no air within the air conditioning system, outside of the central air handling equipment, drops below its dew point temperature.

7.3.8.1(13) All refrigerants used will be environment friendly and will comply with the Project's LEED rating target and all current Standards.

7.3.8.1(14) Once through cooling is not permitted for any process or service within the Facility.

7.3.8.1(15) Provide continuously available chilled water or condenser water systems for all areas containing specialized medical equipment, Communication Rooms, elevator machines, server systems and electrical rooms for managing continuous internal heat gains. Cooling and heat rejection for these critical loads may be served by the central cooling plant provided the system incorporates redundancy per CSA Z317.2 requirements and is connected to the delayed-vital electrical system. Design HVAC terminal components in conjunction with equipment location in order to mitigate unnecessary heat gain into the space.

7.3.8.1(16) Provide continuously available chilled water for the water cooled condensing units for the food and nutrition services department. Make final connections to the condensers. Provide refrigerant piping between the condensers and the respective refrigerator, freezer or cooler, charge with refrigerant and oil and fully commission. Refer to Appendix 1l(l) the Food Service Equipment List.

7.3.8.1(17) Space heating for the decontamination suite will be by radiant means to ensure minimal air velocity within the space.

7.3.8.1(18) HVAC terminal components for cooling of Communication Rooms (PER & SER)and electrical rooms will be N+N redundancy.

7.3.8.1(18)(a) In case pipes containing pressurized fluid are to be used, provide measures to minimize risk of leakage and provide leak detector system. Leak detection will communicate with the BMS.

7.3.8.1(19) Provide a dedicated express riser to the penthouse (AHUs) for chilled water, heating water, steam, and condenser water. Provide four risers (two pairs) for heating and chilled water between L1 and L3.. Interconnect each pair of risers on each floor (75mm for heating and branch size for chilled), and connect the floor risers to the express riser in the penthouse (sized for riser load). Provide a dedicated steam riser for the MDR, that interconnects with the steam piping in the penthouse (interconnection sized for MDR loads).

7.3.8.2 Performance Criteria

7.3.8.2(1) Install piping in an orderly manner (aligned with structural elements and at right angles). Slope piping to permit complete drainage of the system. Make allowances in all pipe sizing to provide flexibility for future renovations in accordance with Section 5.10 Mechanical Systems Design Principles.

7.3.8.2(2) Install equipment and piping with adequate service space, access panels and the ability to remove equipment for servicing or replacement. Locate services that require access for regular maintenance above non-critical spaces, such as corridors, to minimize or eliminate disruptions to the delivery of health care services. Coordinate placement of ceiling devices to ensure sufficient access to ceiling spaces.

7.3.8.2(3) Equip all high points in piping with air removal devices such as air collection chambers and air vents. Do not locate automatic air vents above the ceilings of occupied spaces.

7.3.8.2(4) Provide isolation valves, unions, and bypass piping to allow for equipment isolation and removal without unduly affecting the system operation or major drain down.

7.3.8.2(5) Provide balancing valves, flow-measuring devices, and temperature and pressure sensors throughout the system to facilitate system balancing.

7.3.8.2(6) Ensure all piping is accessible. No under-slab piping is permitted, with the exception of glycol piping as noted above.

7.3.8.2(7) Room return air in specific spaces indicated in CSA Z317.2 will not recirculate within the terminal units serving the space.

7.3.8.2(8) Provide reheat coils with perimeter diffuser for all perimeter zones.

7.3.8.2(9) Any ventilation and/or radiant heating sources serving the patient rooms will be connected to the Facility's emergency power supply.

7.3.8.2(10) Insulate all chilled water and condenser water piping, equipment and accessories in accordance with the most stringent of applicable Standards, including BCICA and ASHRAE standards. Provide a canvas or PVC service jacket on all exposed piping inside; exterior piping will have aluminum jacketing.

7.3.8.2(11) Chilled water, heating water, and condenser water piping will be Schedule 40 Steel or Type L copper. Copper piping for run outs and coil connections will be soldered with lead free or 95/5 solder.

7.3.8.2(12) Utilize screw fittings for 50mm piping and smaller and welded fittings for 65mm piping and larger for steel piping. Victaulic fittings may be used for corridor pipe racks and within mechanical rooms.

7.3.8.2(13) CFC and HCFC based refrigerants will not be used in the refrigeration equipment.

7.3.9. Ventilation

7.3.9.1 Basic Requirements

7.3.9.1(1) Provide all necessary ventilation for all spaces. Submit calculations with each design submittal by the Authority. Include SMACNA recommended duct leakage rates for sizing air systems.

7.3.9.1(2) Design the air handling equipment for the Facility to provide 100% outdoor air capability at all times of the year. Requirement for 100% outside air includes operation during fire mode smoke control sequences and an internal catastrophic event.

7.3.9.1(3) The clinical support spaces, administration spaces, meeting spaces, and central plant ventilation systems may be designed to ASHRAE Standard 170 for health care facilities provided these spaces are not served from a common ventilation system serving the Facility.

7.3.9.1(4) HVAC systems that maintain appropriate pressure relationships between various areas of the Facility and provide necessary outdoor air quantity, air filtration, cleansing and exhaust to control the transmission of infection.

7.3.9.1(5) Provide HVAC systems with adequate backup capacity and equipment redundancy to ensure continuous Facility operations at all times.

7.3.9.1(6) Provide air handling units with sectional heating and cooling coils and manual isolation valves that will enable isolation and repairs to the damaged section of coils without stoppage of the system. Provide air handling units with freeze proof coils.

7.3.9.1(7) Design and construct the Facility to comply with the requirements of CSA Z317.2 (Special requirements for heating, ventilation & air conditioning systems in health care facilities) for a Class A-1 HCF (Health Care Facility), except as follows:

7.3.9.1(7)(a) Air handling systems (supply, return, and exhaust) will be provided with sufficient redundancy so that in the event of a failure or scheduled shutdown of one unit there will be no disruptions in Facility operation. Type I spaces will maintain 100% redundancy. Type II and III spaces will maintain 50% redundancy.

7.3.9.1(8) HVAC systems for communications rooms including entrance facility room, main electrical room and tech room will condition the spaces to meet temperature and relative humidity requirements as per the most restrictive of ASHRAE 2015 Environmental Guidelines for Datacom Equipment, TIA-942-A-2012, or the following:

7.3.9.1(8)(a) Temperature: 18-27°C [64-81°F] dry bulb;

7.3.9.1(8)(b) Maximum relative humidity: 60%;

7.3.9.1(8)(c) Maximum dew point: 15°C [59°F]; and

7.3.9.1(8)(d) Maximum rate of temperature change: 5°C [9°F] per hour.

7.3.9.1(9) Refer to Section 7.6 Communications (Division 27) for the cooling loads in communications rooms, Entrance Facility Room, the Main Electrical Room, and Tech Room.

7.3.9.1(10) For clusters of isolation rooms for infection control, provide dampers of sufficient quality to ensure minimal leakage of airflow. Provide airflow sensor at damper to ensure isolation has been achieved.

7.3.9.1(11) Provide air filtration in accordance with all applicable standards. Provide a minimum filtration level of MERV 15 on all outdoor air intakes with the exception of generator radiator cooling air intakes. Ensure all HVAC systems will perform such that any indoor contaminants are maintained at less than 50% of their occupational exposure limits (OELs).

7.3.9.1(12) Provide dedicated supply air with HEPA filters for spaces as required by applicable standards.

7.3.9.1(13) **P**rovide the ventilation system and all components in accordance with all applicable standards.

7.3.9.1(14) Provide fans with Variable Frequency Drives (VFDs) for energy savings under part-load conditions. Motor loads of 100 hp or greater will be provided with reduced voltage motor starter acceptable to BC Hydro. Provide shaft grounding rings on all motors with VFDs.

7.3.9.1(15) Provide a heat recovery system on all Facility exhaust and relief air systems (other than highly contaminated exhaust). Air to air heat recovery is permissible. Where air to air heat recovery is not provided, heat recovery coils complete with upstream filters will be provided and selected to extract both sensible and latent heat to 48°F WB. Heat recovery systems (air to air or coil) will include a bypass which also bypasses coil filters, if applicable.

7.3.9.1(16) Provide factory-fabricated air handling equipment to ensure the highest construction standard. The controls contractor will provide the associated monitoring and controls for connection to the BMS.

7.3.9.1(16)(a) Air handling units will have double-walled construction with minimum 50mm thick insulation, galvanized steel exterior, stainless steel or painted aluminum interior.

7.3.9.1(16)(b) Air handling unit floors will be reinforced minimum 3mm aluminum or 14 ga stainless steel checker plate with continuously welded seams. Base will be structural steel minimum 150mm C-channel around perimeter.

7.3.9.1(16)(c) Interior surfaces of air handling units will be light in colour, washable, smooth, non-porous and free of obstructions which may impede airflow or the ability to thoroughly clean the unit.

7.3.9.1(16)(d) There will be no standing water in air handling units. Install leak-proof drain pans with continuously welded seams and corners. Drain pans will be 16 ga type 304 stainless steel, double sloped to drain. Drain size minimum 32mm (1-1/4”).

7.3.9.1(16)(e) The air handling unit will have a 40mm perimeter collar around the entire unit and around each floor opening to ensure the unit is internally watertight. Each section of the air handling unit will have a capped and threaded drain connection.

7.3.9.1(16)(f) In addition to the air filtration required by CSA Z317.2, provide air handling units with a 100mm carbon filter rack. Carbon filters will not shed dust and in turn will require no post filter. Carbon filter pressure drop will not exceed 125Pa at 2 m/s.

7.3.9.1(17) Provide an exhaust air system suitable for the laboratory requirements and any other special venting requirements as per CSA standards. These systems will be interlocked with the supply air systems. If system serves more than one piece of equipment, provide N+1 redundancy in fans. Laboratory ventilation systems will supply sufficient make-up air for exhaust systems to maintain proper pressurization throughout the Facility.

7.3.9.1(18) Provide vandal-proof, anti-ligature HVAC equipment and devices in patient bedrooms, safe and seclusion rooms, and other areas where psychiatric Patients may be present and unsupervised. Spaces include the mental health department and mental health rooms located outside of the mental health department.

7.3.9.1(18)(a) Provide dedicated room temperature control for the Safe Room. The temperature controller is to be installed outside of the Safe Room in nursing station and will be controlled by nursing staff.

7.3.9.1(19) Isolation rooms will be designed to function as typical patient rooms when not in use as Isolation. Provide heat recovery of all Isolation room exhaust systems.

7.3.9.1(20) All spaces designated as infectious control or isolation will be connected to emergency power for ventilation and pressurization control.

7.3.9.1(21) Type I, Type II, and Type III spaces may have combined supply, return, and exhaust systems, provided the air handling units serving these spaces meet the most stringent space type requirements of CSA Z317.2.

7.3.9.1(22) Provide HEPA and UV filters on Facility exhaust air systems for spaces including but not limited to Airborne Isolation Rooms (AIR's), Airborne Isolation Room-Hybrid(s), Decontamination Room and Outbreak Control Zones.

7.3.9.1(23) Ensure the ventilation systems are designed to accommodate any additional ventilation supply needed for commercial spaces to maintain proper pressurization throughout the Facility.

7.3.9.1(24) Ensure the ventilation of residential dryers and range hoods exhaust air is ducted to the exterior. If the ducting exceeds the dryer’s maximum allowable distance, provide an interlocked booster fan.

7.3.9.1(25) Provide all ventilation for the Food Services department including NFPA exhaust hoods for the cooking equipment and condensate canopies over the dishwashers.

7.3.9.1(26) Provide ventilation systems for central plant as follows:

7.3.9.1(26)(a) Boiler room combustion air and room ventilation system;

7.3.9.1(26)(b) Chiller room ventilation and exhaust system;

7.3.9.1(26)(c) Control room and staff area heating, cooling and ventilation;

7.3.9.1(26)(d) Water entry room ventilation;

7.3.9.1(26)(e) Electrical room ventilation and cooling.

7.3.9.1(27) Apply CSA-Z317.2and ASHRAE Standard 170 for space pressurization and minimum air change rates. If the standards differ apply the most stringent requirement.

7.3.9.1(28) Provide a ventilation system for the ambulance garage as follows:

7.3.9.1(28)(a) Heating will be provided by direct vent natural gas radiant heaters.

7.3.9.1(28)(b) Each door to the exterior of the Garage will have an air curtain.

7.3.9.1(28)(c) A continuous general exhaust ventilation system will be provide to exhaust air from the Garage to the outdoors at a rate of 2.5 l/s per m2.

7.3.9.1(28)(d) An intermittent exhaust ventilation system will be provided to exhaust air from the Garage to the outdoors at a rate of ten air changes per hour. Air will be exhausted from both high and low level at the back of the Garage through a fan to the outside. Provide a motorized damper where the air is exhausted.

7.3.9.1(28)(e) Provide a variable air volume makeup air unit to heat the makeup air exhausted by the fans. Provide an offset between supply and exhaust to keep the Garage negatively pressurized relative to the rest of the Facility.

7.3.9.1(28)(f) The intermittent exhaust fan and dampers will be controlled by the BMS through:

(f)..1 Door switches for each overhead door, to operate the fan system for a period of six minutes;

(f)..2 CO, NOx and propane gas detection sensors;

(f)..3 A humidistat, set to switch at a maximum of 55% RH; and

(f)..4 Gas detection sensors will activate the intermittent fan at: CO sensor – 25 ppm, NOx sensor – 1ppm.

7.3.9.1(29) Provide ventilation for smudging as follows:

7.3.9.1(29)(a) For rooms where smudging is likely to occur on a more regular basis including the spiritual care, provide a dedicated exhaust system for use during the smudge and for a period of time after the smudge has ended to ensure that the room has been purged of smoke. When these rooms are being used for smudging, the air will not be returned to the central system. When the rooms are not being used for smudging, the air supplied may be returned. The rooms will be negatively pressurized relative to the rest of the Facility.

7.3.9.1(30) Ventilation systems serving pharmacy spaces will be designed to comply with the most current version of NAPRA Standards for Pharmacy Compounding of Non-Hazardous Sterile Preparations. Where a conflict exists between the two standards, the latter will govern. Provide a dedicated air handling unit to serve each pharmacy space and provide all required testing and certification.

7.3.9.1(31) Provide ventilation workshops to accommodate woodworking, spray painting, acetylene torch cutting and brazing and welding. Ventilation systems to incorporate dust collectors, spray booths and close capture systems.

7.3.9.2 Performance Criteria

7.3.9.2(1) Allow for the installation and removal of major HVAC equipment such as fans without disrupting Facility operations.

7.3.9.2(2) Locate fans, common filters (e.g. HEPA), and other equipment in the central mechanical rooms. Allow for adequate clearance for service access. Do not place this equipment in confined spaces and avoid small doors and hatch access.

7.3.9.2(3) Provide bag in – bag out HEPA filters with bubble tight dampers as per CSA Z317.2 and 100% redundancy for exhaust systems serving airborne isolation rooms and their associated washrooms. Filter system will be designed so that filters can be replaced without impacting the operation of the rooms served by the system.

7.3.9.2(4) Where unavoidable, all equipment for supply air, return air and general exhaust systems that will be located exterior to the Facility will be designed and constructed to withstand the exposure to outdoor conditions.

7.3.9.2(5) All supply air, return air and general exhaust air systems will be accessible for routine maintenance without exposure to the elements/outdoors.

7.3.9.2(6) Make allowances in supply, return and exhaust duct sizing and equipment selections to provide flexibility for future changes in spaces. Allow for a future increase in capacity of duct mains and the capability of the air handling units in accordance with the requirements set out in Section 5.10 Mechanical Systems Design Principles.

7.3.9.2(7) Provide fresh air intakes, cooling coil drain pans, air handling units, ductwork, and all other interconnected components to prevent moisture or contaminants from collecting within the system. Provide sufficient access panels to allow for inspection and cleaning. Do not use duct mounted humidifiers.

7.3.9.2(8) Locate fresh air intakes so as not to entrain contaminants from outdoor sources, including existing exhaust points of adjacent buildings, Facility exhaust points, or parking areas. Locate all intakes in areas that are not accessible by the public and are not near exhaust air outlets. Take into account the location of the emergency generator exhaust and ensure that fumes from the generator exhaust are not introduced into the Facility or adjacent buildings' fresh air intakes.

7.3.9.2(9) Ensure all supply, return, and exhaust air is fully ducted to the space being served. Ceiling area will not be used as return air plenums. Door grilles are only permitted for non-medical storage and service rooms without a Fire-Rating. Utilizing door undercuts or door leakage to transfer air for rooms with greater than 45 l/s (95 cfm) air change requirements or located within a fire separation are not permitted.

7.3.9.2(10) Locate services that require access for regular maintenance above non-critical spaces to minimize disruption to the delivery of health care services. VAV boxes serving individual inpatient rooms located on the patient care floors in the Facility must be located in the ceiling of the corridor or within the room that it serves.

7.3.9.2(11) Insulate all ductwork to all applicable standards as a minimum. Insulate all exposed to outside air exhaust ducts from connection to the exhaust equipment up to termination point on roof or outside walls. Provide canvas service jacket on all exposed insulation inside and up to 3 meters above finished floor in mechanical rooms.

7.3.9.2(12) Provide seismic mitigation and building separation devices for all ductwork that crosses buildings and/or utility corridors.

7.3.9.2(13) No in-slab or under slab-on-grade ductwork is permitted.

7.3.9.2(14) Refer to Appendix 1A Clinical Specifications for a description of the different types of isolation rooms and their locations. Provide the following:

7.3.9.2(14)(a) For all infection isolation rooms (negatively pressurized), locate supply air diffusers and exhaust air grilles to reduce the exposure of uninfected occupants in the space. Utilize directional and dilution airflow principles: supply air from high-level non-aspirating diffusers located away from the patient bed, and exhaust air from low-level grilles located next to the patient's head. Provide differential pressure monitors at isolation rooms to monitor and to ensure proper pressurization has been achieved as required. Incorporate door contact switches for all differential pressure monitors to prevent nuisance alarming;

7.3.9.2(14)(b) For isolation rooms with an ante room, provide the ante room with both supply and exhaust air. Differential pressure monitors will measure pressure between the isolation room and adjacent corridor, between the isolation room and the ante room, and between the ante room and adjacent corridor;

7.3.9.2(15) Ensure all ductwork that provides humid air is constructed of welded stainless steel of a suitable alloy or of a material equally resilient to corrosion. Ensure all ducts are sloped to drain points and are accessible for inspection and cleaning.

7.3.10. Exhaust Systems

7.3.10.1 Basic Requirements

7.3.10.1(1) Design exhaust air discharges to ensure that there is no cross contamination with outdoor air intakes and operable windows on the Site. Refer to dispersion study requirement in Submittal.

7.3.10.1(2) Provide exhaust fans and locate them at the end of the exhaust ductwork systems. Ensure that the fans will be readily serviceable and are separated from spaces that house other mechanical equipment. Welded exhaust will be provided if the exhaust ductwork is not negatively pressurized.

7.3.10.1(3) Integrate control of the exhaust systems with the ventilation supply air systems for spaces with differential pressure requirements from adjacent spaces.

7.3.10.1(4) Provide exhaust air systems suitable for special venting requirements. Interlock these systems with associated supply air systems.

7.3.10.1(5) Provide commercial-grade NFPA-96 exhaust hood systems where commercial cooking operations will occur. Interlock the hood(s) with a make-up air system to ensure proper pressurization within the Facility is maintained.

7.3.10.1(6) Ensure exhaust termination points are located so flue gases are not entrained in air intakes, operable windows or any other building opening for the Facility or adjacent buildings.

7.3.10.1(7) Provide refrigerant detection and exhaust system.

7.3.10.1(8) Make provisions in the Facility exterior for connections of portable negative pressurization ventilation units that are used during future Facility renovations. These connection points will be available for use without adversely affecting the Facility envelope. Provide four (4) connection points on each floor at the Facility exterior (north, east, south, west) so all internal areas can be served by negative pressurization ventilation units.

7.3.10.1(9) In addition to the cooling requirements called for in previous clauses, provide exhaust for elevator machine rooms and/or elevator shafts.

7.3.10.1(10) No requirement for radon gas mitigation.

7.3.10.1(11) Provide local exhaust within vicinity of all sanitary sumps within the Facility.

7.3.10.2 Performance Criteria

7.3.10.2(1) Isolation rooms and their associated washrooms and the Decontamination unit will be provided with dedicated exhaust systems with 100% redundancy. HEPA filters will be provided in the Isolation room exhaust ductwork in readily accessible locations for servicing.

7.3.10.2(2) Biosafety cabinets, laminar flow cabinets, fume hoods, chemical storage cabinets, grossing tables/specimen mounting tables and downdraft tables will be provided with dedicated exhaust systems that are appropriate for their CSA class and type. Provide canopies connected to the general exhaust system for ovens, autoclaves and other heat emitting equipment belonging to the Authority. Where multiple cabinets are tied into a common system, a 100% redundant central exhaust system will be provided. Specimen mounting tables and grossing tables will be equipped with counter top level exhaust. Provide a close capture exhaust arm for the biomedical workbench. Ensure that all equipment, rough in for equipment and support systems have been accounted for and provided. Allow for ducting, commissioning, testing, and balancing the exhaust from all biosafety cabinets, fume hoods, chemical storage cabinets, grossing workstations and laminar flow cabinets. Include face velocity, containment and any other testing for fume hoods as required by WorkSafe BC.

7.3.10.2(3) Flammable storage cabinets installation to meet applicable fire code and WorkSafe BC requirements. Non-vented flammable storage cabinets installation to be grounded.

7.3.10.2(4) Fume hoods and other smoke/fume generating process booths/space will be provided with dedicated exhaust systems that are corrosion/ chemical resistant to the exhaust media.

7.3.10.2(5) Provide dedicated exhaust systems as required for medical equipment. Do not use portable systems.

7.3.10.2(6) Ensure all ductwork that exhausts humid air at or near saturation is constructed of welded stainless steel of a suitable alloy or of a material equally resilient to corrosion. Ensure all ducts are sloped to drain points and are accessible for inspection and cleaning. Provide all recovery coils with drain pans and properly sloped drains.

7.3.11. Metering Requirements for Energy Measurement and Verification

7.3.11.1 Refer to Section 7.4 Integrated Automation (Division 25) and Schedule 9 – Energy for additional requirements to this section.

7.3.11.2 Provide meters on all services connecting to the Facility from an external infrastructure including: natural gas service, domestic water and electrical service.

7.3.11.3 Provide all required meters, sensors, and trend logging equipment at end uses within the Facility to meet the energy monitoring requirements set out in Schedule 9 Energy.

7.3.11.4 Connect all meters to the BMS to monitor, record, report and analyze energy consumption. Coordinate electrical metering and the energy management system with the applicable requirements of in this Schedule.

7.3.11.5 Design metering intervals to be fifteen minutes or less with all points trended and data logged for a minimum of 14 months for all points associated with LEED or energy model verification.

7.3.12. Sound Attenuation and Vibration Isolation

7.3.12.1 Design all mechanical systems to prevent sound and vibration transmission between spaces, to prevent transmission from mechanical equipment to the spaces, and to minimize sound and vibration transmission to the outside of the Facility and ancillary buildings. Provide sound attenuation to limit sound levels in accordance with Appendix 1C Acoustics and Noise Control.

7.3.12.2 All flexible rubber connections and isolators are to have been manufactured no more than one year prior to installation to ensure maximum service life. Date of manufacture is to be clearly shown on each device.

7.3.12.3 Systems will be provided with noise attenuation screening if the equipment or their exterior openings are located facing and within 200 meters of residential areas.

7.3.12.4 Provide vibration isolation devices on all equipment with rotating components.

7.3.12.5 Ensure all suspended equipment utilize spring isolators designed for the weight and vibration characteristics of the equipment.

7.3.12.6 Provide flexible connections to isolate mechanical equipment sound and vibration from ducting, piping and electrical wiring systems.

7.3.12.7 Ensure duct silencers meet or exceed the requirements of the ductwork for cleanliness and inspection and comply with CSA standards for infection control.

7.3.12.8 Utilize fibre free internal insulation.

7.3.12.9 Refer to Division 27for restrictions in multimedia rooms.

7.3.12.10 Refer to Section 5.7 Structural Design for structural vibration limits.

7.3.13. Testing, Adjusting, Balancing (TAB) and Commissioning (Cx)

7.3.13.1 Without limiting the Design-Builder's commissioning obligations of the Project Agreement, the Design-Builder will:

7.3.13.1(1) perform TAB & Cx of all mechanical equipment and systems.

7.3.13.1(2) Demonstrate to the Authority that the mechanical and electrical systems are substantially operational by testing, adjusting, balancing, and commissioning the systems. Demonstration to the Authority will include redundancy in the case of equipment failure and spare capacity.

7.3.13.1(3) Retain an Independent Commissioning Agent to conduct the Facility commissioning of mechanical systems. Commissioning work will be performed under supervision and direction of an Independent Commissioning Authority (CxA) retained by the Authority. Utilize a process where the commissioning agent reports are sent directly to the Commissioning Authority (CxA). Integrate the TAB & commissioning into the Project Construction and start-up schedules. Configure the TAB & commissioning plan so it will support a phased occupancy of the Facility, if required by Construction conditions and approved by the Authority.

7.3.13.1(4) Utilize a quality assurance system throughout the TAB & Cx process to ensure that TAB & Cx has been performed to all equipment and systems requiring TAB & Cx. Demonstrate the quality assurance system to the Authority prior to beginning TAB & Cx;

7.3.13.1(5) Ensure any construction or installation errors are identified and remedied prior to the start of Cx functional testing;

7.3.13.1(6) Perform follow-up TAB & Cx services during each season over the first year of the Facility's operation starting from Substantial Completion;

7.3.13.1(7) Make all TAB & Cx reports available to the Authority. The reports will identify how much additional capacity and redundancy is available for in all systems, as required by Section 5.10 Mechanical Systems Design Principles; and

7.3.13.1(8) Independent Commissioning Agent to complete records of all TAB and Cx data and submit one copy to Independent Commissioning Authority for record purposes and retention by the Authority.

7.4 Integrated Automation (Division 25)

7.4.1. Overview

7.4.1.1 Principles, Guidelines and Requirements

7.4.1.1(1) Design-Builder will provide an integration and automation framework to converge all base-building systems and select Equipment into an open, interoperable software platform for centralized command and control.

7.4.1.1(2) The software platform will employ object-oriented technology for representation of all data and control devices within the FM Management System.

7.4.1.1(3) All components and controllers supplied will be true "peer-to-peer" communicating devices. Components or controllers requiring "polling" by a host to pass data will not be acceptable.

7.4.1.1(4) All networked devices for systems identified as integrating to the FM Management System will connect to a single, converged FM network. There will be no silo vendor networks/switches permitted except as approved by the Authority through the Review Procedure.

7.4.1.1(5) Software for all Facility systems will reside on Authority provided FM servers and computers. All Facility software applications will be required to operate within a virtualized server environment. There will be no silo vendor servers and/or computers except as approved by the Authority through the Review Procedure.

7.4.1.1(6) Adherence of all Facility systems to industry standard protocol ANSI / ASHRAE STD 135-2016 BACnet/IP is required to assure protocol and data object interoperability between all system components. Minimum BACnet protocol revision compliance is Level 4 or greater, with the ability to support data read and write functionality.

7.4.1.1(7) All devices to use BACnet\IP and physical connection will be via Ethernet. If BACnet\IP is not available for a device connection, other protocols may be used on a case by case basis if they can seamlessly integrate into the FM Management.

7.4.1.1(8) All control point naming and tagging conventions will be standardized using the ASHRAE 223P (Haystack) standard.

7.4.1.1(9) All Facility systems will be designed to operate independently, such that if they lose server connectivity they continue to function without loss of service.

7.4.1.1(10) Design-Builder will provide a virtualized environment for the FM Management System simulating a facility of similar size to the Facility. This virtualized environment will simulate all systems contained in Division 25 and be used to train Authority user groups on the programming and use of the FM Management System by a system expert provided by Design-Builder. Design-Builder will make this training service available to the Authority at least twelve months prior to Service Commencement.

7.4.2. FM Management System

7.4.2.1 Basic Requirements

7.4.2.1(1) System Overview

7.4.2.1(1)(a) The FM Management System will consist of an Integrated Building Management Platform (IBMP) software, which is composed of a Folio Database and Analytics Platform.

7.4.2.1(1)(b) The IBMP will be integrated to the Mechanical BMS to pull point data and Facility alarm information from the BMS.

7.4.2.1(1)(c) The IBMP will be integrated to selected electrical and other equipment systems to pull point data and Facility alarm information from these systems.

7.4.2.1(2) Applicable Area

7.4.2.1(2)(a) Applies to the Facility.

7.4.2.1(3) System Responsibilities

7.4.2.1(3)(a) Authority will:

(a)..1 Provide design feedback to Design-Builder.

7.4.2.1(3)(b) Design-Builder will:

(b)..1 Select the system as determined with the Authority;

(b)..2 Design, supply, install and commission all system infrastructure;

(b)..3 Design, supply, install and commission all system equipment;

(b)..4 Design, supply, install and commission all system software;

(b)..5 Train the Authority's team on the use of the system; and

(b)..6 Integrate the system to the following equipment and sub-systems:

(b)..7 The BMS;

(b)..8 Electrical systems, including:

(b)..8.1 Generators;

(b)..8.2 Lighting controls;

(b)..8.3 Load management system;

(b)..8.4 Metering;

(b)..8.5 Switchgear;

(b)..8.6 EVSE;

(b)..8.7 UPS;

(b)..8.8 Fire Alarm System; and

(b)..8.9 Clock System

7.4.2.2 Performance Criteria

7.4.2.2(1) Integrated Building Management Platform (IBMP)

7.4.2.2(1)(a) Requirements of the IBMP include analyzing data produced by energy and equipment systems in order to identify faults, trends, anomalies and opportunities for improved performance and reduced energy use in the operation of Facility mechanical, electrical, and equipment systems.

7.4.2.2(1)(b) The IBMP will utilize a database technology designed for the efficient storage and analysis of large volumes of time series data. Time stamps will support millisecond resolution and be synchronized to the wireless clock system time. The software will not employ a relational database structure but will instead use tagging to model and describe data and will support the use of the open source data modeling/tagging standards developed by Project-Haystack (ASHRAE 223P). In addition to supporting all Project-Haystack tags, the system will support the creation of custom tags as required by the Authority.

7.4.2.2(1)(c) Provide a folio database within the IBMP that organizes data into a three-tier hierarchy:

(c)..1 Tier 1: Projects are the top-level unit of organization used to group records together (typically corresponds to a real-life project). Projects encapsulate a flat list of records, there are no pre-defined tree structures or tables in folio.

(c)..2 Tier 2: Records are the basic unit of data modeling. Records are essentially associative arrays defined by a flat map of tags.

(c)..3 Tier 3: Tags are the leaf level of the model. A tag is a name/value pair.

7.4.2.2(1)(d) Design-Builder will use name and tagging conventions developed by Project Haystack to provide a consistent, standardized methodology for naming and describing data points associated with the networked devices and Integrated Automation Topology for this Project. This includes the building automation systems, equipment systems, energy metering systems, other smart devices including mobile assets, and associated descriptive information known as metadata.

7.4.2.2(1)(e) The IBMP is to provide verification that energy optimization measures are operating as expected through the analysis of energy usage at the point of use, identification of faults showing where control sequences are not functioning as prescribed, and identification of opportunities for improved performance in the operation of Facility systems.

7.4.2.2(1)(f) In consultation with the Authority, Design-Builder will create energy optimization measures and analytical rules to verify the sequence of operations as specified for each Facility system for use during commissioning and on-going Facility operations.

7.4.2.2(1)(g) The analytic software application will operate on the latest versions of Microsoft Windows, Linux and Apple OSX operating systems available at Substantial Completion.

7.4.2.2(1)(h) The IBMP will accept and normalize data from a variety of sources via connectors for BACnet\IP, oBix Modbus TCP, Sedona, OPC, MQTT and the web services protocol defined by Project-Haystack. It will also support data access via SQL compatible databases, CSV format files, XML format files, web services, JSON, and other electronic data interchange techniques. Once data has been imported, the software will provide a unified data format to enable analytics algorithms to identify patterns across the different data sets independent of original format.

7.4.2.2(1)(i) The IBMP will provide open, REST-based API's to enable integration with third party software applications. The open APIs will enable data to be entered/imported into the database, exported from the database, posting of analytic queries from external applications and output of analytic results to external applications, and integration with third party software applications such as maintenance management and work order processing. APIs will be fully documented and available as part of the standard product. All data and analytic results will be available via the REST API.

7.4.2.2(1)(j) The IBMP will be able to be deployed locally in the Facility (on-premise). Deployment will not be limited to a SaaS (Software as a Service) deployment model. Cloud-based operation will be supported on Microsoft Azure and Amazon Web Services as a minimum.

7.4.2.2(1)(k) The IBMP will include a built in subscription to a worldwide weather service providing weather data for all major metropolitan areas. Weather service will provide an update frequency of at least every 3 hours. Weather data will include:

(k)..1 Current temperature;

(k)..2 High temperature for the day;

(k)..3 Low temperature for the day;

(k)..4 Sunrise and sunset times;

(k)..5 Relative Humidity; and

(k)..6 Degree days (heating and cooling with adjustable balance point value).

7.4.2.2(1)(l) The weather service will include a three-day forecast and provide historical weather data extending back at least 1 year. The IBMP software must be capable of integrating to other weather services and locally connected sensors via a documented weather data API.

7.4.2.2(1)(m) The IBMP will provide automatic notification of detected issues via email as well as automated emailing of reports. The rules and conditions that trigger automated notification will be created in consultation with the Authority.

7.4.2.2(1)(n) Email notification services will as a minimum provide:

(n)..1 immediate notification of detected issues

(n)..2 daily digest or summary of detected issues

(n)..3 the ability to delineate which issue notifications are sent to which recipients down to the level of specifying that specific issues or categories of issues are sent to individual recipients

7.4.2.2(1)(o) Email notifications will include hyperlinks which when selected will take the user directly to the visualization of the issue in the software application. Users will be required to authenticate for access to the visualizations.

7.4.2.2(1)(p) Email of reports formatted as PDF, HTML, PNG, or Excel documents.

7.4.2.2(1)(q) The IBMP will provide the ability to develop customized rules and algorithms tailored to the operational needs and characteristics of individual departments within the Facility, monitoring and verification of any data points in the Facility , and the fault detection requirements of the Project without dependence on the manufacturer for rule development. Tools for user development of customized rules will be provided as a standard part of the product and fully documented.

7.4.2.2(1)(r) The IBMP will provide an extensive library of standard analytic functions. In consultation with the Authority, Design-Builder will use these standard analytic functions as elements to build custom analytic rules for the specific needs of individual Facility. Source code for the standard analytic functions will be provided as part of the standard product.

7.4.2.2(1)(s) The IBMP will present all views and data visualizations in a standard web browser using HTML5 technology. The use of plug-ins or Java in the browser will not be permitted. The system will support the use of the current version of industry leading browsers as a minimum.

7.4.2.2(1)(t) The IBMP will include standard views to present analytic results, which will be automatically generated when issues are found by analytic rules. No programming or development will be required to create these views. These views will include as a minimum:

(t)..1 All rule violations across a portfolio of sites, all rule violations per site, and rule violations per equipment system, including time, date and duration of all violations.

(t)..2 Cost relationships assigned to rules to provide cost calculations. Cost calculations will be selectable on a minimum of 3 factors including: duration of violation, occurrence of violation, per day that a violation is detected. In addition, the system will support development of custom formula-based cost calculations.

(t)..3 Standard filters to enable the user to easily look at rule violations by site, data, exception type for any selected date or date range.

(t)..4 Automatic calculation and presentation of Key Performance Indicators (KPIs). It will be possible to define custom KPIs as needed. It will be possible to filter KPI results based on: Department, building, KPI type, and date range as a minimum.

(t)..5 Custom KPIs are to be developed in consultation with the Authority through the Design and Review process and as part of the extended training for the system.

7.4.2.2(1)(u) The IBMP will allow for any standard view to be saved as a report for easy access by the Authority and will allow all reports to be emailed as PDF, HTML, PNG, or Excel documents. Any standard system view will be able to be saved as a custom report including its configuration criteria, e.g., time range, targets (sites or equipment), rule violations or other configuration options as applicable to the standard system view.

7.4.2.2(1)(v) In consultation with the Authority, Design-Builder will use the IBMP to create custom reports and data views. Custom reports will be able to be created by making queries against the database and saving the query as a saved report. Saved reports will be able to be executed by typical system users with a single mouse click.

7.4.2.2(1)(w) The IBMP will allow for the export of any and all report views and will support export in CSV, Excel, XML, HTML PNG, SVG and text format. Export of report views will be a feature available to the typical operator and be able to be accomplished with 2-3 mouse clicks and include the ability for operators to send the report as an email when selecting the export format.

7.4.2.2(1)(x) The IBMP will automatically create 2-axis charts for all-time series data once it has been entered into the database. Examples of data that will be presented in auto-generated charts include: sensor values, control point status, setpoints and other numeric, time stamped data values. An application to enable navigation of the data charts will be provided and will organize data into groups related to equipment systems.

7.4.2.2(1)(y) The IBMP will support the presentation of analytic results on mobile and handheld devices providing the following capabilities as a minimum:

(y)..1 Presentation of analytic information in a text-based format with drill down hierarchy including: site level summary, equipment level summary, and detailed listing of detected issues on individual equipment.

(y)..2 Ability to view graphic representations data and analytic visualizations in a standard PDF file format.

(y)..3 Handheld user interface will not require the download or installation of an application. Rather, the handheld user interface will utilize native web interfaces for presentation of information to the user.

7.4.2.3 Integration

7.4.2.3(1) Facility System Alarms

7.4.2.3(1)(a) The IBMP will record and annunciate all Facility base-building events and alarms, including mechanical, electrical, fire alarm, security alarms, lighting, UPS, , generators and switchgear alarms, temperature and humidity set point deviations;

7.4.2.3(1)(b) Design-Builder will integrate the IBMP to the following systems:

(b)..1 The BMS;

(b)..2 Electrical systems:

(b)..2.1 Generators;

(b)..2.2 Lighting controls;

(b)..2.3 Load management system;

(b)..2.4 Metering;

(b)..2.5 Switchgear;

(b)..2.6 EVSE;

(b)..2.7 UPS;

(b)..2.8 Fire Alarm System; and

(b)..2.9 Clock System.

7.4.2.3(1)(c) Elevators

7.4.2.3(2) Equipment Alarms

7.4.2.3(2)(a) The IBMP will record and annunciate equipment alarms including the status, temperature, humidity, and asset data for equipment including freezers, coolers, labs, and medical equipment; and

(a)..1 Sterilizers;

(a)..2 Fridges and Freezers.

7.4.3. Building Management System

7.4.3.1 System Overview

7.4.3.1(1) The BMS network is standalone network, residing on “FM” network.

7.4.3.1(2) All BMS software will reside on FM servers and computers.

7.4.3.1(3) The BMS includes the following sub-systems as minimum but not limited to:

7.4.3.1(3)(a) DDC and PLC controls network systems,

7.4.3.1(3)(b) Energy metering and other Sub-Metering

7.4.3.1(3)(c) HVAC and Environmental Controls,

7.4.3.1(3)(d) Any other Mechanical systems Controls,

7.4.3.1(3)(e) Steam and condensate related systems controls,

7.4.3.1(3)(f) Plumbing system controls (sewer and storm drainage pumping and other system stations controls),

7.4.3.1(3)(g) Plumbing system controls (Domestic hot, cold, tempered and other associated potable water systems controls),

7.4.3.1(3)(h) Any other plumbing systems controls,

7.4.3.1(3)(i) RO system(s) controls,

7.4.3.1(3)(j) Medical gases and other Facility gases system controls including “Oxygen bulk storage”, (this applies to generated, bottled or any other sources of supply),

7.4.3.1(3)(k) Compressed air system controls,

7.4.3.1(3)(l) Lab Instrumentation Air systems,

7.4.3.1(3)(m) Medical Devices Reprocessing Department “sterilization and other associated equipment”,

7.4.3.1(3)(n) Kitchen systems controls, (including but not limited to: Make-up air system, kitchen exhaust air and general exhaust system, space thermal and other controls, Coolers and Freezers systems,),

7.4.3.1(3)(o) Other specific medical or other unique hospital/Facility equipment (in consultation with Authority) to be monitored for alarms or other parameters (such as, but not limited to: freezers, coolers)

7.4.3.1(3)(p) Fire Suppression, including Fire Alarm Panel Integration,

7.4.3.1(3)(q) Smoke “Evacuation” system controls,

7.4.3.1(3)(r) Smoke “Management” system controls,

7.4.3.1(3)(s) Electrical systems monitoring, including:

- (s)..1 Generators;
- (s)..2 Lighting controls;
- (s)..3 Load management system;
- (s)..4 Electrical metering;
- (s)..5 Switchgear;
- (s)..6 ATS;
- (s)..7 EVSE;
- (s)..8 UPS;
- (s)..9 Fire Alarm System;
- (s)..10 Clock System; and
- (s)..11 Other systems identified in Division 25 and 26.

7.4.3.1(3)(t) Post disaster unique systems pertaining to mechanical, plumbing, fire protection, and other building systems being part of it,

7.4.3.1(3)(u) Back-up systems pertaining to mechanical, plumbing, fire protection, and other building systems being part of it,

7.4.3.1(3)(v) Other specific medical or other unique hospital/Facility equipment (in consultation with Authority) to be monitored for alarms or other parameters (such as, but not limited to: “closed loop sanitizers”, patient lifts, freezers, coolers,

7.4.3.1(3)(w) Other systems called for within this Division or in Statement of Requirements to be integrated with BMS.

7.4.3.1(4) The Design-Builder will:

7.4.3.1(4)(a) Select the system as determined by the Authority. Note the following vendors are acceptable for this Project:

(a)..1 Delta/ESC

(a)..2 Siemens

(a)..3 Honeywell

(a)..4 Reliable Controls

7.4.3.1(4)(b) Design, supply and install all system infrastructure.

7.4.3.1(4)(c) Design, supply and install all system equipment.

7.4.3.1(4)(d) Design, supply and install all system software.

7.4.3.1(4)(e) Commission all system infrastructure, equipment and software.

7.4.3.1(4)(f) Integrate the system to the following systems/network levels:

(f)..1 Authority network;

(f)..2 Integrated Building Management Platform.

7.4.3.2 Basic Requirements

7.4.3.2(1) Provide a complete and fully functional integrated building management system (BMS) which resides on dedicated network with static IP address (integrated with Authority and IMIT network and Integrated Building Management Platform) for the Facility that performs the following functions:

7.4.3.2(2) Automatically operates, monitors and manages the Facility’s mechanical and other systems to provide a high level of occupant comfort and maintains a healthy and productive environment without disruption to the delivery of clinical and patient treatment services.

7.4.3.2(3) Provides an internet-based means of external monitoring by the Authority, including all associated hardware and software. Change or control rights by external access will not be allowed.

7.4.3.2(4) Interfaces with the Facility mechanical, electrical and communication systems and controls.

7.4.3.2(5) Meters, trends and archives all data related to the flow of services into and out of the Facility, including domestic water, steam, condensate, medical oxygen, electricity, gas, and hot water and considers seasonal variations in flow rate.

7.4.3.2(6) Annunciates building and equipment alarms, including fire alarm, security alarms, freezer alarms, lab alarms, medical equipment indicated in Appendix 1B Furniture and Medical Equipment alarms, medical gas alarms, space pressure alarms, lighting, UPS, emergency systems switchgear alarms, temperature and humidity setpoint alarm. Coordinate with Authority for any additional alarm monitoring requirements.

7.4.3.2(7) Monitors the status, temperature, humidity and alarms for equipment identified in consultation with the Authority.

7.4.3.2(8) Acquires, collates and archives all data associated with energy measurement and verification.

7.4.3.2(9) Contains safeguards to prevent unauthorized external access and follows vendor best practices for security handling.

7.4.3.2(10) Design the controls system to allow monitoring and operation of the Facility from a BMS location in the Facility, from the central plant control room, or from any location with appropriate security controls in place via an integrated BMS over IP. BMS to operate on a dedicated network.

7.4.3.2(11) The BMS will be non-proprietary and designed with open protocol.

7.4.3.2(12) The BMS platform will be completely integrated (front-end and back-end) Native BACnet/IP system and can facilitate integration of a wide range of building systems via BACnet or protocol gateways to convert the data into BACnet.

7.4.3.2(13) All equipment and point naming conventions for all BMS points will follow the ASHRAE 223P (Project Haystack) standard.

7.4.3.2(14) The BMS will be provided as a complete package from one manufacturer, not a composite of several.

7.4.3.2(15) The BMS will optimize the system performance under all operating conditions to minimize Facility energy usage.

7.4.3.2(16) The BMS will accommodate future technological changes and the architecture of the BMS will permit expansion of the system for future renovations.

7.4.3.2(17) The BMS will be an independent system separate from the fire alarm and other control systems.

7.4.3.2(18) Provide BMS complete with automated fault detection, diagnosis and reporting (AFDDR) software. The system will be able to set an optimized baseline of Facility operation for future re-commissioning. Configure and operate the AFDDR Software to ensure Facility remains continuously optimized, and the need for fault diagnosis by the Facility operator is minimized. AFDDR Software will provide customizable web-accessible reports available to the Authority, with rules and dashboard customized in consultation with the Authority.

7.4.3.2(19) Data archiving, Measurement & Verification and Continuous Commissioning: provide a data collection and data archiving and analytics package to facilitate Measurement & Verification, Continuous Commissioning and AFDDR.

7.4.3.2(20) BMS hardware will be connected to vital power and UPS to ensure continued availability during utility power disruptions.

7.4.3.2(21) BMS system to include all necessary devices and programming to provide automatic changeover to all backup systems with no unnecessary delays.

7.4.3.2(22) The BMS will monitor, control, indicate alarms, and provide trending where applicable for all connected sensors and control points.

7.4.3.2(23) User Interface will be graphical in nature with animated graphics to indicate equipment operation. Graphics will be grouped in systems and in departments.

7.4.3.2(24) The BMS documentation will include a detailed narrative description of the sequence of operation of each system.

7.4.3.2(25) Install equipment to provide access and ease of maintenance.

7.4.3.2(26) Connect to equipment specified in other sections and to equipment supplied and installed by other Divisions or by the Authority.

7.4.3.2(27) Provide a separate, dedicated VLAN on the Authority network for the BMS.

7.4.3.2(28) Provide integration of setpoint control for all major equipment, zone setpoints and energy dashboard with Authority network level interface.

7.4.3.2(29) Provide industrial grade sensors, valves, and actuators for large AHUs where supply fan installed nameplate power is 50 hp and larger.

7.4.3.2(30) Zoning.

7.4.3.2(30)(a) Zoning for HVAC systems will be based on occupancy, room location within the Facility, CSA C371.2 space classification, room orientation, and room heating and cooling loads. Configure zoning to minimize reheat/re-cool.

(a)..1 Provide independent zone for each patient care room, procedure room and consult rooms.

(a)..2 For non-patient care areas, a maximum of 3 rooms will be on one zone.

(a)..3 Interior control zones will not exceed 180 m2 per zone for Open Areas.

(a)..4 Perimeter zones will be no more than 4.7m from an outside wall along a common exposure. Perimeter zones will not exceed 30 m2.

(a)..5 Provide zone level display on zone sensor of all sensed parameters required by CSA Z317.2, Table 5.

7.4.3.2(30)(b) Zone floor areas to provide control of smoke in a fire situation. Zone floor areas to ensure infection control for each of the team care stations.

7.4.3.2(30)(c) Measure supply air temperature delivered to each zone. Where zone heating or cooling coils are utilized, modulate coil output to maintain zone supply air temperature at setpoint. Directly controlling off the zone temperature control loop is not acceptable.

7.4.3.2(31) Design all components to default to a safe position upon failure and install all components to ensure reliable operation at any failure situation. Fail safe components will be hard-wired to provide reliable operation in all circumstances.

7.4.3.2(32) Monitor critical alarms for essential building and life safety systems at the BMS. Critical alarms include:

7.4.3.2(32)(a) Fire alarm system for alarm, supervisory and trouble

7.4.3.2(32)(b) All temperature alarms resulting from setpoint deviations

7.4.3.2(32)(c) Failure of any HVAC or plumbing equipment including zone level equipment

7.4.3.2(32)(d) Medical gas system high- and low-pressure alarms

7.4.3.2(32)(e) All alarms relating to the fire protection system

7.4.3.2(32)(f) All alarms relating to the emergency and standby power generators and transfer switch control system.

7.4.3.3 BMS Performance

7.4.3.3(1) System will conform to the following minimum standards:

7.4.3.3(1)(a) Graphic Display. A graphic with 20 dynamic points will display with current data within 10 sec.

7.4.3.3(1)(b) Graphic Refresh. A graphic with 20 dynamic points will update with current data within 8 sec. and will automatically refresh every 15 sec.

7.4.3.3(1)(c) Configuration and Tuning Screens. Screens used for configuring, calibrating, or tuning points, PID loops, and similar control logic will automatically refresh within 6 sec.

7.4.3.3(1)(d) Object Command. Devices will react to command of a binary object within 2 sec. Devices will begin reacting to command of an analog object within 2 sec.

7.4.3.3(1)(e) Alarm Response Time. An object that goes into alarm will be annunciated at the workstation within 45 sec.

7.4.3.3(1)(f) Program Execution Frequency. Custom and standard applications will be capable of running as often as once every 5 sec. Select execution times consistent with the mechanical process under control.

7.4.3.3(1)(g) Performance. Programmable controllers will be able to completely execute DDC PID control loops at a frequency adjustable down to once per sec. Select execution times consistent with the mechanical process under control.

7.4.3.3(1)(h) Multiple Alarm Annunciation. Each workstation on the network will receive alarms within 5 sec of other workstations.

7.4.3.3(1)(i) Reporting Accuracy. System will report values with minimum end-to-end accuracy listed in Table 1.

7.4.3.3(1)(j) Control Stability and Accuracy. Control loops will maintain measured variable at setpoint within tolerances listed in Table 1.

(j)..1 Table 1: Sensors, Meters, Calculated Values, and Required Accuracies

Table 1									
#	Object Description and Location if Applicable	Sensor or Value Type	Sensor Type or Calculation Method	Expected Range	Required End-to-End Accuracy	Display Resolution	Refresh Interval min	Trend Interval min	Accuracy Required for Control
S1	Ambient Dry-Bulb Temperature	AI	Locate in weather station or ventilated enclosure in fully shaded location away from thermal mass bodies	-29°C to 40°C (-20°F to 120°F)	±0.5°C (±0.1°F)	±0.25°C (±0.5°F)	1	10	±1.0°C (±2°F)
S2	Ambient Wet-Bulb Temperature	AI	Locate in weather station or ventilated enclosure in fully shaded location away from thermal mass bodies	–29°C to 40°C (-20°F to 120°F)	±1.5°C (±3.0°F)	±0.25°C (±0.5°F)	1	10	±1.5°C (±3°F)
S6	Building Main Meter Power	AI/BI (pulse)	Refer to Electrical Sections						
S8	Zone (Space) Temperatures	AI	10000 ohm Thermistor or 1000 ohm RTD	–1°C to 38°C (30°F to 100°F)	±0.5°C (±0.1°F)	±0.25°C (±0.1°F)	1	1	±0.5°C (±1°F)
S9	Carbon Dioxide	AI	Nondispersive Infrared Sensor Technology	0 to 2000 ppm	±50 ppm	50 ppm	1	1	50 ppm
S10	Carbon Monoxide	AI	Electrochemical Sensor	0 to 100 ppm	±5 ppm	50 ppm	1	1	50 ppm
S11	Air Pressure (Ducts)	AI	Variable Capacitance	0 to 2 kPa (0 to 8 in. w.g.)	±25 Pa (±0.1 in. w.g.)	125 Pa (±0.5 in. w.g.)	1	1	25 Pa (0.1 in. w.g.)

Table 1									
#	Object Description and Location if Applicable	Sensor or Value Type	Sensor Type or Calculation Method	Expected Range	Required End-to-End Accuracy	Display Resolution	Refresh Interval min	Trend Interval min	Accuracy Required for Control
S12	Air Pressure (Space)	AI	Variable Capacitance	-25 to 25 Pa (-0.1 to 0.1 in wg)'	3 Pa (±0.01 in. w.g.)	3 Pa (±0.01 in. w.g.)	1	1	1.3 Pa (0.005in. w.g.)
S13	Water Pressure	AI		0 to 1034 kPa (0 to 150 psi)	±2% of Full Scale	7 kPa (1 psi)	1	1	3.5 kPa (0.5 psi)
S14	Water Temperature	AI		(0°C to 107°C) (32°F to 225°F)	±0.5°C (±1°F)	±0.5°C (±1°F)	1	1	±0.5°C (±1°F)
S15	Delta-T	AI	10000 ohm Thermistor or 1000 ohm RTD Matched Pair		±0.15°C (±0.25°F)	±0.25°C (±0.5°F)	1	1	±0.15°C (±0.25°F)
S16	Relative Humidity	AI		0% to 100%	±5% RH	5%	1	1	±5% RH
S17	Water Flow	AI			±2% of Reading	1000 L/s	1	1	
S18	Ducted Air Temperature	AI	10000 ohm Thermistor or 1000 ohm RTD	7°C to 60°C (45°F to 140°F)	±0.5°C (±1°F)	±0.5°C (±1°F)	1	1	±0.5°C (±1°F)
S19	Electrical (Amps, Volts, Watts, PF not specified elsewhere)	AI/BI (Pulse)	Refer to Electrical Sections						
S28	Airflow Rate (Measuring Stations)	AI	Electronic or Differential Pressure		±5% of Reading Down to 0.75 m/s (150 fpm)	0.05 L/s (0.1 cfm)	1	1	±5% of Reading Down to 0.75 m/s (150 fpm)
S30	Airflow (Terminal)	AI	Electronic or Differential Pressure		±10% of Reading	47 L/s (100 cfm)	1	1	±10% of Reading

Table 1									
#	Object Description and Location if Applicable	Sensor or Value Type	Sensor Type or Calculation Method	Expected Range	Required End-to-End Accuracy	Display Resolution	Refresh Interval min	Trend Interval min	Accuracy Required for Control
S31	Airflow (Pressurized Spaces)	AI	Electronic or Differential Pressure		±3% of Reading	24 L/s (50 cfm)	1	1	±3% of Reading

AI = analog input; BI = binary input; calculated = value calculated by the BMS hardware or BMS software

7.4.3.4 Interface with Other Systems

7.4.3.4(1) Control/monitor and interface with systems.

7.4.3.4(2) Work, materials, and equipment will comply with the most restrictive of local, provincial, and federal authorities' codes and ordinances or as specified herein.

7.4.3.5 Materials

7.4.3.5(1) Use new products the manufacturer is currently manufacturing and selling for use in new installations. Do not use this installation as a product test site unless explicitly approved in writing by Authority. Spare parts will be available for at least five years after completion of this Agreement.

7.4.3.6 Communication and System Architecture

7.4.3.6(1) All networked control products will be comprised of an industry standard open protocol BACnet internetwork. Communication involving control components (i.e. all types of controllers and operator interfaces) will conform to ASHRAE Standard 135. Networks and protocols proprietary to one company or distributed by one company are prohibited.

7.4.3.6(2) Provide new wiring and network devices as required to provide a complete and workable control network.

7.4.3.6(3) Each controller will have a communication port.

7.4.3.6(4) Network operator interface and value passing will be transparent to internetwork architecture.

7.4.3.6(4)(a) An operator interface connected to the BMS will allow the operator to interface with each networked controller as if directly connected. BMS information such as data, status, reports, system software, and custom programs will be viewable and editable.

7.4.3.6(4)(b) Inputs, outputs, and control variables used to integrate control strategies across multiple controllers will be available on the network.

7.4.3.6(5) Systems will be expandable to at least twice the required data points with additional controllers, associated devices, and wiring. Expansion will not require operator interface hardware additions or software revisions. Provide spare points on panels installed in mechanical and electrical rooms for future growth.

7.4.3.6(6) Workstations, building control panels, and controllers with real-time clocks will use the BACnet time synchronization service. System will automatically synchronize system clocks daily from an operator-designated device via the internetwork. The system will automatically adjust for daylight saving and standard time as applicable.

7.4.3.6(7) Provide at a minimum 3 operator interface(s) to be designated at the BMS server with server application software. Additional operator interfaces will use operator workstation licensees or connect via a thin-client application.

7.4.3.6(8) BMS server will be capable of simultaneous direct connection and communication with BACnet/IP, OPC and TCP/IP corporate level networks without the use of interposing devices.

7.4.3.6(9) Any break in ethernet communication between the standard client and server workstations on the network will result in a notification at each workstation.

7.4.3.6(10) The building controllers (BCs) will be capable to support subnetwork MS/TP communication with terminal unit controllers.

7.4.3.6(11) The network architecture will consist of two levels of networks:

7.4.3.6(11)(a) The automation and floor level network will be BACnet/IP over ethernet. It will network all the building controllers (BCs), advanced application controllers (AACs), the automation server, and operator workstations. Provide network media converters, routers and switches as necessary for a complete network. Network will interface with the Information Management / Information Technology (IMIT) network.

7.4.3.6(11)(b) Sub-network: Subnetworks will be BACnet MS/TP LAN. These subnetworks will network Advanced Application Controllers (ASCs), Custom Application Controllers (CACs) and Application Specific Controllers (ASCs). Each MS/TP subnetwork will be limited to a maximum of 70 connected devices. Each MS/TP subnetwork will be limited to one floor level.

7.4.3.6(12) The following devices will reside on the automation level BACnet/IP over ethernet network:

7.4.3.6(12)(a) All systems and their controllers (other than ones indicated below to be on MS/TP) indicated in 1.1.3. will be on BACnet/IP network

7.4.3.6(13) The following devices can reside on MS/TP sub-networks:

7.4.3.6(13)(a) Terminal units such as VAV units or fan coils.

7.4.3.6(13)(b) Other minor terminal equipment,

7.4.3.6(13)(c) Advanced application controllers for AHUs less than 2,500 L/s.

7.4.3.6(13)(d) Controllers for air moving equipment less than 2,500 L/s.

7.4.3.6(13)(e) Local hydronic circulating equipment not part of the central plant and less than 5 hp.

7.4.3.6(14) Zone and floor level controllers, terminal units, packaged AC units, auxiliary equipment will reside on either BACnet/IP over ethernet network of a MS/TP sub-network.

7.4.3.6(15) The system will meet peer-to-peer communication services such that the values in any one controller can be read or changed from all other controllers. The software will provide transparent transfer of all data, control programs, schedules, trends, and alarms from any one controller through the internetwork to any other controller, regardless of subnetwork routers.

7.4.3.6(16) Central plant Network

7.4.3.6(16)(a) All central plant equipment associated with the central plant will utilize programmable logic controllers (PLC) for increased reliability. Provide dual PLC central processing units for redundancy complete with built-in UPS. Central plant controllers will communicate on a dedicated sub-network to all I/O interfaces (hard-wired points).

7.4.3.6(16)(b) Provide a dedicated supervisory control and data acquisition (SCADA) system interface for control, trending, archiving. Provide interface from central plant Network to BMS BACnet/IP network. Provide graphics, dedicated server, on-site trend logging, and storage (historian).

7.4.3.6(16)(c) All heating plant, cooling plant, heat recovery plant, steam plant and other central plant systems in the central plant will be controlled by this system.

7.4.3.6(16)(d) Provide serial port network to pick up all network cards within all packaged equipment within central plant, including VFDs, chillers, boilers for any points that are not required to be hard-wired.

7.4.3.6(17) Provide a dedicated static IP address for each network including the central plant network.

7.4.3.6(18) BMS (dedicated) network will interface with building IMIT network and high-level monitoring/controlling platform (Sky spark or similar).

7.4.3.7 Distributed Control Requirements

7.4.3.7(1) The loss of any one controller will not affect the operation of other systems, only for the points connected to the controller.

7.4.3.7(2) The system will be scalable in nature and will permit expansion of both capacity and functionality through the addition of sensors, actuators, controllers, and operator devices.

7.4.3.7(3) System architecture will eliminate dependence upon any single device for alarm reporting and control execution. Each controller will operate independently by performing its own specified control, alarm management, operator I/O, and data collection. The failure of any single component or network connection will not interrupt the execution of any control strategy, reporting, alarming and trending function, or any function at any operator interface device.

7.4.3.7(4) Controllers will be able to access any data from or send control commands and alarm reports directly to any other controller on the network without dependence upon a central processing device. Controllers will also be able to send alarms to multiple operator workstations without dependence upon a central or intermediate processing device.

7.4.3.7(5) Control panels will be mounted in the same mechanical room as the equipment being controlled, or an adjacent utility room.

7.4.3.7(6) Remote sensors will be wired to the control panel of the equipment it is controlling, not across the network.

7.4.3.7(7) Signals to remote motor control centres will be hard wired to the control panel, not across the network.

7.4.3.8 Operator Interface

7.4.3.8(1) Operator Interface. Web server and PC-based workstations will reside on a high-speed network with building controllers. Each workstation or each standard browser connected to the server will be able to access all BMS information.

7.4.3.8(2) Workstation and controllers will communicate using BACnet protocol. Workstation and control network backbone will communicate using ISO 8802-3 (ethernet) data link/physical layer protocol and BACnet addressing as specified in ANSI/ASHRAE Standard 135 guidelines and requirements.

7.4.3.8(3) Provide dedicated operator interface stations for the central plant.

7.4.3.8(4) Provide dedicated operator interface for the central plant PLC-based control system.

7.4.3.8(5) Provide dedicated operator interface stations for each mechanical room.

7.4.3.8(6) Provide laptop or tablet with full operator interface capability.

7.4.3.8(7) Hardware. Each operator workstation or web server will consist of the following:

7.4.3.8(7)(a) Computer. Hardware will meet or exceed BMS manufacturer's recommended specifications and will meet response times specified elsewhere in this Division. The following hardware requirements also apply:

(a)..1 The hard disc will have enough memory to store all required operator workstation software; A BMS database at least four-times the size of the delivered system data-based; and two years of trend data based on all points being trended at a trend interval of 5-minutes.

(a)..2 Provide additional hardware (communication ports, video drivers, network interface cards, cabling) to facilitate all control functions and software requirements specified for the BMS.

7.4.3.8(8) System Software.

7.4.3.8(8)(a) Operating system. Provide a concurrent multitasking operating system. The operating systems also will support the use of other common software applications. Examples include Microsoft Excel, Microsoft Access, or other SQL database software. Acceptable operating systems are Windows or the latest Windows Server release.

7.4.3.8(8)(b) All BMS software (not residing on system controllers) such as operator workstation software, BMS database and trend data will reside on Authority provided FM servers and computers. There will be no silo vendor servers and/or computers except as approved by the Authority through the Review Procedure.

7.4.3.8(8)(c) System Graphics. The operator workstation software will be graphically oriented. The system will allow display of up to 10 graphic screens at once for comparison and monitoring of system status. Provide a method for the operator to easily move between graphic displays and change the size and location of graphic displays on the screen. The system graphics will be able to be modified while online. An operator with the proper password level will be able to add, delete, or change dynamic objects on a graphic. Dynamic objects will include analog and binary values, dynamic text, static text, and animation files. Graphics will have the ability to show animation by shifting image files based on the status of the object.

7.4.3.8(8)(d) Custom Graphics. Custom graphic files will be created with the use of a graphics generation package furnished with the system. The graphics generation package will be a graphically based system that uses the mouse to create and modify graphics that are saved in industry standard formats. The graphics generation package also will provide the capability of capturing or converting graphics from other programs such as Designer or AutoCAD.

7.4.3.8(8)(e) Graphics Library. Furnish a complete library of standard HVAC equipment graphics such as chillers, boilers, air handlers, terminals, fan coils, and unit ventilators, and others are required for this Project. This library also will include standard symbols for other equipment including fans, pumps, coils, valves, piping, dampers, and ductwork. The library will be furnished in a file format compatible with the graphics generation package program.

7.4.3.8(9) System applications. Each workstation will provide operator interface and off-line storage of system information. Provide the following applications at each workstation:

7.4.3.8(9)(a) Automatic system database save and restore. Each workstation will store on the hard disk a copy of the current database of each building controller. This database will be updated whenever a change is made in any system panel. The storage of these data will be automatic and not require operator intervention. In the event of a database loss in a building management panel, the first workstation to detect the loss will automatically restore the database for that panel. This capability may be disabled by the operator.

7.4.3.8(9)(b) Manual database save and restore. A system operator with the proper password clearance will be able to save the database from any system panel. The operator also will be able to clear a panel database and manually initiate a download of a specified database to any panel in the system.

7.4.3.8(9)(c) System configuration. The workstation software will provide a method of configuring the system. This will allow for future system changes or additions by users under proper password protection.

7.4.3.8(9)(d) Online help. Provide a context-sensitive online help system to assist the operator in operating and editing the system. Online help will be available for all applications and will provide the relevant data for that particular screen. Additional help information will be available through the use of hypertext.

7.4.3.8(9)(e) Security. Each operator will be required to log on to the system with a username and password in order to view, edit, add, or delete data. System security will be selectable for each operator. The system supervisor will have the ability to set passwords and security levels for all other operators. Each operator password will be able to restrict the functions accessible to viewing and/or changing each system application, editor, and object. Each operator will automatically be logged off of the system if no keyboard or mouse activity is detected. This auto logoff time period will be user adjustable. All system security data will be stored in an encrypted format.

7.4.3.8(9)(f) System diagnostics. The system will automatically monitor the operation of all workstations, printers, network connections, building management panels, and controllers. The failure of any device will be annunciated to the operator.

7.4.3.8(9)(g) Alarm processing. Any object in the system will be configurable to alarm in and out of normal state. The operator will be able to configure the alarm limits, alarm limit differentials, states, and reactions for each object in the system.

7.4.3.8(9)(h) Alarm messages. Alarm messages will use the English language descriptor for the object in alarm in such a way that the operator will be able to recognize the source, location, and nature of the alarm without relying upon acronyms or other mnemonics.

7.4.3.8(9)(i) Alarm reactions. The operator will be able to determine (by object) what, if any, actions are to be taken during an alarm. Actions will include logging, printing, starting programs, displaying messages, dialing out to remote stations, paging, providing audible annunciation, or displaying specific system graphics. Each of these actions will be configurable by workstation and time of day.

7.4.3.8(9)(j) Trend logs. The operator will be able to define a custom trend log for any data object in the system. This definition will include interval, start time, and stop time. Trend data will be sampled and stored on the building controller panel, be archived on the hard disk, and be retrievable for use in spreadsheets and standard database programs. Trend data will be exportable in a standard electronic format (e.g., .xls, .csv, .xml) for analysis external to the BMS.

7.4.3.8(9)(k) Alarm and event log. The operator will be able to view all system alarms and change of states from any location in the system. Events will be listed chronologically. An operator with the proper security level may acknowledge and clear alarms. All that have not been cleared by the operator will be archived to the hard disk on the workstation.

7.4.3.8(9)(l) Group trend time series plots.

(l)..1 Provide user-selectable Y points.

(l)..2 Provide user-editable titles, point names, and Y axis titles.

(l)..3 Individual trended points will be able to be grouped in groups of up to five points per plot with up to four plots per page.

7.4.3.8(9)(m) X-Y Trend Plots

(m)..1 User-selectable X and Y trend inputs

(m)..2 User-editable titles, point names, and X and Y axis titles.

(m)..3 user-selectable time period. The user will be able to select the beginning and ending period for each X-Y chart, within the time domain of the database being used.

(m)..4 User-selectable display of up to 6 plots per screen in 2 columns.

7.4.3.8(9)(n) Object and property status and control. Provide a method for the operator to view and edit if applicable, the status of any object and property in the system. The status will be available by menu, on graphics, or through custom programs.

7.4.3.8(9)(o) Reports and logs. Provide a reporting package that allows the operator to select, modify, or create reports. Each report will be definable as to data content, format, interval, and date. Report data will be archivable on the hard disk for historical reporting. Provide the ability for the operator to obtain real-time logs of all objects by type or status (e.g., alarm, lockout, normal). Reports and logs will be stored on the hard disk in a format that is readily accessible by other standard software applications, including spreadsheets and word processing. Reports and logs will be readily printed to the system printer and will be set to be printed either on operator command or at a specific time each day.

7.4.3.8(9)(p) Standard reports. The following standard BMS reports will be provided for the Facility. Provide ability for the Authority to readily customize these reports for this Project.

(p)..1 All objects/points/variables: all system (or subsystem) objects, points, variables, configuration properties, and their current values.

(p)..2 Alarm summary: all current alarms (except those in alarm lockout).

(p)..3 Disabled objects/points: all objects/points that are disabled.

(p)..4 Alarm lockout objects/points: all objects/points in alarm lockout (whether manual or automatic).

(p)..5 Alarm lockout objects/points in alarm: all objects/points in alarm lockout that are currently in alarm

(p)..6 Logs:

(p)..6.1 Alarm history

(p)..6.2 System messages

(p)..6.3 System events

(p)..6.4 Trends

(p)..6.5 Operator Activity. At a minimum, system will log operator log in and log out, control parameter changes, schedule changes, and alarm acknowledgment and deletion. System will date and time stamp logged activity.

7.4.3.8(9)(q) Custom reports. Provide the capability for the operator to easily define any system data into a daily, weekly, monthly, or annual report. These reports will be time and date stamped and will contain a report title and the name of the facility. Provide the following custom reports for this Project:

7.4.3.8(10) Workstation applications editors. Each workstation will support editing of all system applications. Provide editors for each application at the workstation. The applications will be downloaded and executed at one or more of the controller panels.

7.4.3.8(10)(a) Controller. Provide a full-screen editor for each type of application that will allow the operator to view and change the configuration, name, control parameters, and set points for all controllers.

7.4.3.8(10)(b) Scheduling. An editor for the scheduling application will be provided at each workstation. Provide a method of selecting the desired schedule and schedule type. Exception schedules and holidays will be shown clearly on the calendar. Provide a method for allowing several related objects to follow a schedule. The start and stop times for each object will be adjustable from this master schedule. Schedules will be easy to copy to other objects and/or dates.

7.4.3.8(10)(c) Custom Application Programming. Provide the tools to create, modify, debug, and download custom programs. The operator will be able to create, edit, and download custom programs at the same time that all other system applications are operating. The BMS will be fully operable while custom routines are edited, compiled, and downloaded.

7.4.3.8(11) Provide software update on all operator work stations at Substantial Completion to the most current commercially available software version.

7.4.3.9 Graphics

7.4.3.9(1) Provide graphics for all systems interfaced, controlled and monitored by the BMS. Show on each graphic all input and output points for the system and relevant calculated points such as setpoints.

7.4.3.9(2) Provide an overall Facility graphic.

7.4.3.9(3) Provide separate floor plan graphics of the Facility for each integrated, controlled, and monitored systems.

7.4.3.9(4) Provide dedicated graphics for fire alarm system monitoring and smoke control management.

7.4.3.9(5) Provide dedicated graphics for each system and sub-system with graphically representation of all equipment including all input and output points and relevant calculated points.

7.4.3.9(6) Provide graphic summary tables for all demand-based reset parameters.

7.4.3.9(7) Show terminal equipment information on a graphic summary table. Provide dynamic information for each point shown.

7.4.3.10 Alarms

7.4.3.10(1) Provide full integration of all alarms with the Authority level network and IMIT system for monitoring and acknowledgement of alarms.

7.4.3.10(2) All alarms will include a time/date stamp using real-time and date.

7.4.3.10(3) Each alarm will be configured in terms on level, latching (requires acknowledgement of a return to normal), non-latching (does not require acknowledgement of a return to normal), entry delay, exit deadband, and post suppression period.

7.4.3.10(4) Operators will be able to sort alarms based on level, time and date, and current status.

7.4.3.10(5) Alarms will be reported with the following information:

7.4.3.10(5)(a) Date and time of the alarm

7.4.3.10(5)(b) Level of the alarm

7.4.3.10(5)(c) Description of the alarm

7.4.3.10(5)(d) Equipment tags for the units in alarm

7.4.3.10(5)(e) Possible causes of the alarm provided by the fault detection routines

7.4.3.10(5)(f) The source that serves the equipment in alarm.

7.4.3.10(6) Provide the following levels of alarm:

7.4.3.10(6)(a) Level 1: Life-safety message

7.4.3.10(6)(b) Level 2: Critical equipment message

7.4.3.10(6)(c) Level 3: Urgent message

7.4.3.10(6)(d) Level 4: Normal message

7.4.3.10(7) Maintenance mode. Operators will have the ability to put any device in/out of maintenance mode. All alarms associated with a device in maintenance mode will be suppressed except for life safety alarms. A daily Level 3 alarm will be issued at a scheduled time indicating that the device is still in maintenance mode.

7.4.3.10(8) Entry delays. All alarms will have an adjustable delay time such that the alarm is not triggered unless the alarm condition is true for the delay time. Default entry delays are as follows:

7.4.3.10(8)(a) Level 1 alarms: 1 second

7.4.3.10(8)(b) Level 2 alarms: 10 seconds

7.4.3.10(8)(c) Level 3 alarms: 1 minute

7.4.3.10(8)(d) Level 4 alarms: 5 minutes

7.4.3.10(9) Exit Hysteresis

7.4.3.10(9)(a) Each alarm will have an adjustable time-based hysteresis to exit the alarm. Once set, the alarm does not return to normal until the alarm conditions have ceased for the duration of the hysteresis. Default hysteresis is 5 seconds.

7.4.3.10(9)(b) Each analog alarm will have an adjustable percent-of-limit-based hysteresis the alarmed variable required to exit the alarm. Alarm conditions have ceased when the alarmed variable is below the triggering threshold by the amount of the hysteresis.

7.4.3.10(10) Latching. Each alarm can be configured as latching or nonlatching. A latching alarm requires acknowledgment from the operators before it can return to normal, even if the exit deadband has been met. A nonlatching alarm does not require acknowledgment. Default latching status is as follows:

7.4.3.10(10)(a) Level 1 alarms: latching

7.4.3.10(10)(b) Level 2 alarms: latching

7.4.3.10(10)(c) Level 3 alarms: nonlatching

7.4.3.10(10)(d) Level 4 alarms: nonlatching

7.4.3.10(11) Postexit suppression period. To limit alarms, each alarm will have an adjustable suppression period such that, if the alarm is triggered, its post suppression timer is triggered and the alarm will not trigger again until the post suppression timer has expired. Post suppression only applies to a particular instance of an alarm. Default suppression periods are as follows:

7.4.3.10(11)(a) Level 1 alarms: 0 minutes

7.4.3.10(11)(b) Level 2 alarms: 5 minutes

7.4.3.10(11)(c) Level 3 alarms: 8 hours

7.4.3.10(11)(d) Level 4 alarms: 2 days

7.4.3.10(12) For both latching and nonlatching alarms, the operator will be able to acknowledge the alarm. Acknowledging an alarm clears the alarm, the exit deadband, and suppression period. A device can go right back into alarm as soon as the entry delay elapses.

7.4.3.10(13) Hierarchical Alarm Suppression

7.4.3.10(13)(a) For each piece of equipment and zone, define its relationship (if any) to other equipment in terms of “source”, “load” or “system”.

(a)..1 A component is a “source” if it provides resources to a downstream component.

(a)..2 A component is a “load” if it receives resources from an upstream component.

(a)..3 The same component can be both a load (receiving resources from an upstream source) and a source (providing resources to a downstream load).

(a)..4 A set of components is a “system” if they share a load in common.

7.4.3.10(13)(b) For each system, there will be a SystemOK flag, which is either true or false.

7.4.3.10(13)(c) SystemOK will be true when all of the following are true:

(c)..1 The system is proven on;

(c)..2 The system is achieving its temperature and/or pressure set point(s) for at least 5 minutes;

(c)..3 The system is ready and able to serve its load

7.4.3.10(13)(d) SystemOK will be false while the system is starting up or when enough of the system’s components are unavailable to disrupt the ability of the system to serve its load. This threshold will be proposed for each system by the Design-Builder. and reviewed for acceptance by the Authority.

(d)..1 By default, Level 1 through Level 3 component alarms will inhibit SystemOK. Level 4 component alarms will not affect SystemOK.

(d)..2 The operator will have the ability to individually determine which component alarms will and will not inhibit SystemOK.

7.4.3.10(13)(e) The BMS will selectively suppress alarms for load components if SystemOK is false for the source system that serves that load.

(e)..1 If SystemOK is false for a cooling water system, then only high-temperature alarms from loads will be suppressed.

(e)..2 If SystemOK is false for a heating water system, then only low-temperature alarms from loads will be suppressed.

(e)..3 If SystemOK is false for an air-side system, then all alarms from the loads will be suppressed.

7.4.3.10(13)(f) Hierarchical suppression will cascade through multiple levels of load-source relationship such that alarms at downstream loads will also be suppressed.

7.4.3.10(13)(g) The following types of alarms will never be suppressed by this logic:

(g)..1 Life safety and Level 1 alarms;

(g)..2 Failure-to-start alarms;

(g)..3 Failure-to-stop alarms;

(g)..4 All alarms associated with critical environment areas

7.4.3.10(14) Time-based suppression. Calculate a time-delay period after any change in setpoint based on the difference between the controlled variable and the time of the change and the new setpoint. The default time delay period will be as follows:

7.4.3.10(14)(a) For thermal zone temperature alarms: 10 minutes per °C of difference but no longer than 120 minutes;

7.4.3.10(14)(b) For thermal zone temperature cooling requests: 5 minutes per °C of difference but no longer than 30 minutes;

7.4.3.10(14)(c) For thermal zone temperature heating requests: 5 minutes per °C of difference but no longer than 30 minutes.

7.4.3.11 Energy Sub-Metering Systems and Energy Reporting

7.4.3.11(1) Provide all required meters, sensors, and trend logging equipment at end uses within the Facility to meet the energy monitoring requirements outlined in Schedule 9.

7.4.3.11(2) All meters will be connected to an integrated energy management system to monitor, record, report, and analyze energy consumption. Coordinate electrical metering and the energy management system with the requirements of Electrical (Division 26).

7.4.3.11(3) Provide complete digital metering systems.

7.4.3.11(4) Provide runtime logs on all compressors included freezers.

7.4.3.11(5) Metering intervals will be confirmed with the Authority's Mechanical engineer prior to meter selection and programming.

7.4.3.11(6) Refer to measurement and verification section for more information on Metering data storing and reporting.

7.4.3.11(7) Energy Reports. System will include an easily configured energy reporting tool that provides the capabilities described in this section.

7.4.3.11(7)(a) The energy reporting tool will be accessible through the same user interface (Web browser or operator workstation software) as is used to manage the BMS.

7.4.3.11(7)(b) The energy reporting tool will be preconfigured to gather and store energy demand and consumption data from each energy source that provides metered data to the BMS. Meter data will be stored at 5-minute intervals. This data will be maintained in an industry standard SQL database for a period of not less than five years.

7.4.3.11(7)(c) The energy reporting tool will allow the operator to select an energy source and a time period of interest (day, week, month, year, or date range) and will provide options to view the data in a table, line graph, bar graph, or pie chart. The tool will also allow the operator to select two or more data sources and display a comparison of the energy used over this period in any of the listed graph formats, or to total the energy used by the selected sources and display that data in the supported formats.

7.4.3.11(7)(d) The energy reporting tool will allow the operator to select and energy source and two time periods of interest (day, week, month, year, or date range) and display a graph that compares the energy use over the two time periods in any of the graph formats listed in the previous paragraph. The tool will also allow the operator to select multiple energy sources and display a graph that compares the total energy used by these sources over the two time periods.

7.4.3.11(7)(e) The energy reporting tool will allow the operator to easily generate the previously described graphs "on the fly," and will provide an option to store the report format so the operator can select that format to regenerate the graph at a future date. The tool will also allow the user to schedule these reports to run on a recurring basis using relative time periods, such as automatically generating a consumption report on the first Monday of each month showing consumption over the previous month. Automatically generated reports will be archived on the server in a common industry format such as Adobe PDF or Microsoft Excel with copies e-mailed to a user editable list of recipients.

7.4.3.11(7)(f) The energy reporting tool will be capable of collecting and displaying data from all the connected meter types.

7.4.3.11(7)(g) The User will have the option of using multiple unit types. All selected sources will be automatically converted to the selected units. The user will similarly have the option of entering facility area and occupancy hours and creating reports that are normalized on an area basis, an annual use basis, or an occupied hour basis.

7.4.3.11(7)(h) The User will have the option of entering benchmark data for an individual facility or a group of facilities.

7.4.3.11(7)(i) The user will have the option of displaying any or all of the following data on any chart, line, or bar graph generated by the energy reporting tool:

(i)..1 Low/high/average value of the metered value being displayed.

(i)..2 Heating and/or Cooling Degree Days for the time period(s) being displayed.

(i)..3 The Environmental Index for the Facility and time periods being displayed.

7.4.3.11(7)(j) Provide dashboard configured as per the energy breakdown requirements as defined in Schedule 9: Energy to assist the independent energy consultant assess the energy performance of the Facility. Provide all required KPIs.

7.4.3.11(7)(k) Provide a dedicated energy report per department (per AHU). Report for each department will include end-use breakdown and KPIs.

7.4.3.11(7)(l) ASHRAE Standard 147 Report: provide a daily report that shows the operating conditions of each chiller as recommended by ASHRAE Standard 147.

7.4.3.12 Controller Software

7.4.3.12(1) Furnish the following applications for building and energy management. All software application will reside and operate in the system controllers. Applications will be editable through operator workstation, web browser interface, or engineering workstation.

7.4.3.12(2) Provide software update on all controllers at Substantial Completion to the most current commercially available software version.

7.4.3.12(3) System security. User access will be secured using individual security passwords and user names. Passwords will restrict the user to the objects, applications, and system functions as assigned by the system manager. User log on/log off attempts will be recorded. The system will protect itself from unauthorized use by automatically logging off following the last keystroke. The delay time will be user adjustable.

7.4.3.12(4) System coordination. Provide a standard application for the proper coordination of equipment. This application will provide the operator with a method of grouping together equipment based on function and location. This group may then be used for scheduling or other applications.

7.4.3.12(5) Scheduling. Provide the capability to execute control functions according to a user created or edited schedule. Each schedule will provide the following schedule options as a minimum:

7.4.3.12(5)(a) Weekly Schedule. Provide separate schedules for each day of the week. Each schedule will be able to include up to 5 occupied periods (5 start-stop pairs or 10 events).

7.4.3.12(5)(b) Exception Schedules. Provide the ability for the operator to designate any day of the year as an exception schedule. Exception schedules may be defined up to a year in advance. Once an exception schedule has executed, the system will discard and replace the exception schedule with the standard schedule for that day of the week.

7.4.3.12(5)(c) Holiday Schedules. Provide the capability for the operator to define up to 24 special or holiday schedules. These schedules will be repeated each year. The operator will be able to define the length of each holiday period.

7.4.3.12(6) Binary Alarms. Each binary object will have the capability to be configured to alarm based on the operator-specified state. Provide the capability to automatically and manually disable alarming.

7.4.3.12(7) Analog Alarms. Each analog object will have both high and low alarm limits. The operator will be able to enable or disable these alarms.

7.4.3.12(8) Alarm Reporting. The operator will be able to determine the action to be taken in the event of an alarm. An alarm will be able to start programs, print, be logged in the event log, generate custom messages, and display on graphics.

7.4.3.12(9) Remote Communication. The system will have the ability to transmit the alarm/event using the BACnet control network.

7.4.3.12(10) Demand Limiting.

7.4.3.12(10)(a) The demand-limiting program will monitor building power consumption from signals generated by a pulse generator mounted at the building power meter or from a watt transducer or current transformer attached to the building feeder lines.

7.4.3.12(10)(b) The demand-liming program will predict the probable power demand such that action can be taken to prevent exceeding the demand limit. When demand prediction exceeds demand limit, action will be taken to reduce loads in a predetermined manner. When demand prediction indicates the demand limit will not be exceeded, action will be taken to restore loads in a predetermined manner.

7.4.3.12(10)(c) Demand-limiting parameters, frequency of calculations, time intervals, and other relevant variables will be based on the means by which the local power company computes demand charges.

7.4.3.12(10)(d) Provide demand-limiting prediction and control for any individual meter monitored by the system or for the total of any combination of meters.

7.4.3.12(10)(e) Any implemented demand-limiting will not compromise patient care functions or patient care area environmental and thermal comfort.

7.4.3.12(11) Maintenance Management. The system will monitor equipment status and generate maintenance messages based upon user-designated runtimes, starts, and/or calendar data limits. Configure and enable maintenance alarms based on equipment manufacturer recommended maintenance schedule.

7.4.3.12(12) Sequencing. Provide application software based upon the sequence of operation to properly sequence chillers, boilers, pumps and additional system equipment to provide orderly start-up, operation, and shut-down of equipment.

7.4.3.12(13) PID Control. System will provide direct- and reverse-acting PID (proportional-integral-derivative) algorithms. Each algorithm will have anti-windup and selectable controlled variable, setpoint, and PID gains. Each algorithm will calculate a time-varying analog value that can be used to position an output or to stage a series of outputs. The calculation interval, PID gains, and other tuning parameters will be adjustable by a user with the correct security level.

7.4.3.12(14) Will stagger controlled equipment restart after power outage. Operator will be able to adjust equipment restart order and time delay between equipment restarts.

7.4.3.12(15) Energy Calculations. Provide software to allow instantaneous power or flow rates to be accumulated and converted to energy usage data. Provide an algorithm that calculates a sliding-window average (e.g., rolling average). The algorithm will be flexible to allow window intervals to be user specified (e.g., 15 min, 30 min, 60 min). provide an algorithm that calculates a fixed-window average. A digital input signal will define the start of the window period (e.g., signal from a utility meter) to synchronize the fixed-window average with that used by the energy service provider.

7.4.3.12(16) Anti-Short Cycling. All binary output objects will be protected from short cycling by means of adjustable minimum on-time and off-time settings.

7.4.3.12(17) On and Off Control with Differential. Provide an algorithm that allows a binary output to be cycled based on a controlled variable and a setpoint. The algorithm will be direct-acting or reverse-acting and incorporate an adjustable differential.

7.4.3.12(18) Runtime Totalization. Provide software to totalize runtime for each binary input and output. Operator will be able to enable runtime alarm based on exceeded adjustable runtime limit. Configure and enable runtime totalization and alarms as specified.

7.4.3.13 Controllers

7.4.3.13(1) Provide an adequate number of Building Controllers (BC), Advanced Application Controllers (AAC), Application Specific Controllers (ASC), Smart Actuators (SA), and Smart Sensors (SS) as required to achieve performance specified in this Division. Every device in the system which executes control logic and directly controls HVAC equipment will conform to a standard BACnet Device profile as specified in ANSI/ASHRAE 135, BACnet Annex L. Unless otherwise specified, hardwired actuators and sensors may be used in lieu of BACnet Smart Actuators and Smart Sensors.

7.4.3.13(1)(a) Building Controllers (BCs). Each BC will conform to BACnet Building Controller (B-BC) device profile as specified in ANSI/ASHRAE 135, BACnet Annex L, and will be listed as a certified B-BC in the BACnet Testing Laboratories (BTL) Product Listing.

7.4.3.13(1)(b) Advanced Application Controllers (AACs). Each AAC will conform to BACnet Advanced Application Controller (B-AAC) device profile as specified in ANSI/ASHRAE 135, BACnet Annex L and will be listed as a certified B-AAC in the BACnet Testing Laboratories (BTL) Product Listing.

7.4.3.13(1)(c) Application Specific Controllers (ASCs). Each ASC will conform to BACnet Application Specific Controller (B-ASC) device profile as specified in ANSI/ASHRAE 135, BACnet Annex L and will be listed as a certified B-ASC in the BACnet Testing Laboratories (BTL) Product Listing.

7.4.3.13(2) Smart Sensors (SSs). Each SS will conform to BACnet Smart Sensor (B-SS) device profile as specified in ANSI/ASHRAE 135, BACnet Annex L and will be listed as a certified B-SS in the BACnet Testing Laboratories (BTL) Product Listing.

7.4.3.13(3) Each piece of equipment will be controlled by a single controller to provide stand-alone control in the event of communication failure. All I/O points specified for a piece of equipment will be integral to its controller. Provide stable and reliable stand-alone control using default values or other method for values normally read over the network such as outdoor air conditions, supply air or water temperature coming from source equipment.

7.4.3.13(4) Provide a separate BC or ACC for each AHU or other HVAC system. A controller may control more than one system provided that all points associated with the system are assigned to the same controller. Points used for control loop reset, such as outside air or space temperature, are exempt from this requirement.

7.4.3.13(5) All controllers will use the same programming language.

7.4.3.13(6) All controllers and software will be BTL listed at the time of installation.

7.4.3.14 Packaged Equipment Controls

7.4.3.14(1) Electronic controls packaged with any equipment provided under this Agreement will communicate with the Facility BMS. The BMS will communicate with these controls to read the information and change the control setpoints. The information to be communicated between the BMS and the controls will be in the standard object format as defined in ANSI/ASHRAE Standard 135 (BACnet). Controllers will communicate with other BACnet objects on the network using the read (execute) property service as defined in clause 15.5 of Standard 135.

7.4.3.14(2) Controllers will be capable of stand-alone operation and will continue to provide control functions if the network connection is lost.

7.4.3.14(3) Controllers will contain sufficient I/ O capacity to control the target system.

7.4.3.14(4) Controllers will have a physical connection for a laptop computer or a portable operator's tool.

7.4.3.14(5) The hardware will be suitable for the anticipated ambient conditions. Controllers used outdoors and/or in wet ambient conditions will be mounted within waterproof enclosures and rated for be expected ambient temperature conditions. Controllers used in conditioned space will be mounted in dust-proof enclosures and be rated for expected operating temperature conditions.

7.4.3.14(6) Provide diagnostic LEDs for power, communication, and processor. All wiring connections will be made to field removable, modular terminal strips or to a termination card connected by a ribbon cable.

7.4.3.14(7) Controllers will maintain all BIOS and programming information in the event of a power loss for at least 30 days.

7.4.3.14(8) Controllers will be able to operate at 90% to 110% of nominal voltage rating.

7.4.3.14(9) Power supply for the controllers will be rated at minimum of 125% of ASC power consumption and will be fused or current limiting type.

7.4.3.14(10) Packaged controllers will not be used for air handling units (AHUs).

7.4.3.15 Input/output Interface

7.4.3.15(1) Hardwired inputs and outputs may tie into the BMS through BCs, AACs, ASCs.

7.4.3.15(2) All input points and output points will be protected such that shorting of the point to itself, to another point, or to ground will cause no damage to the controller. All input and output points will be protected from voltage up to 24 V of any duration, such that contact with this voltage will cause no controller damage.

7.4.3.15(3) Binary inputs will allow the monitoring of on/off signals from remote devices. The binary inputs will provide a wetting current of at least 12 mA to be compatible with commonly available control devices and will be protected against contact bounce and noise. Binary inputs will sense dry contact closure without application of power external to the controller.

7.4.3.15(4) Pulse accumulation inputs will conform to all binary input requirements and will also accumulate up to 10 pulses per second.

7.4.3.15(5) Analog inputs will allow the monitoring of low-voltage (0–10 Vdc), current (4–20 mA), or resistance (thermistor or RTD) signals. Analog inputs will be compatible with and field configurable to commonly available sensing devices.

7.4.3.15(6) Binary outputs will provide for on/off operation or a pulsed low-voltage signal for pulse width modulation control. Binary outputs on BCs and AACs will have three-position (on-off-auto) override switches and status lights. Outputs will be selectable for normally open or normally closed operation.

7.4.3.15(7) Analog outputs will provide a modulating signal for the control of end devices. Outputs will provide either a 0–10 Vdc or a 4–20 mA signal as required to properly control output devices. Analog outputs on BCs and AACs will have status lights and a two-position (auto-manual) switch and manually adjustable potentiometer for manual override. Analog outputs will not drift more than 0.4% of range annually.

7.4.3.15(8) The use of tri-state outputs are not permitted.

7.4.3.15(9) I/O points will be universal type, i.e., controller input or output may be designated (in software) as either binary or analog type point with appropriate properties. ASCs are exempted from this requirement.

7.4.3.15(10) The system size will be expandable to at least twice the number of input/ output objects required for this Project. Additional controllers (along with associated devices and wiring) will be all that is necessary to achieve this capacity requirement. The operator interfaces installed for this Project will not require any hardware additions or software revisions in order to expand the system.

7.4.3.16 Hardwired Points

7.4.3.16(1) All control points used for control or equipment will be hardwired points and not rely on the network for control.

7.4.3.16(2) All control and monitoring points for critical environment rooms such as, but not limited to labs, pharmacy, clean rooms, operating theatres, ante rooms, and isolation rooms will be hardwired points.

7.4.3.17 Software Points

7.4.3.17(1) Integrate all software points available via equipment BACnet interface.

7.4.3.18 Power Supplies

7.4.3.18(1) All BMS and controls hardware will be connected to UPS to ensure continued availability during utility power disruptions.

7.4.3.18(2) Power Supplies. Control transformers will be approved for installation in Canada. Furnish Class 2 current-limiting type or furnish over-current protection in primary and secondary circuits for Class 2 service in accordance with CEC requirements. Limit connected loads to 80% of rated capacity.

7.4.3.18(3) Power Line Filtering. Provide internal or external transient voltage and surge suppression for workstations and controllers.

7.4.3.18(4) Immunity to power and noise. Controllers and control equipment will be able to operate at 90% to 110% of nominal voltage rating. Operation will be protected against electrical noise of 5 to 120 Hz and from keyed radios up to 5 W at 1 m.

7.4.3.18(5) Power-fail restart. Controllers and control equipment to have power fail auto restart to ensure proper safety during power failure and a safe orderly recovery after power restoration.

7.4.3.19 Wiring

7.4.3.19(1) All wiring installations will comply with the Canadian Electrical Code, and all applicable governing codes, statutes and ordinances.

7.4.3.19(2) All line voltage wiring will be approved products in approved raceway according to Canadian Electrical Code and Division 26 requirements.

7.4.3.19(3) All low-voltage wiring will meet CEC Class 2 requirements. Low-voltage power circuits will be sub-fused when required to meet Class 2 current limit.

7.4.3.19(4) All wiring (line and low-voltage) will be installed in conduit in all areas of the Facility.

7.4.3.19(5) Do not install Class 2 wiring in raceways containing Class 1 or line voltage wiring. Boxes and panels containing line-voltage wiring and equipment may not be used for low-voltage wiring except for the purpose of interfacing the two (e.g. relays and transformers).

7.4.3.19(6) All wiring within enclosures will be neatly bundled and anchored to permit access and prevent restriction to devices and terminals.

7.4.3.19(7) All wiring will be installed as continuous lengths, with no splices permitted between termination points.

7.4.3.19(8) Size of raceway and size and type of wire type will be the responsibility of the contractor in keeping with the manufacturer’s recommendations and CEC requirements, except as noted elsewhere.

7.4.3.19(9) Use colour-coded conductors throughout with conductors of different colours.

7.4.3.19(10) Adhere to this specification's Division 26 requirements where raceway crosses building expansion joints.

7.4.3.19(11) Design-Builder. will maintain updated (record) wiring diagrams with terminations identified at the Facility.

7.4.3.19(12) All insulated wire to be copper conductors, approved and labelled for 90°C minimum service.

7.4.3.19(13) Life-safety wiring raceways to be a distinctive colour different from other wiring types.

7.4.3.20 Communication Wiring

7.4.3.20(1) All communication wiring will be run in conduit or cable tray in all areas of the Facility.

7.4.3.20(2) Do not install communication wiring in raceways containing line voltage, Class 1, or Class 2 wiring.

7.4.3.20(3) Verify the integrity of the entire network following cable installation.

7.4.3.20(4) When a cable enters or exits a building, a lightning arrestor will be installed between the lines and ground. The lighting arrestor will be installed according to the manufacturer's instructions.

7.4.3.20(5) All runs of communication wiring will be unspliced length when that length is commercially available.

7.4.3.20(6) All communication wiring will be labeled to indicate origination and destination data.

7.4.3.20(7) BMS communication wiring will be provided in a distinct colour from other building network wiring.

7.4.3.20(8) BACnet MS/TP communications wiring will be installed in accordance with ASHRAE/ANSI Standard 135.

7.4.3.20(9) Ethernet and MS/TP cabling can be run together.

7.4.3.20(10) Fiber optics can be run with Ethernet and MS/TP cabling as long as conduit is bent to fiber optic standards, fiber optic cable is protected from damage by a protective sheath, and junction boxes are sized for fiber optic use.

7.4.3.21 Sensors

7.4.3.21(1) Provide sensors to achieve end-to-end accuracy specified in Table 1.

7.4.3.21(2) Install sensors in accordance with the manufacturer's recommendations.

7.4.3.21(3) Mount sensors rigidly and adequately for the environment in which the sensor operates.

7.4.3.21(4) Room temperature sensors will be installed on concealed junction boxes properly supported by wall framing.

7.4.3.21(5) All wires attached to sensors will be air sealed in their raceways or in the wall to stop air transmitted from other areas affecting sensor readings.

7.4.3.21(6) Sensors used in mixing plenums and at air handling unit discharge air will be of the averaging type.

7.4.3.21(7) All pipe-mounted temperature sensors will be installed in wells. Install all liquid temperature sensors with heat-conducting fluid in thermal wells.

7.4.3.21(8) Install outdoor air temperature sensors on north wall, complete with sun shield at designated location.

7.4.3.21(9) Piping to the pressure ports on all pressure transducers will contain a capped test port located adjacent to the transducer.

7.4.3.21(10) All pressure transducers, other than those controlling variable air volume (VAV) boxes, will be located in field device panels, not on the equipment monitor or on ductwork. Mount transducers in a location accessible for service without use of ladders or special equipment.

7.4.3.21(11) All air and water differential pressure sensors will have gauge tees mounted adjacent to the taps. Water gauges will also have shutoff valves installed before the tee.

7.4.3.21(12) Smoke detectors, freezestats, high-pressure cut-offs, and other safety switches will be hard-wired to de-energize equipment as described in the sequence of operation. Switches will require manual reset. Provide contacts that allow BMS to monitor safety switch status.

7.4.3.21(13) Install humidity sensors for humidifiers at least 3 m (10 ft) downstream of the humidifier. Do not install filters between the humidifier and the sensor.

7.4.3.21(14) Sensor range will be suitable for the specific application.

7.4.3.21(15) Humidity sensors will not drift more than 1% of full scale annually.

7.4.3.21(16) Provide matched calibrated sensors for differential temperature measurement applications.

7.4.3.21(17) Provide adjustable type thermostats in all patient rooms with temperature readout. The BMS will control the temperature range and be able to lock out manual adjustments of the thermostats.

7.4.3.21(18) Provide airflow sensors at infectious control isolation dampers in ductwork to ensure isolation has been achieved.

7.4.3.21(19) Provide sensors to monitor outdoor air volumes, space CO2 levels, and other levels as required.

7.4.3.21(20) Provide continuously-operating sensors between all spaces requiring differential pressurization to monitor that the required pressure differential is in place. In addition to BMS alarms, provide local audio and visual alarms at the room entrance and also at the local monitoring station if applicable.

7.4.3.21(21) Provide particle count sensors downstream of all HEPA filter installations.

7.4.3.21(22) Provide thermostats and humidity sensors throughout the Facility as required by CSA Z317.2. For areas critical to Facility operation, room sensors will be provided. Mercury-containing components are not permitted.

7.4.3.21(23) Provide adjustable type thermostats in all patient rooms with temperature readout. The BMS will control the temperature range and be able to lock out manual adjustments of the thermostats.

7.4.3.21(24) In secure rooms, provide electronic, flat plate type (transducer) thermostats located flush mount on wall surface at minimum 2.4m above finished floor. Temperature control for secure rooms will be controlled by the BMS – no user override is permitted.

7.4.3.21(25) Provide local pressure control for each isolation room and anteroom. Provide a local annunciator panel located in the corridor outside each of these rooms.

7.4.3.21(26) Occupancy sensors will utilize Passive Infrared (PIR) and/or Microphonic Passive technology to detect the presence of people within a room. Sensors will be mounted as indicated on the approved drawings. The sensor output will be accessible by any lighting and/or HVAC controller in the system. Occupancy sensors will be capable of being powered from the lighting or HVAC control panel, as shown on the drawings. Occupancy sensor delay will be software adjustable through the user interface and will not require manual adjustment at the sensor.

7.4.3.21(27) Outdoor air temperature sensors.

- 7.4.3.21(27)(a) Each building within the Facility shall have a separate outdoor air temperature sensor.
- 7.4.3.21(27)(b) Each air handling unit processing outdoor air will have a dedicated outdoor air temperature sensor.
- 7.4.3.21(27)(c) Outdoor air sensors will be located on the north or east side of the building with a waterproof enclosure and sun shield to minimize the effects of solar loading.

7.4.3.21(28) Provide a human machine interface (HMI) for display, monitoring and adjustment of zone environment parameters for all critical environment rooms: Planned OR(s), Air Borne Isolation Rooms, AIR Anterooms, air borne isolation room-hybrid(s), VHF Rooms, Pharmacy, clean rooms, CL3 lab rooms. For each application provide display, monitoring and adjustment to the following parameters: space pressure, air change rate, temperature, humidity, door contact switch status, occupancy mode, lighting level.

7.4.3.22 Motorized Control Dampers

7.4.3.22(1) Type. Outdoor and return air mixing dampers and face-and-bypass dampers will be parallel-blade and will direct airstreams toward each other. Other modulating dampers will be opposed-blade. Two-position shut-off dampers will be parallel- or opposed-blade.

7.4.3.22(2) Leakage. Damper will be AMCA rated for leakage class 1A at 250 Pa static pressure differential.

7.4.3.22(3) All damper will be modulating type, unless noted otherwise.

7.4.3.22(4) Floating actuators are not acceptable for modulating service.

7.4.3.22(5) All control dampers will have spring-return mechanism or electronic failsafe, configured for specified fail position.

7.4.3.22(6) Provide damper position feedback output for all motorized dampers.

7.4.3.22(7) Provide a visible and accessible indication of damper position on the drive shaft ends.

7.4.3.22(8) Dampers blades, axles, and linkages will operate without binding. On multiple assemblies, all sections will open and close simultaneously.

7.4.3.23 Smoke Dampers

7.4.3.23(1) Smoke dampers will be UL/ULC approved for use in passive systems, smoke control systems, and smoke management systems.

7.4.3.23(2) Smoke dampers will be UL/ULC rated leakage Class 1.

7.4.3.23(3) Actuators will be factory-mounted as required by UL 555S / ULC-S112.1.

7.4.3.23(4) Ensure smoke dampers function properly and respond to the proper fire alarm system general, zone, and/or detector trips.

7.4.3.24 Control Valves

7.4.3.24(1) Control valves will be installed so that they are accessible and serviceable and so that actuators may be serviced and removed without interference from structure or other pipes and/or equipment.

7.4.3.24(2) Isolation valves will be installed so that the control valve body may be serviced without draining the supply/return side piping system. Unions will be installed at all connections to screw-type control valves.

7.4.3.24(3) Provide manual bypass valves around all control valves serving air handling unit coils to allow uninterrupted operation during valve servicing.

7.4.3.24(4) All control valves will be modulating type, unless noted otherwise.

7.4.3.24(5) Provide valve position status output for all control valves.

7.4.3.24(6) All control valves will have spring-return mechanism or electronic failsafe, configured for specified fail position with the exception of reheat coil, unit heater and force flow heater control valves which are to stay in last position after power/control loss..

7.4.3.24(7) Control valves will fail normally open or closed as follows:

7.4.3.24(7)(a) Zone valves – normally open.

7.4.3.24(7)(b) Heating coils at air handlers – normally open.

7.4.3.24(7)(c) Chilled water control valves at air handlers – normally closed.

7.4.3.24(7)(d) Steam humidification control valves –

7.4.3.24(7)(e) All other valves – normally open or closed as required to provide safe and reliable operation under failure situation.

7.4.3.24(8) Control Valves – Hydronic.

7.4.3.24(8)(a) Valve actuator and trim minimum close-off (differential) pressure rating will be 150% of total system (pump) head for two-way valves and the greater of 300% of pressure differential between ports A and B at design flow or 100% of total system (pump) head for 3-way valves.

7.4.3.24(8)(b) Sizing Criteria: Two-position service will be line size to minimize pressure drop. Modulating service will be sized to maintain adequate control valve authority to provide stable control of the load served.

7.4.3.24(9) Control Valves – Steam.

7.4.3.24(9)(a) Valve actuator and trim minimum close-off (differential) pressure rating will be 150% of operating (inlet) pressure.

7.4.3.24(9)(b) Sizing Criteria.

(b)..1 Two-position service: pressure drop 10% to 20% of inlet pressure.

(b)..2 Modulating service (100 kPa or less): pressure drop 80% of inlet pressure.

(b)..3 Modulating service (101 kPa to 350 kPa): pressure drop 50% of inlet pressure.

(b)..4 Modulating service (over 350 kPa): pressure drop 50% of inlet pressure.

7.4.3.25 Valve and Damper Actuators

7.4.3.25(1) Floating actuators are not acceptable for modulating service.

7.4.3.25(2) Stall Protection. Mechanical or electronic stall protection will prevent actuator damage throughout the actuator's rotation.

7.4.3.25(3) Spring-return Mechanism. Actuators used for power-failure and safety applications will have an internal mechanical spring-return mechanism or an uninterruptible power supply (UPS).

7.4.3.25(4) Manual Positioning. Operators will be able to manually position each actuator when the actuator is not powered. Non-spring-return actuators will have an external manual gear release. Spring-return actuators with more than 7 N·m (60 in.-lb) torque capacity will have a manual crank.

7.4.3.26 Airflow Monitoring

7.4.3.26(1) Provide airflow meters where required as part of the sub-metering system, where required for LEED prerequisites/credits, and where specified elsewhere in the Statement of Requirements.

7.4.3.26(2) Provide airflow monitoring of all outdoor air intakes.

7.4.3.26(3) Provide airflow monitoring of supply air and return/exhaust air from all air handling units.

7.4.3.26(4) Provide airflow monitoring of all exhaust systems larger than 2,500 L/s.

7.4.3.26(5) All airflow monitoring stations will comply with minimum end-to-end accuracy requirements specified in Table 1.

7.4.3.26(6) Provide type of flow meter suitable for application and level of air contamination. Selected device will maintain specified accuracy throughout expected range of flow variation for specific system application.

7.4.3.27 Fluid Flow Meters

7.4.3.27(1) Provide fluid flow meters where required as part of the sub-metering system and as required for optimized system operation. Refer to Schedule 9 :Energy.

7.4.3.27(2) All fluid flow meters to comply with minimum end-to-end accuracy requirements specified in Table 1.

7.4.3.27(3) Each meter will be individually calibrated and tagged accordingly against the manufacturer's primary standards which will be accurate to within 0.1% of flow rate and traceable to the National Institute of Standards and Technology (NIST).

7.4.3.27(4) All wetted metal parts will be stainless steel.

7.4.3.27(5) Required accuracy will be maintained through expected range of flow variation for specific system application.

7.4.3.27(6) Provide type of flow meter suitable for application and service fluid. For hydronic flow meters, provide electromagnetic flow-tube type to reduce maintenance requirements.

7.4.3.27(7) Strap-on flow meters are not permitted.

7.4.3.28 Thermal Energy Meters

7.4.3.28(1) Provide thermal energy meters where required as part of the sub-metering system.

7.4.3.28(2) All thermal energy meters to comply with minimum end-to-end accuracy requirements specified in Table 1.

7.4.3.28(3) All meters will be factory calibrated and traceable to NIST with certification.

7.4.3.29 Auxiliary Control Devices

7.4.3.29(1) Flow switches

7.4.3.29(1)(a) Flow-proving switches will be paddle (water service only) or differential pressure type (air or water service). Switches will be ULc listed, single-pole double-throw (SPDT) snap-acting, and pilot duty rated (125 VA minimum). Paddle switches will have adjustable sensitivity. Differential pressure switches will have scale range and differential suitable for intended application.

7.4.3.29(1)(b) Use correct paddle for pipe diameter.

7.4.3.29(2) Relays

7.4.3.29(2)(a) Control relays will be plug-in type, ULc listed, and will have dust cover and LED "energized" indicator. Contact rating, configuration, and coil voltage will be suitable for application.

7.4.3.29(2)(b) Time delay relays will be solid-state plug-in type, UL listed, and will have adjustable time delay. Delay will be adjustable ±100% from setpoint shown. Contact rating, configuration, and coil voltage will be suitable for application.

7.4.3.29(3) Override timers

7.4.3.29(3)(a) Unless implemented in control software, override timers will be spring-wound line voltage, ULc Listed, with contact rating and configuration required by application. Provide 0–6 hour calibrated dial unless otherwise specified. Flush mount timer on local control panel face or where shown.

7.4.3.29(4) Current transmitters

7.4.3.29(4)(a) AC current transmitters will be self-powered, combination split-core current transformer type with built-in rectifier and high-gain servo amplifier with 4–20 mA two-wire output. Full-scale unit ranges will be 10 A, 20 A, 50 A, 100 A, 150 A, and 200 A, with internal zero and span adjustment. Unit accuracy will be ±1% full-scale at 500-ohm maximum burden.

7.4.3.29(4)(b) Transmitter will meet or exceed ANSI/ISA S50.1 requirements and will be CSA approved.

7.4.3.29(5) Current transformers

7.4.3.29(5)(a) AC current transformers will be CSA approved and will be completely encased (except for terminals) in approved plastic material.

7.4.3.29(5)(b) Transformers will be available in various current ratios and will be selected for ±1% accuracy at 5 A full-scale output.

7.4.3.29(6) Voltage transmitters

7.4.3.29(6)(a) AC voltage transmitters will be self-powered single-loop (two-wire) type, 4–20 mA output with zero and span adjustment.

7.4.3.29(6)(b) Adjustable full-scale unit ranges will be 100–130 Vac, 200–250 Vac, 250–330 Vac, and 400–600 Vac. Unit accuracy will be ±1% full-scale at 500-ohm maximum burden.

7.4.3.29(6)(c) Transmitters will meet or exceed ANSI/ISA S50.1 requirements and will be UL/CSA recognized at 600 Vac rating.

7.4.3.29(7) Voltage transformers

7.4.3.29(7)(a) AC voltage transformers will be CSA approved, and have built-in fuse protection.

7.4.3.29(7)(b) Transformers will be suitable for ambient temperatures of 4°C–55°C (40°F–130°F) and will provide ±0.5% accuracy at 24 Vac and 5 VA load.

7.4.3.29(8) Power monitors

7.4.3.29(8)(a) Selectable rate pulse output for kWh reading, 4–20 mA output for kW reading, N.O. alarm contact, and ability to operate with 5.0 A current inputs or 0–0.33 V inputs.

7.4.3.29(8)(b) 1.0% full-scale true root mean square (RMS) power accuracy, +0.5 Hz, voltage input range 120–600 V, and auto range select.

7.4.3.29(8)(c) Under voltage/phase monitor circuitry.

7.4.3.29(8)(d) Current transformers having a 0.5% full scale accuracy, 600 VAC isolation voltage with 0–0.33 V output. If 0–5 A current transformers are provided, a three-phase disconnect/shorting switch assembly is required.

7.4.3.29(9) Current switches

7.4.3.29(9)(a) Current-operated switches will be self-powered, solid-state with adjustable trip current. Select switches to match application current and BMS system output requirements.

7.4.3.29(10) Pressure transducers

7.4.3.29(10)(a) Transducers will have linear output signal and field-adjustable zero and span.

7.4.3.29(10)(b) Transducer sensing elements will withstand continuous operating conditions of positive or negative pressure 50% greater than calibrated span without damage.

7.4.3.29(10)(c) Water pressure transducer diaphragm will be stainless steel with minimum proof pressure of 1000 kPa (150 psi). Transducer will have 4–20 mA output, suitable mounting provisions, and block and bleed valves.

7.4.3.29(10)(d) Water differential pressure transducer diaphragm will be stainless steel with minimum proof pressure of 1000 kPa (150 psi). Over-range limit (differential pressure) and maximum static pressure will be 2000 kPa (300psi.) Transducer will have 4–20 mA output, suitable mounting provisions, and 5-valve manifold.

7.4.3.29(11) Differential pressure switches

7.4.3.29(11)(a) Differential pressure switches (air or water service) will be UL listed, SPDT snap-acting, pilot duty rated (125 VA minimum) and will have scale range and differential suitable for intended application and NEMA 1 enclosure unless otherwise specified.

7.4.3.29(12) Pressure-electric (PE) switches

7.4.3.29(12)(a) Will be metal or neoprene diaphragm actuated, operating pressure rated for 0–175 kPa (0–25 psig), with calibrated scale minimum setpoint range of 14–125 kPa (2–18 psig) minimum, UL listed.

7.4.3.29(12)(b) Provide one- or two-stage switch action as required by application. Electrically rated for pilot duty service (125 VA minimum) and/or for motor control.

7.4.3.29(12)(c) Switches will be open type (panel-mounted) or enclosed type for remote installation. Enclosed type will be NEMA 1 unless otherwise specified.

7.4.3.30 Variable Frequency Drives

7.4.3.30(1) Provide complete VFDs for equipment and applications designated in all sections of this Schedule.

7.4.3.30(2) All VFDs and ancillary components will be procured by one supplier in order to assure an integrated system and one point of contact for service.

7.4.3.30(3) Manufacturer will have been engaged in the production of this type of equipment for a minimum of ten years. Manufacturer will have local representation that locally stocks standard drives, modification kits, and spare parts for the power input range of drives used in this Facility.

7.4.3.30(4) Provide a 3-year warranty on all VFDs from date of Project substantial completion. Warranty will include all parts and labour.

7.4.3.30(5) Each VFD, with all standard and optional features, will be factory packaged in a ULC rated and listed enclosure most appropriate for each application and location, completely assembled and tested by the manufacturer in an ISO9001 facility. VFD assembly, associated options and peripherals will comply with the applicable requirements of the latest standards of ANSI, IEEE, NEMA, and the Canadian Electrical Code.

7.4.3.30(6) The VFD will meet product standard EN 61800-3 for the First Environment restricted level (Category C2). Base drives that only meet the Second Environment (Category C3, C4) will be supplied with filters to bring the drive in compliance with the First Environment levels.

7.4.3.30(7) The VFD assembly, including the bypass (if specified), will be seismically certified and label as such. Seismic importance factor of 1.5 rating is required and will based upon actual shake table test data as defined by ICC AC-156.

7.4.3.30(8) VFDs sized less than 100 HP to be of the 6-pulse Pulse-Width Modulated (PWM) type with a full wave diode bridge converter to convert incoming fixed voltage/frequency to a fixed DC voltage. The PWM strategy will incorporate a microprocessor to handle all logic functions as well as the complex, sine-coded PWM generating algorithms that control output stage switching.

7.4.3.30(9) VFDs sized from 100 HP to 199 HP to be of the 12-pulse Pulse-Width Modulated (PWM) type with a full wave diode bridge converter to convert incoming fixed voltage/frequency to a fixed DC voltage. The PWM strategy will incorporate a microprocessor to handle all logic functions as well as the complex, sine-coded PWM generating algorithms that control output stage switching. Input isolation transformers with a 30-degree phase shift complete with appropriate filtering to be provided where required.

7.4.3.30(10) The variable frequency drives will convert three-phase, 60 Hz utility power to proportionally variable voltage and frequency, three-phase, AC power using the latest insulated-gate bipolar transistor (IGBT) technology for step less motor speed control of one or more three-phase induction motors. The VFD output waveform to be the PWM or Vector type waveform producing smooth torque at low frequencies and low motor current harmonics.

7.4.3.30(11) VFDs will be capable of controlling and setup for either variable or constant torque load as follows:

7.4.3.30(11)(a) Variable torque: loads such as centrifugal fans, pumps, and compressors.

7.4.3.30(11)(b) Constant torque: loads such as positive displacement pumps, reciprocating compressors, and screw compressors.

7.4.3.30(12) VFD will provide full rated output from voltages +/-10% of nominal voltage. Overload rating of the drive will be minimum 110% of its normal duty current rating for 1 minute in every 10 minutes.

7.4.3.30(13) VFDs will be capable of continuous full load operation under the installed environmental operating conditions.

7.4.3.30(14) All VFDs will have the same customer interface, including digital display, and keypad regardless of horsepower rating.

7.4.3.30(15) VFDs will have cooling fans. Fans will be replaceable without requiring VFD removal or removal of circuit boards. VFD cooling fans will cycle via thermal sensing and not operator continuously.

7.4.3.30(16) Loss-of-load (broken belt / broken coupling) relay output. The drive will be programmable to signal the loss-of-load condition via keypad warning, relay output, and / or over the serial communications bus.

7.4.3.30(17) If the input reference is lost, the VFD will give the user the option of: (1) stopping and displaying a fault, (2) running at a programmable preset speed, (3) hold the VFD speed based on the last good reference received, or (4) cause a warning to be issued, as selected by the user.

7.4.3.30(18) VFDs will be capable of starting into a coasting load (forward or reverse) up to full speed and accelerate or decelerate to set point without tripping or component damage (flying start).

7.4.3.30(19) VFDs will have the ability to automatically restart after an over-current, over-voltage, under-voltage, or loss of input signal protective trip. The number of restart attempts, trial time, and time between attempts will be programmable.

7.4.3.30(20) VFDs will also be capable of DC injection braking that can be employed to stop a freewheeling motor before starting to avoid overvoltage nuisance tripping.

7.4.3.30(21) VFDs will be capable of automatically extending the ramp down time to keep the drive from tripping on overvoltage caused by regeneration of power by the load.

7.4.3.30(22) Line Conditioning and Filtering. In addition to the requirements in Division 23 and Division 26:

7.4.3.30(22)(a) Provide internal swinging (non-linear) chokes providing impedance equivalent to 5% to reduce the harmonics to the power line. Linear chokes are not acceptable. 5% impedance may be from dual (positive and negative DC bus) chokes, or 5% swinging AC line chokes. VFD's with only one DC choke will add an AC line choke.

7.4.3.30(22)(b) Provide a coordinated AC transient surge protection system consisting of 4 MOVs (phase to phase and phase to ground), a capacitor clamp, 1600 PIV Diode Bridge and internal chokes. The MOV's will have a minimum 125 joule rating per phase across the diode bridge. VFDs that do not include coordinated AC transient surge protection will include an external TVSS (Transient Voltage Surge Suppressor).

7.4.3.30(22)(c) Provide EMI / RFI filters. VFD assembly to be CE Marked and comply with product standard EN 61800-3 for the First Environment restricted level (Category C2). Second environment (Category C3, C4) is not acceptable. Submit certified test reports with the shop drawing submittal confirming compliance.

7.4.3.30(22)(d) Provide an additional output (load) reactor directly downstream of the inverter, for all applications where the motor wiring downstream of the inverter exceeds 30m.

7.4.3.30(23) VFDs will automatically reduce applied motor voltage to the motor to optimize energy consumption and reduce audible motor noise. VFDs will have selectable software for optimization of motor noise, energy consumption, and motor speed control.

7.4.3.30(24) VFD Interface:

7.4.3.30(24)(a) Provide a backlit LCD display. The display will be in complete English words for programming and fault diagnostics (alpha-numeric codes are not acceptable). All VFD faults will be displayed in English words

7.4.3.30(24)(b) The keypad will include Hand-Off-Auto selections and manual speed control.

7.4.3.30(24)(c) The drive will incorporate "bump less transfer" of speed reference when switching between "Hand" and "Auto" modes.

7.4.3.30(24)(d) There will be a built-in time clock in the VFD keypad. The clock will have a battery backup with 10 years minimum life span. The clock will date and time stamp faults and record operating parameters at the time of fault. VFD programming will be held in non-volatile memory and is not dependent on battery power

7.4.3.30(24)(e) All applicable operating values will be capable of being displayed in engineering (user) units. Minimum display values will be:

(e)..1 Output Frequency

(e)..2 Motor Speed (RPM, %, or Engineering units)

(e)..3 Motor Current

(e)..4 Motor Torque

(e)..5 Motor Power (kW)

(e)..6 DC Bus Voltage

(e)..7 Output Voltage

7.4.3.30(24)(f) Provide a fireman's override input.

7.4.3.30(25) Serial Communications. All VFDs will have a TIA-485 (RS-485) port as standard for interface with Facility BACnet IP network. BACnet protocol will be certified with BTL listing. The use of non-certified protocols are not allowed.

7.4.3.30(25)(a) Serial communication minimum capabilities will include: run-stop controls; speed setpoint adjustment; output speed / frequency; current (in amps); percent torque; power (kW); kilowatt hours; operating hours; drive temperature; all diagnostic warming and fault information; monitoring of VFD relay output status, digital input status, and all analog input and output values; remote VFD fault reset.

7.4.3.30(25)(b) Serial communication minimum capabilities when in bypass mode will include: bypass run-stop control; monitoring bypass relay output status and all digital input status; all bypass diagnostic warning and fault information; remote bypass fault reset; control of bypass digital and analog outputs.

7.4.3.30(26) VFD Bypass. Bypasses will be furnished and mounted by the manufacturer as required for the application and specified in Division 22, 23, 25 or 26. All VFD with bypass configurations will be ULC listed by the manufacturer as a complete assembly and carry a UL508 label.

7.4.3.30(26)(a) A complete factory wired and tested bypass system consisting of a door interlocked; pad lockable circuit breaker, output contactor, bypass contactor, and fast acting VFD input fuses. UL Listed motor overload protection will be provided in both drive and bypass modes.

7.4.3.30(26)(b) Standalone keypad with LCD display.

7.4.3.30(26)(c) The VFD and bypass package will have a UL listed short circuit current rating (SCCR) of 100,000 Amps and this rating will be indicated on the UL data label.

7.4.3.30(26)(d) Motor protection from single phase power conditions - the bypass system will be able to detect a single-phase input power condition while running in bypass, disengage the motor in a controlled fashion, and give a single-phase input power indication.

7.4.3.30(26)(e) The bypass system will be designed for stand-alone operation and will be completely functional in both Hand and Automatic modes even if the VFD has been removed from the system for repair / replacement. Serial communications will remain functional even with the VFD removed. Bypass systems that do not maintain full functionality with the drive removed are not acceptable.

7.4.3.30(26)(f) Serial communications – the bypass will be capable of being monitored and / or controlled via serial communications that match the VSD

7.4.3.30(26)(g) The bypass serial communications will allow control of the drive/bypass (system) digital outputs via the serial interface. This control will be independent of any bypass function or operating state. All system analog and digital I/O will be capable of being monitored by the BMS system.

7.4.3.30(26)(h) Provide manual or automatic transfer to bypass. Drive faults for automatic transfer to bypass mode will be user selectable for the following drive fault conditions:

(h)..1 Over current

(h)..2 Over voltage

(h)..3 Under voltage

(h)..4 Loss of analog input

7.4.3.30(26)(i) The bypass will include the ability to select the operating mode of the system (VFD/Bypass) from either the bypass keypad or digital input.

7.4.3.30(26)(j) Provide a separate terminal strip for connection of freeze, fire, smoke contacts, and external start command. All external safety interlocks will remain fully functional whether the system is in VFD or Bypass mode. The remote start/stop contact will operate in VFD and bypass modes. The terminal strip will allow for independent connection of up to four (4) unique safety inputs.

7.4.3.30(26)(k) Fireman's Override Mode: Programmable override input which will allow the user to configure the unit to acknowledge some digital inputs, all digital inputs, ignore digital inputs or any combination of the above to suit the local authority having jurisdiction. The override action may be initiated via the serial communications link.

7.4.3.30(27) Harmonics Testing. Design-Builder is to demonstrate a computerized harmonics analysis of the Facility electrical system based on the final single line diagram. Analysis will illustrate the effect of all VFD's (including pump VFDs) on system harmonics. Design-Builder is to provide input line reactors and/or line filters required to reduce the total harmonic distortion (THD) at the point of common coupling or at each VFD input where the analysis has shown that the incremental effect of the addition of the VFD's would cause the THD to exceed these values as per IEEE 519 latest edition standard.

7.4.3.31 Identification

7.4.3.31(1) Warning labels. Provide permanent warning labels to all equipment that can be automatically started by the control system. Permanent warning labels will be affixed to all motor starters and control panels that are connected to multiple power sources utilizing separate disconnects.

7.4.3.31(2) Control equipment and device labelling.

7.4.3.31(2)(a) Permanently label or code each point of field terminal strips to show the instrument or item served.

7.4.3.31(2)(b) Identify all control panels. Install panel identification label on outside of panel door.

7.4.3.31(2)(c) Identify all other control components with permanent labels. All plug-in components will be labeled such that label removal of the component does not remove the label.

7.4.3.31(2)(d) Labels and tags will match unique identifiers shown on the record drawings.

7.4.3.31(2)(e) All sensors and actuators not in occupied areas will be tagged.

7.4.3.31(2)(f) Each device inside enclosures will be tagged.

7.4.3.31(3) Manufacturers' nameplates and CSA certification/approval labels will be visible and legible after equipment is installed.

7.4.3.31(4) Identification of wires.

7.4.3.31(4)(a) All wiring and cabling, including that within factory-fabricated panels will be labeled at each end of termination with control system address or termination number.

7.4.3.31(4)(b) Tag each network wire with a common identifier on each end.

7.4.3.31(4)(c) Tag each power source with the panel and breaker number it is fed from.

7.4.3.31(4)(d) Identify low voltage conduit runs as BMS conduit, power feeds not included.

7.4.3.31(4)(e) Identify each electric box, junction box, utility box with permanent label. Provide control company label.

7.4.3.31(4)(f) For conduit runs more than 2.4m between junction boxes in one room, place identifier at least every 2.4 m.

7.4.3.31(4)(g) Place identify on each side where a conduit passes through a wall or other inaccessible path.

7.4.3.31(4)(h) Identify BMS communication conduits in same manner as above.

7.4.3.31(5) Provide tags for all control valves indicating service and number.

7.4.3.31(6) Provide tags for all motorized dampers indicating service and number.

7.4.3.32 Programming

7.4.3.32(1) Provide sufficient internal memory for the specified sequence of operation and trend logging of all points at 5-minute intervals for a period of 2-years

7.4.3.32(2) All equipment and point naming conventions for all BMS points will follow the ASHRAE 223P (Project Haystack) standard.

7.4.3.32(3) Provide all programming for each system to provide a fully operating system under all operating conditions.

7.4.3.32(4) Imbed into the control program sufficient comment statements to clearly describe each section of the program.

7.4.3.32(5) Use the appropriate programming types. All techniques used will provide actions for all possible situations and will be documented.

7.4.3.32(6) All setpoints, timers, deadbands, PID gains will be adjustable by the user with appropriate access level. Software points will be used for these variables. Fixed scalar numbers will not be embedded in programs except for physical constants and conversion factors.

7.4.3.32(7) Values for all points, including read (hardware) points used in control sequences will be capable of being overridden by the user with appropriate access level. If hardware design prevents this for hardware points, they will be equated to a software point, and the software point will be used in all sequences. Exceptions will be made for machine or life safety.

7.4.3.33 Automatic Fault Detection and Diagnostics

7.4.3.33(1) Provide BMS complete with automated fault detection, diagnosis and reporting (AFDDR) software, hardware interface and communication devices. Configure the AFDDR software to ensure building systems remain continuously optimized and the need for fault diagnosis by the Facility operator is minimized. Ensure the AFDDR software will record and provide reports of the BMS controller database software modification instances, facility air quality, key performance indication of central system HVAC equipment control loops, key performance indication of zone control loops, occupant comfort, energy performance, ability to create virtual metering utilizing the BMS points to allow drill down capability from the main metering points to facilitate the operators in isolating poorly performing systems, operation / machine fault, manual override and other customizable web-accessible reports available to the Authority. AFDDR software vendor will advise BMS of all points necessary to meter or build virtual meters that optimize AFDDR function. AFDDR Software will provide customizable web-accessible reports available to the Authority, with rules and dashboard customized in consultation with the Authority.

7.4.3.34 Measurement and Verification (M&V)

7.4.3.34(1) Provide a complete measurement and verification (M&V) system for collection and storage of Facility energy and water consumption and performance to confirm Facility performance.

7.4.3.34(2) Provide all physical and virtual meters as required.

7.4.3.34(3) Provide a complete digital metering system to monitor and track electricity, natural gas, thermal meter, and domestic water measurements of the building via the BMS.

7.4.3.34(4) Software will store all data in comma separated variable (.CSV) file format. Meters and points are to be read and stored every 5 minutes.

7.4.3.34(5) The software will allow the user to view instantaneous readings of voltage, current, energy, power, phase angle, present and peak demand from all electricity meters.

7.4.3.34(6) The software will allow the user to view all meter measurements in either metric or imperial units for any thermal or water meter.

7.4.3.34(7) The software will have the ability to export data into reporting applications (e.g. Web, Excel and notepad).

7.4.3.34(8) The software will store measurements for a minimum period of 36 months. Measurements will commence from the date of occupancy and be stored for the entire duration of the measurement and verification period.

7.4.3.34(9) The software will include service menus for diagnostic monitoring of the metering equipment.

7.4.3.34(10) The software will allow remote access through either a modem/telephone link or Internet access. Provide security access control to assign permission levels for remote access.

7.4.3.34(11) Output file format and storage.

- 7.4.3.34(11)(a) Data will be recorded every hour.
- 7.4.3.34(11)(b) Data will be provided in comma separated value (.CSV) files.
- 7.4.3.34(11)(c) Each row in the output file will represent a successive sample time.
- 7.4.3.34(11)(d) Include a time stamp for each line in the file.
- 7.4.3.34(11)(e) Separate each field by a single comma character.
- 7.4.3.34(11)(f) Each required monitoring point will contain a unique and understandable identifier.
- 7.4.3.34(11)(g) Each required monitoring point will be identified with a unique and understandable column.
- 7.4.3.34(11)(h) All recorded data is to be stored on the BMS server.
- 7.4.3.34(11)(i) Provide data files to the Authority in electronic format.

7.4.3.34(12) The system will be capable of storing data for a minimum of all metering points for a period of no less than 36 months.

7.4.3.34(13) The BMS will be utilized for the M&V process. All energy measurement points (mechanical and electrical) will be connected to the BMS for energy and water monitoring and calculation.

7.4.3.34(14) Division 22 and 23 energy metering devices will be connected directly to the BMS system. The BMS will provide for continuous monitoring of all related M&V metering points.

7.4.3.34(15) BMS system will connect separately to the main incoming electrical utility meter and other electrical sub-meters through BACnet interface connection to measure the total power consumption and subsystems of the building.

7.4.3.34(16) To reconcile actual energy use to predicted energy use, energy by end-use will be metered.

7.4.3.34(17) Energy metering for mechanical systems.

7.4.3.34(17)(a) Divisions 22 and 23 energy metering will include various thermal energy meters, domestic water flow meters, airflow stations, air and water temperature sensors, electrical power consumption of variable frequency drives (pumps and fans) from BACnet interface, start/stop status of pump, fan as well as CT's used for measuring mechanical equipment consumption, and other inputs indicated in the M&V Plan. All mechanical equipment not being supplied by packaged network interface card capable of recording energy consumption, will be equipped with dedicated CT's used for metering purposes.

7.4.3.34(17)(b) All variable frequency drives for fans and pumps will provide system status, speed (%) and power consumption (kW or kWh) information to the BMS.

7.4.3.34(17)(c) Configure VFDs such that they populate continuous power consumption data to the BMS. Any energy optimization capabilities available within the VFD will also be programmed and activated.

7.4.3.34(17)(d) Water meters other than the municipal meter will have a digital output to the BMS providing flow rate and instantaneous totalizing water volume/consumption information.

7.4.3.34(17)(e) Thermal energy meters will connect to the BMS providing instantaneous data for liquid flow rate, supply and return water temperatures, kW and kWh and load/energy information.

7.4.3.34(17)(f) Gas meters will have connection to the BMS providing instantaneous data for totalizing gas consumption in cubic meters.

7.4.3.34(18) Energy metering for electrical systems

7.4.3.34(18)(a) The electrical system metering will be capable to measure the power line through dedicated meter and CTs for interior lighting, exterior lighting, emergency lighting, plug load and mechanical circuits. The BMS will connect to the electrical systems meters through BACnet interface connection.

7.4.3.34(18)(b) CT's intervals trending for lighting and plug loads to be maximum 1 hour.

7.4.3.34(19) Provide commissioning of the metering system to the satisfaction of the Authority and demonstrate the proper functioning of the metering system on the BMS.

7.4.3.34(20) Calibrate and test all energy and water monitoring sensors. Provide a calibration report to verify that the meters have been installed and calibrated to read within acceptable limits of accuracy as specified in Division 22, 23, 25 and 26.

7.4.3.35 Start-Up and Checkout Procedures

7.4.3.35(1) Startup testing. All testing will be performed by the Design-Builder and will make up part of the necessary verification of an operating control system. this testing will be completed before the Authority is notified of the system demonstration.

7.4.3.35(2) Start up, check out, and test all hardware and software and verify communication between all components.

7.4.3.35(3) Verify that all control wiring is properly connected and free of all shorts and ground faults. Verify that terminations are tight.

7.4.3.35(4) Verify that all input/output points read properly.

7.4.3.35(5) Verify all alarms and interlocks.

7.4.3.35(6) Verify operation of the integrated system.

7.4.3.35(7) Calibrate and prepare for service all instruments, controls, and accessory equipment furnished as part of the Project.

7.4.3.35(8) Verify calibration of all input devices individually. Perform calibration procedures according to manufacturer's recommendations.

7.4.3.35(9) Verify that all binary output devices operate properly and that the normal positions are correct.

7.4.3.35(10) Verify that all analog output devices are functional, that start and span are correct, and that direction and normal positions are correct. Verify that all control valves and automatic dampers to ensure proper action and closure.

7.4.3.35(11) Verify that the system operation adheres to the sequences of operation. Simulate and observe all modes of operation. Tune all control loops.

7.4.3.35(12) Check each alarm separately to ensure correct annunciation.

7.4.3.35(13) Test all interlocks to check logic and ensure that the fail-safe condition is in the proper direction.

7.4.3.36 Control System Demonstration and Acceptance

7.4.3.36(1) Prior to acceptance, the control system will undergo a series of performance tests to verify operation and compliance with this specification. These tests will occur after installation is complete, equipment has been started up, and system and equipment tests have been completed.

7.4.3.36(2) Provide the tests described in this section in addition to the tests required as a necessary part of the installation, start-up, and debugging process. The Authority's representative will be present to observe and review these tests. Provide at least 14 days notification in advance of the start of the testing procedures.

7.4.3.36(3) The demonstration process will follow that approved at part of the Commissioning procedures. Approved checklists and forms will be completed for all systems as part of the demonstration.

7.4.3.36(4) Demonstrate actual field operation of each control and sensing point for all modes of operation including day, night, occupied, unoccupied, fire/smoke alarm, seasonal changeover, and power failure modes. The purpose is to demonstrate the calibration, response, and action of every point and system. Provide all test equipment required to prove proper operation.

7.4.3.36(5) Provide a log indicating the date, technician's initials, and any corrective action taken or needed for each control input and output.

7.4.3.36(6) Demonstrate compliance with "System Performance" section of Division 25.

7.4.3.36(7) Demonstrate compliance with sequences of operation through all modes of operation.

7.4.3.36(8) Demonstrate complete operation of operator interface.

7.4.3.36(9) Provide trend data output in a graphical form showing the step response of each BMS control loop. The test will show the loop's response to a change in setpoint, which represents a change of actuator position of at least 25% of its full range. The sampling rate of the trend shall be from 10 seconds to 3 minutes, depending on the speed of the control loop. The trend data will show for each sample the setpoint, actuator position, and controlled variable values. Provide all tuning necessary to ensure each loop operates in an optimally tuned manner.

7.4.3.36(10) Provide trend data output showing the action of demand limiting on a minute-by-minute basis over at least a 30-minute period. The trend will include kW, demand limiting setpoint, and the status of sheddable equipment outputs.

7.4.3.36(11) Provide trend data output showing the capability of optimum start/stop algorithms. The change-of-value or change-of-stage trends will include the output status of all optimally started and stopped equipment, as well as temperature sensor inputs of affected areas.

7.4.3.36(12) Demonstrate interface to the building fire alarm system.

7.4.3.36(13) Demonstrate compliance with smoke control sequences of operation through all modes of fire and smoke event response throughout the Facility.

7.4.3.36(14) Provide operational logs for each system that indicate all setpoints, operating points, valve positions, modes, and equipment status. These logs will cover three 48-hour periods and have a sample frequency of not more than 5 minutes.

7.4.3.36(15) Provide all necessary repairs or revisions to the hardware and software as required to successfully complete all tests.

7.4.3.36(16) All tests described in Division 25 will be performed to the satisfaction of the Authority prior to the acceptance of the control system as meeting the requirements of completion.

7.4.3.36(17) The system will not be accepted until all forms and checklists have been completed as part of the demonstration and are submitted and approved as required.

7.4.3.37 Training

7.4.3.37(1) Provide training for Authority staff prior to Authority taking over the Facility. Training will be provided on-site and be video recorded for future self-paced training.

7.4.3.37(2) Train the designated Authority staff to enable them to do the following:

7.4.3.37(2)(a) Day-to-day operators:

(a)..1 Proficiently operate the system;

(a)..2 Understand BMS architecture and configuration;

(a)..3 Understand system components;

(a)..4 Understand system operation, including BMS control and optimizing routines and algorithms;

(a)..5 Operate the workstation and peripherals;

(a)..6 Log on and off the system;

(a)..7 Access graphics, point reports, and logs;

(a)..8 Adjust and change system setpoints, time schedules, and holiday schedules;

(a)..9 Recognize malfunctions of the system by observation of graphical visual signals;

(a)..10 Understand system drawings and operating and maintenance manuals;

(a)..11 Access data from controllers; and

(a)..12 Operate portable operator's terminals.

7.4.3.37(2)(b) Advanced operators:

(b)..1 Make and change graphics on the workstation;

(b)..2 Create, delete, and modify alarms, including annunciation and routing of these;

(b)..3 Create, delete, and modify point trend logs and graph;

(b)..4 Create, delete, and modify reports;

(b)..5 Add, remove, and modify system's physical points;

(b)..6 Create, modify, and delete programming

(b)..7 Add panels when required;

(b)..8 Add operator interface stations;

(b)..9 Create, delete, and modify system displays, both graphical and others;

(b)..10 Perform BMS field checkout procedures;

(b)..11 Perform BMS controller unit operation and maintenance procedures;

(b)..12 Perform workstation and peripheral operation and maintenance procedures;

(b)..13 Perform BMS diagnostic procedures;

(b)..14 Configure hardware including PC boards, switches, communication, and I/O points; and

(b)..15 Maintain, calibrate, and replace system components.

7.4.3.37(2)(c) System managers and administrators:

(c)..1 Maintain software and prepare backups;

(c)..2 Interface with Project-specific, third-party operator software; and

(c)..3 Add new users and understand password security procedures.

7.4.3.37(3) Provide a virtualized environment for the BMS simulating a facility of similar size to the Facility. This virtualized environment will simulate all systems contained in Division 25 and be used to train Authority user groups on the use and troubleshooting of the BMS by a system expert provided by Design-Builder. Design-Builder will make this training service available to the Authority at least twelve months prior to Substaintial Completion.

7.4.3.37(4) Provide an expert in the BMS who has experience using the system in healthcare environments. The expert will assist in commissioning the BMS, as well as programming to assist in smart commissioning of the Facility and provide ongoing training and system development.

7.4.3.37(5) To ensure the Authority has a comprehensive understanding of the hardware and software, and to ensure the ongoing development of KPI's, and energy optimization measures, Design-Builder will employ and make the expert available to the Authority for a minimum of one day per week for two years following Substantial Completion.

7.4.4. Electrical Systems

7.4.4.1(1) System Overview

7.4.4.1(1)(a) Electrical systems requiring BMS interfaces include:

(a)..1 Generators;

(a)..2 Lighting controls;

(a)..3 Load management system;

(a)..4 Electrical metering;

(a)..5 Switchgear;

(a)..6 EVSE;

(a)..7 UPS;

(a)..8 Fire Alarm System; and

(a)..9 Clock System.

7.4.4.1(2) Applicable Area

7.4.4.1(2)(a) Applies to the Facility.

7.4.4.1(3) System Responsibilities

7.4.4.1(3)(a) Authority will:

(a)..1 Provide design feedback to the Design-Builder.

7.4.4.1(3)(b) Design-Builder will:

(b)..1 Design the system as determined by the Authority.

(b)..2 Provide BMS interfaces for the control, data and alarm points listed under “Performance Requirements” below, and as noted in Division 26 sections.

(b)..3 Design, supply and install all system infrastructures.

(b)..4 Design, supply and install all system equipment.

(b)..5 Design, supply and install all system software.

(b)..6 Commission all system infrastructure, equipment and software.

(b)..7 Integrate the system to the following systems:

(b)..7.1 Integrated Building Management Platform.

7.4.4.1(4) Performance Criteria

7.4.4.1(4)(a) Generators (for each generator);

(a)..1 Generator trouble points (all available points);

(a)..2 Generator run status;

(a)..3 Coolant temperature;

(a)..4 Battery voltage; and

(a)..5 Fuel level for each tank.

7.4.4.1(4)(b) Lighting controls;

(b)..1 Refer to requirements in Section 7.5

7.4.4.1(4)(c) Load management system;

(c)..1 Refer to requirements in Section 7.5

7.4.4.1(4)(d) Electrical metering;

(d)..1 Refer to requirements in Section 7.5

7.4.4.1(4)(e) Switchgear;

(e)..1 Refer to requirements in Section 7.5

7.4.4.1(4)(f) EVSE;

(f)..1 Charge status and kW output;

(f)..2 Alarm / trouble points (all available points);

7.4.4.1(4)(g) UPS;

(g)..1 Refer to requirements in Section 7.5

7.4.4.1(4)(h) Fire Alarm System;

(h)..1 Refer to requirements in Section 7.5

7.4.4.1(4)(i) Clock System

(i)..1 Alarm for loss of central time signal; and

(i)..2 Synchronization of BMS system time and all alarm inputs with central time signal.

7.4.5. Authority Network and Infrastructure

7.4.5.1 Basic Requirements

7.4.5.1(1) System Overview

7.4.5.1(1)(a) The Authority Network and Infrastructure is a dedicated IEEE 802.3 network, separate from the other networks in the facility including the IM/IT Data Network. It will provide a single, consolidated networking infrastructure for IP communication of Facility base-building systems.

7.4.5.1(1)(b) The Authority network includes:

(b)..1 OLTs, and edge switches;

(b)..2 network management software;

(b)..3 Structured Cabling infrastructure that is universal and supports Authority network and IM/IT equipment required in the Facility.

7.4.5.1(1)(c) The Authority network does not include the following equipment which will be provided by the Authority:

(c)..1 routers;

(c)..2 network security hardware; and

(c)..3 servers.

7.4.5.1(1)(d) This system includes the following subsystems:

(d)..1 OLTs and edge switches;

(d)..2 Interbuilding Structured Cabling

(d)..3 Intrabuilding Structured Cabling Backbone

(d)..4 Intrabuilding Structured Cabling Horizontal and Patching

(d)..5 Telecommunications Grounding and Bonding;

7.4.5.1(1)(e) Electronic Safety and Security systems are not included on the Authority Network as these will be connected to the IM/IT Data Network.

7.4.5.1(2) Applicable Area

7.4.5.1(2)(a) Applies to the Facility.

7.4.5.1(3) System Responsibilities

7.4.5.1(3)(a) Authority will:

(a)..1 Provide design feedback to Design-Builder.

7.4.5.1(3)(b) Design-Builder will:

(b)..1 Select the system as determined by the Authority.

(b)..2 Design, supply, install and commission all system infrastructure.

(b)..3 Design, supply, install, configure, program and commission the Authority Network, including all required network equipment.

(b)..4 Design, supply and install all system software.

(b)..5 Commission all system infrastructure, equipment and software.

7.4.5.2 Performance Criteria

7.4.5.2(1) General

7.4.5.2(1)(a) Adhere to all standards and specifications identified in the PHSA Communications Infrastructure Standards and Specifications when designing, supplying installing, and commissioning Authority Network structured cabling and horizontal patching.

7.4.5.2(1)(b) The Facility Authority Network and infrastructure will be designed and implemented in a manner consistent and appropriate for the critical nature of 24/7 acute care facility operations.

7.4.5.2(1)(c) Design-Builder will provide a single software GUI for the Authority Network to manage all network operations without the need for Command Line Interface (CLI) programming. The GUI will allow for a simple to use centralized management of the following for all network devices:

(c)..1 VLAN assignments;

(c)..2 PoE; and

(c)..3 Port Restrictions.

7.4.5.2(1)(d) Design-Builder will provide a dedicated software application will to monitor and troubleshoot all BACNet/IP device traffic on the Authority network.

7.4.5.2(1)(e) Design-Builder will provide all necessary Project management, qualified technical expertise, infrastructure design, installation coordination, labour, materials, equipment, services and other items required to fulfill its scope of work as defined in this section.

7.4.5.2(1)(f) Design-Builder will provide all software licensing associated with the Authority network for a minimum of five years.

7.4.5.2(2) OLTs and Edge Switches

7.4.5.2(2)(a) It is envisioned that the Authority network will operate on a Passive Optical Network (PON) backbone consisting of single-mode fiber optical cable, passive optical splitters, Optical Line Terminals, aggregation switches, and optical edge switches.

7.4.5.2(2)(b) The Authority Network will be designed for redundancy of all core equipment and connections between core and edge switching. The Authority Network design will allow for concurrent upgrading of networking equipment and software to eliminate unplanned downtime.

7.4.5.2(2)(c) Minimum equipment bandwidth requirements:

(c)..1 OLTs: 10Gbps per uplink port;

(c)..2 Edge Switches: 1Gbps per RJ-45 port

7.4.5.2(2)(d) An Authority Network OLT will be installed within each MER in the Facility. Refer to Division 27 for information on MER topology.

7.4.5.2(2)(e) Edge/aggregation switches will be installed within dedicated wall cabinets within TRs.

7.4.5.2(3) Interbuilding Structured Cabling

7.4.5.2(3)(a) Interbuilding structured cabling will be provided as part of the IM/IT Structured Cabling System defined in Division 27.

7.4.5.2(3)(b) Single-mode fiber strands will be reserved for Authority network use.

7.4.5.2(4) Intrabuilding Structured Cabling Backbone

7.4.5.2(4)(a) Intrabuilding backbone structured cabling will be provided as part of the IM/IT Structured Cabling System defined in Division 27.

7.4.5.2(4)(b) Design-Builder will provide all horizontal structured cabling required to connect all systems and field devices that are not part of Division 27 or Division 28 to the FM network.

7.4.5.2(4)(c) Single-mode fiber strands will be reserved for Authority network use.

7.4.5.2(5) Intrabuilding Structured Cabling Horizontal and Patching

7.4.5.2(5)(a) Provide a dedicated wall mounted cabinet, structured cabling and patch panels for Authority network equipment in each TR.

7.4.5.2(5)(b) Provide complete Category 6A cabling for each device that requires access to the Authority network, including:

(b)..1 BMS controllers and devices that require connections to the Authority network;

(b)..2 lighting controllers;

(b)..3 Electrical meters;

(b)..4 Load Management System devices;

(b)..5 elevator controllers;

(b)..5.1 sterilizers and other devices identified by the Authority.

7.5 Electrical (Division 26)

7.5.1. Design Principles

7.5.1.1 This section is accompanied and will be read in conjunction with all the Appendixes.

7.5.1.1(1) Provide luminaires that require minimal cleaning and permit practical and easy access and disassembly. All luminaries shall be CSA listed., Luminaires in patient care areas to be provided with anti-microbial finish, and rated for intended usage.

7.5.1.1(2) All electrical systems for the Psychiatric Inpatient Unit will be tamper proof, tamper resistant and be of a type and quality suitable for use in a mental health care facility.

7.5.1.1(3) All systems for the Psychiatric Inpatient Unit will adhere to all relevant mental health standards.

7.5.1.1(4) Configure electrical systems to meet requirements of the identified program and patient care needs in an efficient manner with optimal utilization of space, staff and equipment resources.

7.5.1.1(5) Provide electrical systems that provide redundancy, protection, continuity of service and a comfortable and safe working environment for patients, visitors and staff.

7.5.1.1(6) Integrate systems where integration provides efficiency, operational and cost advantage.

7.5.1.1(7) Incorporate into the design and construction, the principle that change will be a constant and inevitable fact within the Facility. Completed electrical systems will permit change while minimizing the cost of change and the amount of interruption to the regular Facility activities.

7.5.1.1(8) Include systems and equipment coordinated to provide synergy and reliable electrical performance for the various Facility functions.

7.5.1.1(9) Provide provisions to minimize the noise and vibrations of electrical equipment/components (transformers, luminaries, cables etc.) to below an acceptable level as required in a health care facility.

7.5.1.1(10) Locate electrical rooms and power distribution equipment in order to minimize the distances for feeder runs and to provide easy access for the equipment to be moved in and out of the electrical rooms and or replace the distribution equipment with new. Locate power distribution equipment to avoid interference with other services and equipment.

7.5.1.1(11) Provide clear aisle ways and routes to permit removal of major electrical equipment from the Facility as well as to bring in new equipment into the electrical rooms without impacting Hospital operations and site access. Indicate on the floor plans the removal aisle ways and routes for major electrical equipment including diesel generators, transformers sized 225kVA and greater and switchgear sections.

7.5.1.1(12) Install equipment, conduits, piping, ductwork etc. in electrical rooms such that a minimum clear height of 2100 mm (7’-0”) AFF is available.

7.5.1.1(13) Electrical and communication rooms will not have drain pipes, plumbing pipes or water-cooled fan-coil units located in the room.

7.5.1.1(14) Incorporate energy management systems to minimize demand pressures on the facility systems and minimize the anticipated increase to energy costs.

7.5.1.1(15) Refer to Appendix 9 Energy regarding energy incentive programs. Integrate any requirements of those programs into the electrical systems.

7.5.1.1(16) Electrical systems to be made up of components with the latest technology and proven systems that are available at time of installation.

The high voltage electrical distribution equipment will be an outdoor BC Hydro approved switchgear lineup. The low voltage 600V main electrical distribution switchboards will be provided with an arc-flash mitigation solution to reduce the potential danger to maintenance personnel. This may include any number of technologies including (but not limited to) maintenance switches, optical sensing relays, and/or remote racking of circuit breakers.

7.5.1.1(17) All MCCs will be of the high arc resistance mitigation type. The MCCs will lower the probability of the creation of a short circuit phase-to-phase or phase-to-ground fault, lowering the possibility of an arc flash event.

7.5.1.1(18) EMI is to be considered in installation of electrical equipment. EMI reduction to be achieved by electromagnetic shielding for transformers and switchgear, use of ferrous raceways including EMT as required by electrical Code, close spacing of conductors in feeders, running all the spaces of a feeder together to cancel net magnetic fields, locating all distribution transformers in electrical rooms and running feeders in service spaces and ceiling spaces away from occupied areas. Should there be an electromagnetic field that results in interference to equipment, Project Co will mitigate the electromagnetic field with appropriate techniques.

7.5.1.1(19) Install electrical systems and equipment in a fixed and permanent manner, seismically restrained to meet post-disaster facility standards. Plan installation of equipment to allocate space for future additions and to facilitate easy access to other systems and equipment which will require inspection or maintenance.

7.5.1.1(20) Incorporate redundancy into the electrical system design such that failure of any electrical equipment or feeder will not impair Facility operation or leave any area, room, floor plate or Component, or department of the Facility without at least one active light and one active receptacle unless stated otherwise. For smaller rooms such as closets and storage rooms containing four (4) or less lighting fixtures and limited receptacles that are not required for medical equipment, a single power source may be utilized instead of from multiple sources. The design of these spaces will be reviewed by the Authority prior to acceptance.

7.5.1.1(21) Design and construct all systems with protection, grounding, isolation and control to address the functional requirements where they are located. Power throughout the building will comprise of a combination of 347/600V for mechanical loads and 120/208V for all power, lighting and equipment loads except where 277/480V is required for Authority's equipment. Localized transformers will be allowed for Authority's equipment with specialized power requirements as required.

7.5.1.1(22) In addition to allowing for operating factors, safety factors, and mechanical loads and requirements, design and construct the Facility electrical systems with a minimum 25% spare capacity and 25% physical space. This spare capacity is to be provided throughout the distribution network elements on secondary distribution and all major electrical equipment.

7.5.1.1(23) Design and construct the Facility to provide a minimum of 25% physical floor and wall space within all electrical rooms and service spaces.

7.5.1.1(24) Redundancy will be incorporated into systems and equipment such that the failure of a single piece of major equipment or major conductor will not impair the operation of the Facility nor the clinical or administrative activities.

7.5.1.1(25) The installation will economically occupy available space, leaving space for future additions, and will be planned to facilitate easy access to other systems and equipment, including mechanical equipment, building systems access ways and architectural building components which will require periodic inspection or maintenance.

7.5.2. Wiring Methods, Materials and Devices

7.5.2.1 Basic Requirements

7.5.2.1(1) Use wiring methods, materials and devices that result in a safe, reliable and flexible electrical power, lighting control, communication, data and life safety system.

7.5.2.1(2) Install all wiring in a neat and secure manner so that it is protected from damage, is not in conflict with mechanical or architectural components and allows for future changes and additions.

7.5.2.1(3) Do not install conduit or wiring in floor slabs, except where it is impossible to supply the device from the ceiling, or specific approval has been granted by the Authority.

7.5.2.1(4) Feeders to panelboards will be routed to the panelboard from the ceiling space above. Panelboards will not be fed via the slab below, nor will they be 'daisy-chained' through floors.

7.5.2.1(5) Branch circuits from panelboards will be routed to a large pullbox located in the ceiling space immediately above the panelboard for distribution through the above-ceiling service space.

7.5.2.1(6) Colour of power receptacles will be as follows:

7.5.2.1(6)(a) Conditional power – YELLOW

7.5.2.1(6)(b) Normal power – WHITE

7.5.2.1(6)(c) Delayed Vital - BLUE

7.5.2.1(6)(d) Essential power – REDUPS power – GREY

7.5.2.1(6)(e) Housekeeping – BLACK

7.5.2.1(7) All power receptacles will be identified with panel and circuit number. Colour of labelling will be in accordance with Authority colour coding standards as follows:

7.5.2.1(7)(a) Vital power - RED with WHITE text

7.5.2.1(7)(b) Delayed vital power - BLUE with WHITE text

7.5.2.1(7)(c) Conditional power - YELLOW with BLACK text

7.5.2.1(7)(d) UPS - GREY with BLACK text

7.5.2.1(7)(e) Normal power - BLACK with WHITE

7.5.2.1(8) Design-Builder will submit to the Authority the proposed classification of all patient care areas in the Facility as per relevant CSA standard. The Authority will review these classifications and confirm the areas as basic, intermediate or critical care. Provide as a minimum the circuit and receptacle requirements identified in the relevant CSA standard. Where this Schedule identifies requirements beyond the relevant CSA standard. The Design-Builder will comply with the requirements of this Schedule 1 Statement of Requirements.

7.5.2.1(9) Design-Builder shall provide room reference bonding in accordance with all relevant CSA standards. The Design-Builder shall provide a dedicated room reference ground bus located in an accessible location. Room reference ground bus shall consist of a CSA listed enclosure complete with terminal strips, and mechanical divider to isolated different sources. All branch circuits shall enter the room reference ground bus. Design-Builder to provide bonding conductors for all Clinical Spaces to meet or exceed the requirements of CSA Z32 standard. Design-Builder shall oversize conductors to all branch circuits within the patient care environment as defined by the relevant CSA standard to accommodate the voltage drop requirements and to facilitate the code required CSA Z32 testing.

7.5.2.1(10) All outlets to be installed at a height which allows for good ergonomics and not less than 460 mm AFF unless required by code. Outlets to be typically installed at 460mm AFF except in, storage rooms, and equipment rooms, MDR, operating room, and procedure rooms will be mounted at 1100 mm AFF unless noted otherwise or as developed and agreed upon through Review Procedure.

7.5.2.1(11) Outlets, connections, and data for equipment must be coordinated with all equipment included in Schedule 1 Statement of Requirements. Design-Builder shall coordinate with the Authority and provide as required.

7.5.2.2 Performance Criteria

7.5.2.2(1) Utilize non-alloyed copper for all conductors and all conducting components of electrical equipment, which form part of the Facility's wiring systems. Minimum conductor size will be #12 AWG. Aluminum conductors installed in conduits may be used for feeders larger than #1/0 AWG.

7.5.2.2(2) All conductors #10 AWG and larger will be stranded.

7.5.2.2(3) Each branch circuit within Patient Care Areas will be provided with a dedicated neutral conductor.

7.5.2.2(4) Provide a minimum of two spare 103 mm conduits with pull strings from the main electrical room to the first of the stacked sub-distribution rooms (that form an electrical riser), mechanical room or similar rooms that house electrical distribution. Subsequent electrical rooms located above, in each riser, to be provided with two 103mm fire rated re-entry devices.

7.5.2.2(5) Conceal all wiring and wiring support systems from public view.

7.5.2.2(6) Separate all wiring for systems of different voltages and from different sources and do not run in common raceways. Maintain adequate shielding and separation between wiring for power and communication systems to prevent interference.

7.5.2.2(7) Provide hospital grade receptacles for all patient care areas. Receptacles in all other areas will be specification grade. Receptacles will be colour coded.

7.5.2.2(8) Utilize smooth stainless steel -cover plates for receptacles and switches. Grouped receptacles and switches will have a single cover plate for the whole group.

7.5.2.2(9) Provide minimum quantity of receptacles as indicated in relevant CSA standard, unless a higher quantity is required in this Schedule and is required to support the needs of the equipment or activities being performed in the area.

7.5.2.2(10) Design-Builder shall provide receptacles and connections as directed by the user group to all Authority supplied equipment.

7.5.2.2(11) Design-Builder shall provide power, data and make all connections in accordance with manufacturer's installation recommendations for the following: all light arms, articulation arms, equipment booms, anesthesia booms, auxiliary booms, diagnostic treatment, testing and observation equipment.

7.5.2.2(12) Design-Builder shall make allowances for the installation of all Authority supplied equipment, surgical and procedure equipment, devices noted in this schedule as well as based on experience, industry standards and good practice.

7.5.2.2(13) Unless otherwise requested by the Authority or required elsewhere in this specification, provide emergency power in patient care environments as per the relevant CSA standard requirements and provide for 75% of the receptacles within the emergency department. The remainder of the receptacles in the emergency department will be provided with conditional or UPS emergency power.

7.5.2.2(14) Allow a maximum connection of three general use receptacles to one 15/20 amp circuit.

7.5.2.2(15) Provide one duplex receptacle rated at 15A or 20A, 125V for all microwaves, coffee makers, refrigerators, ice machines, water dispensers as noted in the Appendix 1B Furniture and Medical Equipment, and Appendix 1A Clinical Specifications. This is in addition to all other receptacles identified in this Schedule and all other relevant references in all other associated Appendix.

7.5.2.2(16) Provide one duplex convenience receptacle rated at 15A, 125V in all rooms. This is in addition to all other receptacles identified in this Schedule.

7.5.2.2(17) Utilize NEMA 5-20R 15/20Amp style receptacles for printers and copiers. Provide 20A rated dedicated circuits for each printer and copier.

7.5.2.2(18) In Birthing Unit washrooms, provide three (3) GFCI 15A 120V duplex receptacles minimum with one located above the counter and the others located as directed by the Authority. All outlets connected to Conditional or Vital power.

7.5.2.2(19) In staff, public and patient washrooms, provide one (1) GFCI 15A 120V duplex receptacle above the counter connected to Conditional power.

7.5.2.2(20) Utilize NEMA 5-20R 15/20Amp style receptacles for housekeeping staggered on alternate sides of the hallways spaced a maximum of 10 meters apart. Provide 20A rated dedicated circuits for each area, to a maximum of 4 receptacles per circuit.

7.5.2.2(21) 15/20A 120V duplex receptacle in Back of House areas spaced at 10 meter centres maximum. Each wall will have minimum one receptacle. Connect these receptacles to the conditional power branch.

7.5.2.2(22) Provide a minimum of one power outlet on each wall in all offices. In single occupancy offices, two outlets will be quadplexes located to serve the location of possible workstations, the other two will be convenience duplexes.

7.5.2.2(23) Provide one USB receptacle per workstation in each office, open office or drop-down workstation.

7.5.2.2(24) Provide two USB receptacles per public areas, lounges, staff rooms waiting areas and similar areas.

7.5.2.2(25) Provide one USB receptacles per patient room headwall.

7.5.2.2(26) Provide a minimum of two 20Amp outlets for all alcoves.

7.5.2.2(27) Provide one 20Amp outlet for pumps, IV's etc. in all storage closets.

7.5.2.2(28) Provide a minimum of two 20Amp circuits per four open office workstations.

7.5.2.2(29) Provide a minimum of one 20Amp circuit per two single person enclosed offices.

7.5.2.2(30) In each multi-occupancy office provide a minimum of one quadplex receptacles for each desk or workstation and a minimum of one duplex receptacle spaced every 3 meters of open wall space.

7.5.2.2(31) Each workstation will have a minimum of two receptacles utilizing one quad receptacle (dedicated circuit) and one duplex receptacle (shared circuit). Locate at a minimum the quad receptacle above the work surface. Final layout and location of receptacles will be as directed by the Authority during the review process.

7.5.2.2(32) Intentionally deleted.

7.5.2.2(33) Provide a minimum of six duplex receptacles at each clean utility room, 50% of which will be fed from vital power and the remainder connected to conditional power.

7.5.2.2(34) Provide an electric vehicle smart charging system to provide Level 2 charging stations to accommodate car charging parking spots. Car chargers are to be designed for exterior installation and shall be Nema 3R rated, equipped with charging cables certified to operate in temperatures between -40 degree C to 50 degree C. Car chargers to have a LED status indicator and shall provide access fee of charge or according to a usage fee. Car chargers shall come complete with two charging heads and installed at the junction of two successive parking spaces. The smart charging system shall be equipped with either 3G communications capabilities to provide wireless communications, secure access and the ability charge a fee for the charging time (electrical capacity) or will achieve the same functionality by a wired low voltage-controlled system. Provide concrete bases for the car chargers. Car chargers to be located as directed by the Authority.

7.5.2.2(35) In each team care station (nurse station), and satellite team station provide one quadplex receptacle spaced 1 m on centre below work counters in knee space or above counter if no knee space is provided. 50% of these receptacles will be fed from vital power and the remainder connected to conditional power.

7.5.2.2(36) In each conference, meeting rooms, break-out room, similar rooms and all rooms noted in the Appendix 1A Clinical Specifications that are noted as requiring video conferencing capabilities shall be provided at a minimum, one duplex receptacle spaced every 1 meters of wall space and one duplex receptacle spaced a maximum every meter above work counters. In addition, provide receptacles for all dedicated equipment such as microwaves, coffee makers, refrigerators. At all locations with overhead projectors provide 15Amp 120 volt receptacle located at ceiling and provide one 27 mm conduit and pullstring to floor box and connection to wall outlet for the video signal to the projector.

7.5.2.2(37) Provide three duplex receptacles at each patient treatment bed or care location in patient care areas defined by relevant CSA standard as “Basic Care Area”, and connect one of the receptacles to Vital power. Provide additional receptacles as required to meet all required equipment per "Appendix 1B Furniture and Medical Equipment”.

7.5.2.2(38) Provide four duplex receptacles per patient care location in patient care areas defined by relevant CSA standard as “Intermediate Care Area”, and connect two of the receptacles to Vital power. Provide additional receptacles as required to meet all required equipment per "Appendix 1B Furniture and Medical Equipment”.

7.5.2.2(39) Provide eight duplex receptacles per patient care locations defined by relevant CSA standard as “Critical Care Area”, and connect 75% of these receptacles to vital power. Remainder of receptacles will be connected to Conditional power. Provide additional receptacles as required to meet all required equipment per "Appendix 1B Furniture and Medical Equipment”.

7.5.2.2(40) Provide one duplex receptacle for each electric bed where applicable in all patient care areas and connect to vital power. Provide one 15A, 120V dedicated circuit for two patient beds maximum.

7.5.2.2(41) Provide a minimum of four duplex receptacles at each medication room, connect 50% of these receptacles to vital power.

7.5.2.2(42) Intentionally deleted.

7.5.2.2(43) Provide special receptacles for fixed and moveable equipment as defined in the Appendix 1B Furniture and Medical Equipment.

7.5.2.2(44) In operating rooms, surgical rooms, procedures rooms and similar usage rooms and as directed by department representative, provide each articulated arm and boom, with a minimum of 10-15/20A duplex receptacles on 7 dedicated circuits for equipment booms, and 10-15/20A duplex receptacles on 5 dedicated circuits for anaesthesia booms and auxiliary booms. Additionally, provide receptacles and power connections such as 30A, 208V (L5-30R) receptacle on a dedicated circuit and 20A, 208V twist lock duplex receptacle on a dedicated circuit as required by the manufacturer and as directed by the user groups. Connect receptacles on the boom on the vital and UPS branches.

7.5.2.2(45) In operating rooms, surgical rooms, procedure rooms and similar usage rooms, provide receptacle for laser on boom(s) and or locate one adjacent to the Anesthesia boom at the foot of the bed as required and directed by the Authority. Connect laser receptacle to the UPS branch.

7.5.2.2(46) In operating rooms, surgical rooms, procedure rooms and similar usage rooms, provide 1-15/20A 120V duplex receptacle at 2 meter centres, connected to Vital and UPS branches as determined by the Authority through Review Procedure.

7.5.2.2(47) In each operating room, surgical rooms, procedure rooms and similar usage rooms and as directed by department representative provide 1-15/20A 120V duplex receptacle for housekeeping outlet in two locations.

7.5.2.2(48) In each operating room, surgical room, procedures room and similar usage rooms as directed by department representative provide 1-20A, 208V twist lock receptacle in two locations.

7.5.2.2(49) Provide a ‘Laser-in-Use’ light above each door of operating rooms, procedure rooms and similar usage rooms. Interlock the laser outlet(s) with the doors to operating room. Laser to automatically shut-off when door opens.

7.5.2.2(50) Provide an ‘X-Ray in Use’ light above each door of Surgical suites, OR’s, and Urology and similar usage rooms. Provide X-Ray in use lights above both doors to theatres, racetrack corridor and sterile core.

7.5.2.2(51) Provide each workbench (testing stations) in the Biomedical Engineering department with two 30A, 208V outlets, plus 10 dedicated 20A, 120V circuits each of which serves 2 outlets for at total of 20 outlets. 50% of the outlets will be provided with vital power circuits. Provide 3 ceiling mounted retractable cord reels complete with two NEMA 5-20R 15/20Amp style receptacles on one dedicated circuit per cord reel. Locate cord reels as directed by the Authority during the review procedure process.

7.5.2.2(52) Provide one NEMA 5-20R 15/20Amp style receptacles every 2 meters of wall space in the Biomedical Engineering department. Final layout of devices to be confirm during user group meetings and in consultation with the Authority.

7.5.2.2(53) Provide GFCI duplex receptacles (where required by code) or NEMA 5-20R 15/20A receptacles on each wall in housekeeping rooms.

7.5.2.2(54) Utilize weatherproof NEMA 5-20R 15/20Amp GFCI style receptacles on the exterior of the building. Additionally, strategically locate receptacles in soffits, overhangs and entrance and exits to the Facility. Locate an additional 10 outlets in consultation with the Authority.

7.5.2.2(55) Provide special receptacles for fixed and moveable equipment. Provide all necessary electrical equipment devices as required to provide an electrical installation in accordance with manufacturers installation recommendations and make all connections for Authority supplied equipment. Provide source of power as directed by department representative. Design-Builder to increase emergency capacity including all additional spare capacity as required to accommodate additional emergency power requirements.

7.5.2.2(56) Provide two (2) digital count up and count down timers in each surgical operating and procedure rooms and as directed by department representative.

7.5.2.2(57) Provide NEMA 5-20R 15/20 Amp, 120V vital circuit, low voltage transformers, and junction box for all ceiling lifts and overhead lifting equipment. Make all required connections and install in accordance with the manufacturer's recommendations.

7.5.2.2(58) Provide NEMA 5-20R 15/20 Amp, 120V duplex receptacles in two locations located on the ceiling of all surgical rooms, procedures rooms and similar usage rooms.

7.5.2.2(59) Provide 15A, 120V circuit for all hands-free automatic door operators throughout the Facility. Typically, all surgical suites, medication, utility rooms, storage rooms and similar usage rooms will be provided with automatic door operators. Provide power for all automatic door operators as noted in the Appendix 1A Clinical Specifications.

7.5.2.2(60) Install approved fire stopping systems to maintain all fire separations.

7.5.2.2(61) Final location of all receptacles and connections will be determined in user group meetings and as directed by the Authority during the review procedure process.

7.5.2.2(62) Utilize stainless steel cover plates for receptacles and switches. Grouped receptacles and switches will have a single cover plate for the whole group.

7.5.2.2(63) Provide ACFI breakers for receptacles as required by the Canadian electrical code.

7.5.2.2(64) Provide 15A, 125V vital power circuits complete with junction box and receptacle for all heat traced mechanical p-traps. Provide at a maximum 4 p-traps connections per dedicated circuit. Coordinate with the mechanical division for exact locations.

7.5.2.2(65) Provide a 15A, 125V circuit complete with junction box and low voltage transformer and connect to all mechanical trap primers. Provide at a maximum 4 trap primer connections per dedicated circuit. Coordinate with the mechanical division for exact locations.

7.5.2.2(66) All receptacles in the Psychiatric Inpatient Unit, including the Clinical Spaces, and gathering areas shall be fed with ACFI breakers located in the panelboard, except where medical equipment is permanently or frequently connected. Design-Builder shall confirm with the Authority to determine the exact areas where medical equipment is permanently or frequently connected.

7.5.2.2(67) Medical Device Reprocessing (MDR) departmental area will be provided with minimum 1 general use NEMA 5-20R 15/20Amp 120V duplex receptacle on the walls at 3 meter centres. 50% of these receptacles to be connected to the vital power branch and the other 50% of receptacles to be fed from the conditional power branch. Provide additional receptacles identified in this Schedule and as required by code or applicable standard.

7.5.2.2(68) All power systems in the in Psychiatric Inpatient Unit inpatient bedrooms and secure rooms shall be complete with key overrides located outside of the room with a master override located at the team care station. Provide manufactured master control remote toggle switch controller in stainless steel enclosure complete with green and red LED indicating lights.

7.5.2.2(69) Receptacles in the Psychiatric Inpatient Unit will be Extra Heavy Duty Hospital Grade tamper proof type.

7.5.2.2(70) All electrical devices and equipment located in the Psychiatric Inpatient Unit with tamper proof type screws and nuts. Tamper proof screws require specific tools to fasten and remove. Commercial screwdrivers and wrenches cannot remove these screws and they require a dedicated tool for mounting and removing. Tamper proof nuts shall be stainless steel and can only be removed with a dedicated tool specific to the product.

7.5.2.2(71) All receptacles, devices, outlets and switches in the Psychiatric Inpatient Unit will have extra strength high impact virtually unbreakable nylon faceplates with grade 10 tamper-proof screws. Provide 10 spare grade 10 tamper proof keys per department.

7.5.2.2(72) Provide hospital grade receptacles in Clinical Spaces, surgical procedure, testing, observation and medical / treatment areas, holding areas, stretcher bays and similar usage areas. Receptacles in all other areas, unless otherwise noted, will be specification grade.

7.5.2.2(73) Provide tamper resistant receptacles in public areas. Tamper resistance is resistance to tampering (intentional malfunction or sabotage) by either the normal users of a product, package, or system or others with physical access to it. Tamper resistant receptacles shall be equal to the LEVITON 8300-SGW series.

7.5.2.2(74) Provide a 30A, 208V, 3 Phase, 4 wire dedicated conditional power circuit complete with Nema L15-30R receptacle and a 30A, 208V, 1 Phase, 3 wire dedicated conditional power circuit complete with Nema 6-30R receptacle for retherm units located in all Food Serveries. Design-Builder shall locate receptacles as directed by the Authority.

7.5.2.2(75) Provide a 15/20A conditional circuit for an electronic 'Take a Number' dispenser type system at the Registration cubicles area in the Main Entry Services component. Provide a 2-digit electronic 'Take a Number' system with ticket dispenser. 'Take a Number' ticket dispenser shall be a wall-mounted 2-digit system with a 9.1 inch LED display complete with power adapter, mounting brackets and hardware. Provide a countertop ticket dispenser with stand-mounting hardware, 2 hardwired push buttons and wireless infrared remote controller.

7.5.2.2(76) Provide panel boards, feeders and branch circuiting with double neutral(s) capacity where significant non-linear load(s) are anticipated. This includes all offices, open offices, drop-down areas, workstations diagnostic and treatment equipment and other areas.

7.5.3. Electrical Utilities

7.5.3.1 Basic Requirements

7.5.3.1(1) Coordinate with BC Hydro to service the Facility with two independent 25kV Utility services in a primary open loop configuration. Utility services will terminate in a BC Hydro approved vista switch and one incoming utility feed will terminate on a single load break switch. System redundancy will be achieved by the automatic switching of the independent utility services.

7.5.3.1(2) The new BC Hydro utility services will be located exterior of the building foot print and located at a distance from the building in accordance with Appendix 1C Acoustics and Noise Control Measures, standards, local bylaws and all other applicable provisions in this schedule. Final location to be determined in consultation with BC Hydro and to the Authority's approval.

7.5.3.1(3) The BC Hydro service entrance will be installed in a distribution and metering outdoor style (weather proof and water tight) metal enclosed switchgear enclosure to BC Hydro standards and approval. Switchgear to meet the BC Hydro metering guide for 4-35kv and ES54 S3-01 primary service dead front outdoor type kiosk.

7.5.3.1(4) Identify the location of existing underground and overhead service lines in the area to avoid interference with proposed routing of new services and future services for known expansions. Use latest techniques (ground penetration radar test) to verify and confirm all existing underground services. Remove or relocate existing site lighting, branch circuit power, under ground electrical distribution and communications to accommodate the Facility, BC Hydro. Reconnect all power and controls to electrical power and communication circuits affected by the site preparation work.

7.5.3.1(5) Utilize transmission and distribution equipment that are robust, reliable, easily operated, maintained and designed for healthcare facilities.

7.5.4. Service Switchgear – Over 600 Volts

7.5.4.1 Basic Requirements

7.5.4.1(1) Provide weatherproof metal enclosed electrical equipment for the primary service switchgear system for the Facility.

7.5.4.1(2) The Facility will be constructed with all necessary infrastructure including spare capacity, spare circuit breakers, pull-pits, sleeves, housekeeping pads, wiring, controls, ducts stubbed out from the enclosure footprint and capped off in an under-ground concrete pull boxes for easy future extension.

7.5.4.1(3) Design and construct the electrical system with adequate spare capacity to accommodate an increase in site electrical demand by 25%. Size the main normal power transformers associated switchgear, and power feeders accordingly. For high voltage switchgear, size it to provide 25% spare capacity.

7.5.4.1(4) Utilize transmission and distribution equipment that are robust, reliable, easily operated, maintained and designed for healthcare facilities.

7.5.4.1(5) Provide two high voltage circuit breakers for the two utility (normal) power transformers.

7.5.4.1(6) Provide one 25kV distribution circuit breaker for the provision of power to the Seven Sisters Facility.

7.5.4.1(7) Each cell section or prepared pad space will be configured the for the future installation of a circuit breaker for future high voltage distribution of normal power. Provide a reinforced concrete encased duct bank with 3 x 103.6 mm conduit stubbed out of the Facility and terminated in a 1.0mx1.0m BC Hydro approved concrete pullbox. Located on the site to facilitate future extension of 25kV power. Coordinate the location of the spare duct bank with the Authority.

7.5.4.1(8) Design-Builder to coordinate with the utility provider and pay all associated costs required to extend the BC Hydro high voltage distribution lines feeding the site in order to handle the electrical capacity required for the Facility.

7.5.4.1(9) Provide high voltage switchgear, FR3 oil filled high voltage transformers (or approved equal) and a single high voltage normal power incoming 25kv feeder from the vista switch into the Facility.

7.5.4.1(10) The 600V low-voltage normal power distribution to be derived from two 25kv600V step-down FR3 oil filled power transformers of equal kVA capacity. Transformers to be sized to carry the maximum anticipated demand load, all additional Authority requirements plus 25% spare capacity shall be added to the total calculated load. Additionally, size the power transformers such that in the natural cooled configuration with provision for fan cooled, each transformer shall be capable of providing 100% of the Facility's normal power demand.

7.5.4.1(11) Provide a site fence and adequate site lighting for the utility service compound. Design-Builder to provide lighting calculations and layout for Authority review.

7.5.4.2 Performance Criteria

7.5.4.2(1) Provide main circuit breaker with remote racking operation at the service main.

7.5.4.2(2) Provide arc-flash mitigation solution for all HV equipment to reduce potential danger to maintenance personnel and HV switchgear. This may include any number of technologies including (but not limited to) a maintenance switch, optical sensing relays and/or remote racking.

7.5.4.2(3) Provide rackable metal-enclosed switchgear with vacuum circuit breakers, potential transformers, current transformers and metering sections.

7.5.4.2(4) Incoming 25kV feeder to terminate on a load-break switch. This load-break switch, in turn, to feed a 25kV rated switchboard that is comprised of:

7.5.4.2(4)(a) Two prepared spaces for future high voltage feeds.

7.5.4.2(4)(b) Draw-out vacuum circuit breakers at outgoing feeder breaker positions to the high voltage transformers and the seven sisters building.

7.5.4.2(4)(c) revenue-grade digital metering at each of the mains.

7.5.4.2(4)(d) 3-phase, solid-state multi-function type protective relay at each vacuum circuit breaker with ANSI functions 50/51, 50N/51N, 86 and additional functions as required. Protective relay to have integral digital metering capable of displaying V, A, KVA, KW and harmonic parameters.

7.5.4.2(4)(e) Communication port integrated with the facility's BMS to indicate status of each breaker.

7.5.4.2(4)(f) 125V DC battery-backed power supply with charger for protective relays and controls.

7.5.4.2(5) Power transformers:

7.5.4.2(5)(a) To be suitable for exterior installation and to be FR3 oil filled, with copper or aluminum windings. The kVA capacity indicated to be based on 55 or 65 degree C rise.

7.5.4.2(5)(b) to have delta connected primary windings and wye connected secondary windings.

7.5.4.2(5)(c) to have provision for future cooling fans that will provide an additional 33% capacity over the base rating.

7.5.4.2(5)(d) to have four 2.5% full capacity primary taps consisting of two above and two below nominal voltage.

7.5.4.2(5)(e) to have a digital thermometer indicating average coil temperature with two stage alarm contacts connected to the BMS. The first stage to alarm when the fans start up and the second stage to alarm at a higher temperature. Alarms to be indicated on the BMS.

7.5.4.2(5)(f) to have integral intermediate class lightning arrestors connected to the primary terminals.

7.5.5. Raceways

7.5.5.1 Basic Requirements

7.5.5.1(1) Provide raceways for all power and telecommunications, security, and health care systems wiring and cabling to support, protect and organize all wiring and cabling systems.

7.5.5.1(2) Design raceways to provide ease of access and install with capacity for expansion and change, consistent with the requirements of the equipment and systems that they serve.

7.5.5.1(3) Install all raceways in a neat and secure manner in such a way that they are protected from damage, are not in conflict with mechanical or architectural components and allow for future changes and additions.

7.5.5.1(4) Except as noted otherwise, install power wiring in EMT with steel couplings and connectors.

7.5.5.1(5) Install communication system wiring (unless otherwise required by applicable codes and standards) in EMT with steel couplings and connectors and/or cable trays. Install individual steel backboxes for all communication system devices. Conduits connecting to cable trays for communication system wiring will be mechanically connected, completed with grounding bushings.

7.5.5.1(6) EMT is to be surface mounted in service rooms and concealed in ceiling spaces and partition walls. Do not encase EMT in concrete.

7.5.5.1(7) Minimum EMT conduit size for all power, systems and data drops are 27 mm (1”).

7.5.5.1(8) Use flexible conduit for all final connections to vibrating equipment, such as transformers and motors.

7.5.5.1(9) Minimum flexible conduit size is 21 mm (.75”) and maximum length should be limited to a practical minimum that meets code.

7.5.5.1(10) Use of Armoured cable (BX) drops to be limited to 6m in length and utilized solely for connection to devices is acceptable.

7.5.5.1(11) Use rigid PVC conduits for the underground portion of services to lighting and power outlets.

7.5.5.1(12) Install individual bonding conductor in each conduit and/or raceway.

7.5.5.1(13) Provide cable trays for installation of all communication system wiring for data, telephone, public address and other such systems. Install cable trays from communication rooms and above all corridors. If cable trays pass through walls with fire resistance ratings, provide a non-removable ULC approved firestopping system similar to ‘EZPath’ raceway or ‘Hilti Speed sleeve’ of a quantity capable of accommodating the entire capacity of the cable tray.

7.5.5.1(14) Cable tray will be aluminum or steel wire mesh or ladder type with manufactured fittings. Provide continuous #6AWG minimum bare copper bonding wire which is connected by split bolt to each length of the cable tray. Provide bare copper bonding jumper between the cable tray and every associated conduit to ensure continuous bond between tray and low tension raceways.

7.5.5.1(15) Identify all conduits, raceways, pull boxes, and junction boxes using painted colour bands. Colouring scheme will be determined by the Authority at a later date. Provide all power and communication systems with unique colours in accordance with the colouring scheme. Major colour to be 100 mm wide and minor colour to be 50 mm wide. Identify raceways with coloured bands (using either spray paint or coloured duct tape) at intervals of 6 m, plus at the point where the raceway enters a wall or floor (i.e. raceway is identified on both sides of a penetration to facilitate tracing of raceway). Colour-code all junction boxes using spray paint on the cover. Neatly identify the relevant system and circuit ID using permanent identification. Identify parallel conduit runs at common locations.

7.5.5.1(16) Indicate the location of conductors encased or embedded in concrete or masonry by conspicuous permanent identifiers set in the walls, floors, or ceilings, which will indicate each point at which buried conductors penetrate a wall every 10 meters and at each change in direction.

7.5.5.2 Performance Criteria

7.5.5.2(1) Construct separate raceways or barriered raceways to isolate systems of different voltages and prevent magnetic interference to low voltage system conductors.

7.5.5.2(2) Design and install raceways without sharp edges or tight bends so that cables can be pulled in or laid in and removed without damage to the cables.

7.5.5.2(3) Provide all cable trays with minimum 40% spare capacity for the installation of future cables.

7.5.5.2(4) Provide a minimum of two spare 103 mm conduits with pull strings from the main electrical room to the first of the stacked sub-distribution room (that form an electrical riser), mechanical room or similar rooms that house electrical distribution. Subsequent electrical rooms located above, in each riser, to be provided with two 103mm fire rated re-entry devices.

7.5.5.2(5) Provide a minimum of 3 spare 27mm EMT conduits from all panelboards to terminate in a 154mmx154mm ceiling mounted junction box located in the ceiling space immediately above the panelboard in the above-ceiling service space for future. Install smoke seal and pull string for future.

7.5.5.2(6) Provide a minimum of 2 spare 53mm EMT conduits from all CDPs to terminate in a 308mmx308mm ceiling mounted junction box located in the ceiling space immediately above the panelboard in the above-ceiling service space for future. Install smoke seal and pull string for future.

7.5.5.2(7) All control conduit shall be provided and installed by the Mechanical or Electrical contractor. The two trades will coordinate all installations and will provide all pathways, junction, pull boxes complete with pull-strings and labelling required for the low voltage installation. All low voltage and controls installations will be in accordance with the Canadian Electrical Code.

7.5.5.2(8) Provide all duct banks with 50% spare conduits equal to the largest conduit size.

7.5.5.2(9) Install all conduits in finished areas within finished walls and above finished ceilings.

7.5.5.2(10) Provide pull string and smoke seal all spare and unused conduits. Label accordingly.

7.5.5.3 Post Disaster design Criteria

7.5.5.3(1) Design the electrical rooms to be accessible to authorized personnel only. Provide security measures as required by the Authority including access controls and CCTV for all electrical and communications rooms

7.5.5.3(2) Design the electrical systems and equipment to comply with the latest adopted addition of the BCBC requirements for a post-disaster facility.

7.5.5.3(3) Design the electrical systems and equipment to comply with post-disaster and the following design requirements;

7.5.5.3(3)(a) Provide underground hydro power from dual sources.

7.5.5.3(3)(b) All installations to be underground not over-head.

7.5.5.3(3)(c) Service Rooms to be at least two hour fire rated.

7.5.5.3(3)(d) Provide Emergency power (Generators) with 100% redundancy plus 25% spare capacity for vital and delayed vital loads in the hospital

7.5.5.3(3)(e) VESDA System to be installed in the main communication room, UPS rooms and other valuable equipment rooms like MRI and CT scanners.

7.5.5.3(3)(f) Drains to be installed in electrical and Communication rooms.

7.5.5.3(3)(g) Dry Sprinkler fire suppression systems to be installed in the main electrical and Communication room.

7.5.5.3(3)(h) All Automatic Transfer Switches to have double by-pass manual switches.

7.5.5.3(3)(i) Provide at least 72 hour back up fuel for the Emergency generators.

7.5.5.3(3)(j) Provide UPS with 100% redundancy with double string batteries, double -bypass manual switches for the data center and the ICU and operating rooms. Provide UPS with technology that enables a multi-module configuration to operate in parallel that is not reliant on an external primary controller or complex inter-module control wiring.

7.5.5.3(3)(k) Ensure site is accessible for refueling.

7.5.5.3(3)(l) Provide redundant communication system on a dedicated backbone similar to Intercom System.

7.5.5.3(3)(m) All servers, data switches, Security equipment, Nurse Call System and Fire Alarm System to be on UPS power.

7.5.5.3(3)(n) Design building structure in accordance with best practices as defined in IBC2009, ASCE-7.

7.5.5.3(3)(o) Specify equipment to comply with ICC – ES AC156 for three-dimension shake table (seismic withstand) tests.

7.5.5.3(3)(p) Specify sprinkler-proof equipment and drainage throughout service areas.

7.5.5.3(3)(q) All equipment specified to be specification grade.

7.5.5.3(3)(r) Avoid routing of feeders through non-service areas.

7.5.5.3(3)(s) Ensure adequate separation of power distribution from higher risk mechanical equipment such as boilers.

7.5.5.3(3)(t) Ensure essential feeders are fire rated and segregated from each other, have limited risk from structural failure and from mechanical services (e.g. steam).

7.5.6. Emergency Power

7.5.6.1 Basic Requirements

7.5.6.1(1) Provide a Tier 2 emergency power generating plant comprising a minimum of two diesel powered generators. Generators will be located at grade level in exterior rated enclosure and will be located on site. The generator enclosures will be of the hospital grade maximum sound attenuation complete with hospital grade silencers.

7.5.6.1(2) Exterior generators will be located at grade housed in secure, walk-in, illuminated and heated enclosures. Enclosures will be supervised for unauthorized intrusion. Exterior rated generation system shall be located exterior of the building foot print and located to satisfy acoustical requirements in the Noise Control Measures Appendix.

7.5.6.1(3) Locate generators to enable routine and emergency maintenance activities to be performed quickly and efficiently. Removal of the generators from the Site will be simple and will not require disassembly of the sites buildings or systems.

7.5.6.1(4) Generators shall be designed and located where they are protected and are not subject to damage from vandalism, falling objects or debris, road traffic, fire, flood or adverse weather conditions. Provide a site fence and adequate site lighting.

7.5.6.1(5) The diesel generators in the emergency power system shall be able to supply full load power to the Hospital. The emergency power system is to include at a minimum, two (2) 2.0MVA prime power rated synchronized diesel generator units of equal capacity. Smaller prime rated, synchronized generators may be approved by the Authority, provided that the generator sizing and quantities, generator load calculation and generator survivability scenarios are submitted for review and presented prior to 30% CD submission. The emergency power system will be capable of supplying power to the Hospital essential loads when one diesel generator unit is unavailable, including:
1. 100% of the vital and delayed vital branches
2. 100% of all the cooling 3.
All UPS branch loads 4.
Fire pump. Include 25% spare capacity for future growth.
This additional capacity is to be added to the demand code load after all other loads and requirements of this document and appendices are met, including when one diesel generator is unavailable. Design-Builder shall provide the above redundancy and spare capacity requirements and shall be demonstrated to the Authority in real time after commissioning of the Facility is complete. Mechanical loads shall be simulated via the BMS. Design-Builder shall provide a reactive load bank to simulate all linear and non-linear loads that cannot be simulated by the BMS, plus 25% spare capacity. Plug and lighting loads shall be in accordance with the energy model calculations and mechanical equipment not activated by the BMS shall be accounted for in demand load.

7.5.6.1(6) Full load rating of the generator shall be determined by the generator set name plate rating as referenced in CSA 282-15 Emergency Electrical Power Supply for Buildings section 6.1.1.4.

7.5.6.1(7) Design-Builder shall provide a generator set sized in accordance with all sections of this document and in addition to these requirements and all relevant sections and Appendices, Design-Builder shall provide the minimum of 10% reserve capacity rating as referenced the relevant CSA standard.

7.5.6.1(8) Diesel generator exhaust emissions at full load on 100% diesel fuel shall not exceed the U.S. Environmental Protection Agency Non-Road 'Tier 2 Interim' limits. The diesel generator exhaust shall vent vertically above roof level of the exterior enclosure and shall be located to prevent re-entrainment of emissions into air-intakes on the Facility.

7.5.6.1(9) Provide an environmental study of the sites prevailing winds and model the sites environmental impact to the site and surrounding areas to determined the location of the emergency generation plant as noted in all relevant Appendixes and other sections of schedule 1 Statement of Requirements.

7.5.6.1(10) Generators shall be located, vibration isolated, and muffled so that neither sound nor vibration exceeding the acceptable limits in Appendix 1C are perceptible outside of the generator enclosure containing the generators. Provide acoustic panels and silencers at air intake and exhaust to limit the generated noise in compliance with local regulations, sound by-laws and as noted in Appendix 1C and all relevant Appendices.

7.5.6.1(11) Generator and the generator controller shall be of the same manufacturer and shall be compatible with transfer switches. Manufacturer supplied wiring diagrams for the installation, testing and commissioning of generators shall be provided to ensure complete emergency generation system compatibility.

7.5.6.1(12) Breakers in the synchronization board and generators shall be of the same manufacturer as the 600V electrical distribution equipment.

7.5.6.1(13) Provide annunciation of alarms for each generator to the BMS. Include 'run' and 'fail to run' alarms to the BMS.

7.5.6.2 Performance Criteria

7.5.6.2(1) Generators will be supplied by an established supplier of generators to healthcare facilities in British Columbia. The generator supplier will have a full service repair facility within 8 hours travel time (by road) to the Site. Generator spares will be routinely stocked within the British Columbia Lower Mainland and will be available on Site within 24 hours.

7.5.6.2(2) The generators will normally operate in parallel and provide features including bumpless (closed transition) transfer operation, load sharing and base loading. It will be possible to use the Facility load as a base load for annual load testing of the generators.

7.5.6.2(3) The generator plant will be designed to minimise noise emissions. Provide high grade exhaust mufflers and other sound attenuation means, as necessary, to achieve a maximum sound level as noted in Acoustic and Noise Control Measures Appendix, all relevant Appendixes and other sections of schedule 1 Statement of Requirements.

7.5.6.2(4) Provide a generator exhaust system to discharge exhaust fumes in a manner that does not create an objectionable odour or noise issue to the Facility or neighbouring properties.

7.5.6.2(5) Provide a fuel system capable of supplying the maximum capacity of the emergency power plant at 100% load (including spare capacity) for a minimum of 72 hours. Generators shall be diesel to ensure a continuous source of fuel supply. The fuel supply shall be independent to other building equipment and shall be stored on site in permanent storage for the Facility. Fuel level to be electronically monitored by the BMS system to alarm when fuel supply drops below 24 hours. Fuel system to comprise dedicated belly tanks for each generator.

7.5.6.2(6) Provide a dedicated load bank connection point for each generator which does not require the disconnection of existing cabling. The circuit breaker will automatically shunt trip the load bank upon loss of utility power to the Facility.

7.5.6.2(7) Provide a dedicated resistive load bank for testing the generator. The load bank will not require the disconnection of the cabling.

7.5.6.2(8) The essential electrical systems will include tie breakers from the main conditional distribution to each of the main vital and delayed vital distributions. Conditional power will be derived at 600V by means of manually operated automatic transfer switch connected between the generator bus and normal power distributions.

7.5.6.2(9) For redundancy, the conditional power distribution throughout the Facility will include tie-breakers and be sized to provide power simultaneously to both the conditional load plus the larger of the vital or delayed vital loads in that locality.

7.5.6.2(10) Implement redundancy such that if an automatic transfer switch system fails, there is a manual means to restore power to the essential loads in the Facility. All transfer switches will have double sided bypass capability. Transfer switch mechanism will be capable of being withdrawn for servicing while the switch is in bypass mode.

7.5.6.2(11) Transfer switches of the power circuit breaker type will be listed to UL1066 (30 cycle withstand rating at maximum available short circuit current) and will not require upstream circuit breakers for protection of the transfer switch. Transfer switches of a power contactor configuration shall be provided with 30 cycle withstand rating at maximum available short circuit current.

7.5.6.2(12) Essential power branches will serve essential loads as defined by CSA Z32-15 and as required to meet Appendix 1A Clinical Specifications, including:

7.5.6.2(12)(a) Vital branch loads:

7.5.6.2(12)(b) Path of egress lighting,

7.5.6.2(12)(c) Exit signs,

7.5.6.2(12)(d) Stair and ramp lighting,

7.5.6.2(12)(e) Receptacles and lights at service rooms for emergency distribution.

7.5.6.2(12)(f) Medical gas alarm panels.

7.5.6.2(12)(g) Elevator cab and machine room lighting.

7.5.6.2(12)(h) Fire alarm system and sprinkler system.

7.5.6.2(12)(i) Smoke venting fans and smoke control fans.

7.5.6.2(12)(j) 100% of lighting, receptacles and all permanently connected equipment in ORs unless otherwise noted.

7.5.6.2(12)(k) 50% of receptacles and lights in all patient care rooms.

7.5.6.2(12)(l) 50% of lights and outlets in team care station.

7.5.6.2(12)(m) Nurse call system power supplies.

7.5.6.2(12)(n) Medical vacuum pumping systems.

7.5.6.2(12)(o) Medical Imaging Equipment as per Appendix 1B Furniture and Medical Equipment and Appendix 1A Clinical Specifications.

7.5.6.2(12)(p) Surgical Services Medical Equipment as per Appendix 1B Furniture and Medical Equipment and Appendix 1A Clinical Specifications.

7.5.6.2(12)(q) Pharmacy dispensing areas.

7.5.6.2(12)(r) Medication rooms and other similar dispensing areas,

7.5.6.2(12)(s) Emergency generator related equipment such as ventilation, battery charger or air compressor for starting engine and derangement signals.

7.5.6.2(12)(t) Hands-free sinks with electronic operators.

7.5.6.2(12)(u) Medical air pumping systems.

7.5.6.2(12)(v) Chemo mixing hoods.

7.5.6.2(12)(w) Pharmacy Fridges.

7.5.6.2(13) Delayed vital branch loads including:

7.5.6.2(13)(a) Centralized UPS system.

7.5.6.2(13)(b) Sump pumps and sewage ejector pumps.

7.5.6.2(13)(c) Fume hoods.

7.5.6.2(13)(d) Selective operation of one elevator in each elevator bank containing more than one elevator.

7.5.6.2(13)(e) All individual elevators that are not within an elevator bank.

7.5.6.2(13)(f) 100% of all heating, ventilation and plumbing systems.

7.5.6.2(13)(g) Alarmed freezers and refrigerators.

7.5.6.2(13)(h) All equipment in MDR (Central Sterilization) area.

7.5.6.2(13)(i) 100% of all Ventilation and air conditioning/cooling equipment serving the main cross-connect room, on-floor communication riser rooms and 24x7 cooling loads.

7.5.6.2(13)(j) 100% of all Ventilation and air-conditioning/cooling equipment serving the main electrical room, electrical riser rooms on each floor and the central UPS room.

7.5.6.2(13)(k) Fire pump and jockey pump via dedicated transfer switch.

7.5.6.2(13)(l) Delayed Vital branch loads:

7.5.6.2(13)(m) The BMS will monitor and record emergency loads.

7.5.6.2(13)(n) All elevators within the Facility will operate on emergency power.

7.5.6.2(14) Conditional branch loads

7.5.6.2(14)(a) Telecommunications systems and network equipment in all IT Communication Rooms is to be connected to conditional power.

7.5.7. Uninterruptible Power Supply (UPS) Systems

7.5.7.1 Basic Requirements

7.5.7.1(1) Provide a centralized Uninterruptible Power Supply (UPS) system arranged in a redundant N+1 configuration to serve all areas, equipment and systems that require a continuous and uninterrupted source of power as per the requirements of this Schedule, Appendix 1A Clinical Specifications and for the following additional outlets, equipment and systems:

7.5.7.1(1)(a) 25% of lighting, room receptacles, and permanently connected equipment, and 50% of receptacles in Booms in operating rooms.

7.5.7.1(1)(b) 100% of the operating room surgical task lights.

7.5.7.1(1)(c) 50% of all Procedure Room Lighting.

7.5.7.1(1)(d) Provide UPS capacity allowance to add up to 25% of the initial quantity of lights, receptacles and equipment as requested by the Authority during Design Consultation phase.

7.5.7.1(1)(e) the Building Management System;

7.5.7.1(1)(f) wired panic system;

7.5.7.1(1)(g) electronic access control systems;

7.5.7.1(1)(h) intrusion detection system;

7.5.7.1(1)(i) IP Video Surveillance system;

7.5.7.1(1)(j) medical equipment which is deemed Life Safety Equipment; and in accordance with the Authority user groups requirements. Coordinate with Authority representative to confirm exact requirements.

7.5.7.1(1)(k) all equipment and systems located in main cross-connect room, back-up cross-connect room, each telecommunication room, and including:

7.5.7.1(1)(l) network equipment for the wired and wireless networks;

7.5.7.1(1)(m) wireless access points;

7.5.7.1(1)(n) PBX and other telephone equipment;

7.5.7.1(1)(o) wireless communications system;

7.5.7.1(1)(p) nurse call system;

7.5.7.1(1)(q) paging system;

7.5.7.1(1)(r) intercom;

7.5.7.1(1)(s) Patient wandering system;

7.5.7.1(1)(t) Infant Abduction System;

7.5.7.1(1)(u) Vocera system;

7.5.7.1(1)(v) RTLS systems.

7.5.7.1(1)(w) Connect, at a minimum, 20% of the lighting in Clinical Spaces and rooms and areas used by the public to the UPS system.

7.5.7.1(2) Provide a UPS that in addition to the above loads, meets the requirements specified in telecommunications section of this schedule.

7.5.7.2 Performance Criteria

7.5.7.2(1) The UPS system will be certified as suitable for post-disaster facility.

7.5.7.2(2) Each UPS system will have:

7.5.7.2(2)(a) external maintenance bypass switch for servicing;

7.5.7.2(2)(b) fully rated internal static bypass switch to bypass UPS in the event of UPS failure;

7.5.7.2(2)(c) fully redundant UPS bypass breaker arrangement; and

7.5.7.2(2)(d) two battery strings (fully redundant batteries), each with an individual battery monitoring system.

7.5.7.2(3) UPS loads will be circuited from a UPS distribution panel and will be rated for the connected load plus a minimum 25% spare capacity.

7.5.7.2(4) Connect UPS units to a delayed vital generator circuit. Provide UPS modules with dedicated battery strings rated for a minimum of 15 mins each and an overall total of 30 minutes at 100% rated UPS capacity.

7.5.7.2(5) Where vital functions are connected to a UPS circuit, include an audible warning in the vital function area 10 minutes before the UPS battery supply is exhausted. Provide additional monitoring by the BMS.

7.5.7.2(6) The UPS will be capable of providing adequate fault clearing current for a 100A circuit breaker without operation of the static bypass switch.

7.5.7.2(7) Centralized UPS system:

7.5.7.2(7)(a) To have modular architecture with no system-level single-point-of-failure.

7.5.7.2(7)(b) To have two (2) or more UPS modules connected in parallel providing N+1 redundancy, to ensure UPS power to support 100% of the initial load and 25% spare capacity when one UPS module is unavailable. The spare capacity shall be calculated by adding the connected loads minus the IMIT loads located in the MCC/BCC and all telecommunication rooms multiplied by 1.25 plus the IMIT loads located in the MCC/BCC and all telecommunication rooms with the future capacity required by all other relevant telecommunications clause.

7.5.7.2(7)(c) Intentionally deleted.

7.5.7.2(7)(d) To be online, double-isolation type having output power factor of minimum 0.9.

7.5.7.2(7)(e) To have input filter at each UPS module to limit the total harmonic current distortion to 5% when the UPS module is carrying 100% rated load.

7.5.7.2(7)(f) To have static bypass to automatically bypass the UPS in the event of UPS failure.

7.5.7.2(7)(g) To have external maintenance bypass switching cabinet for servicing the UPS system.

7.5.7.2(7)(h) Each UPS module and the static bypass to have a dedicated input feeder connected to the delayed-vital branch.

7.5.7.2(7)(i) Shall have a network connection for monitoring and shall indicated any alarms to the BMS.

7.5.7.2(8) The main distribution panel that is fed from the UPS system output to have an alternate input that can be energized directly from the main delayed vital distribution equipment in the event of a UPS system-failure. Provide interlock controls such that only one feeder can be energized at any one time.

7.5.7.2(9) Provide a modular UPS system with the capacity of the modular UPS such that the addition of future modules in the UPS shall not require an upgrade to the electrical equipment infrastructure.

7.5.7.2(10) Size breakers, electrical equipment and conductors feeding the UPS unit and the conductors and immediate electrical equipment connected on the load side of the UPS to the maximum capacity of the modular UPS such that the addition of future modules in the UPS shall not require an upgrade to the electrical equipment infrastructure.

7.5.8. Uninterruptible Power Supply (UPS) Systems Seven Sisters

7.5.8.1 Basic Requirements

7.5.8.1(1) Provide rack mounted Uninterruptible Power Supply (UPS) in accordance with PHSA standards to serve a continuous and uninterrupted source of power as per the requirements of this Schedule, Appendix 1A Clinical Specifications and for the following additional outlets, equipment and systems:

7.5.8.1(1)(a) Intentionally deleted.

7.5.8.1(1)(b) Intentionally deleted.

7.5.8.1(1)(c) the Building Management System;

7.5.8.1(1)(d) wired panic system;

7.5.8.1(1)(e) electronic access control systems;

7.5.8.1(1)(f) intrusion detection system;

7.5.8.1(1)(g) IP Video Surveillance system;

7.5.8.1(1)(h) Intentionally deleted.

7.5.8.1(1)(i) all equipment and systems located in main cross-connect room, back-up cross-connect room, each telecommunication room, and including:

7.5.8.1(1)(j) network equipment for the wired and wireless networks;

7.5.8.1(1)(k) wireless access points;

7.5.8.1(1)(l) PBX and other telephone equipment;

7.5.8.1(1)(m) wireless communications system;

7.5.8.1(1)(n) nurse call system;

7.5.8.1(1)(o) paging system;

7.5.8.1(1)(p) intercom;

7.5.8.1(1)(q) Patient wandering system;

7.5.8.1(1)(r) Intentionally deleted;

7.5.8.1(1)(s) Intentionally deleted;

7.5.8.1(1)(t) Intentionally deleted.

7.5.8.1(2) Intentionally deleted.

7.5.8.2 Intentionally deleted

7.5.8.2(1) Intentionally deleted.

7.5.8.2(2) Intentionally deleted.

7.5.8.2(2)(a) Intentionally deleted.

7.5.8.2(2)(b) Intentionally deleted.

7.5.8.2(2)(c) Intentionally deleted.

7.5.8.2(2)(d) Intentionally deleted.

7.5.8.2(3) Intentionally deleted.

7.5.8.2(4) Intentionally deleted.

7.5.8.2(5) Intentionally deleted.

7.5.8.2(6) Intentionally deleted.

7.5.8.2(7) Intentionally deleted:

7.5.8.2(7)(a) Intentionally deleted.

7.5.8.2(7)(b) Intentionally deleted.

7.5.8.2(7)(c) Intentionally deleted.

7.5.8.2(7)(d) Intentionally deleted.

7.5.8.2(7)(e) Intentionally deleted.

7.5.8.2(7)(f) Intentionally deleted.

7.5.8.2(7)(g) Intentionally deleted.

7.5.8.2(7)(h) Intentionally deleted.

7.5.8.2(7)(i) Intentionally deleted.

7.5.8.2(8) Intentionally deleted.

7.5.8.2(9) Intentionally deleted.

7.5.8.2(10) Intentionally deleted.

7.5.9. Distribution Equipment – 600 Volts and below

7.5.9.1 Basic Requirements

7.5.9.1(1) The main electrical room will be designed and constructed to facilitate future expansion with minimal disruption to Facility operation and continuity. The Facility will be constructed with all necessary infrastructure including spare capacity, spare circuit breakers, physical expansion space, ducts stubbed out from the building footprint and capped off for easy future extension, pull-pits, sleeves, housekeeping pads, wiring, controls, distribution routes, ventilation and overhead lift and as necessary to accommodate any future system expansion.

7.5.9.1(2) Design and construct the electrical system with adequate spare capacity to accommodate an increase electrical demand by 25%. Size the emergency power generators, main normal power transformers, feeders and 600V and 208V switchgear accordingly. For switchgear and panelboards provide 25% spare capacity, and 25% spare physical space for future circuit breaker addition.

7.5.9.1(3) Provide electrical power transmission and distribution from the main sources of supply to meet all requirements of the Facility and Appendix 1A Clinical Specifications. Provide electrical equipment to establish a building distribution voltage of 600V.

7.5.9.1(4) Design the distribution system to provide security of supply and the flexibility to allow concurrent safe maintenance without impacting Hospital operations. Provide tie breakers with key interlocking devices on all main and secondary distribution. Provide double by-pass automatic switches.

7.5.9.1(5) Provide two normal power main service transformers complete with a switching arrangement so that if one transformer fails, the other transformer (by manual switching) will continue servicing all loads connected to the failed transformer. Size the main transformers and distribution system such that either transformer is capable of carrying the entire site load, including the spare electrical capacity identified elsewhere.

7.5.9.1(6) Provide rackable power circuit breakers for the supply of normal and emergency power to all transfer switches and critical equipment. Provide motorized operators on these circuit breakers to reduce the arc flash exposure hazard.

7.5.9.1(7) No requirement for spare ducts or spare duct banks.

7.5.9.2 Low Voltage Distribution Protective, Coordination and Short-Circuit Criteria

7.5.9.2(1) Incorporate design features and practices to reduce arc flash hazards on electrical systems such that routine operations such as transfer switch operation, opening and closing distribution breakers, and inspection and maintenance activities will require (as defined in NFPA 70E) PPE Level 2. No activities will expose personnel to arc flash hazards which exceed the protection afforded by PPE Level 2.

7.5.9.2(2) Utilise zone selective interlocking protection, limiting available fault current from transformers, maintenance mode settings of circuit breakers and remote control of switching and motorised racking devices.

7.5.9.2(3) Prepare and submit to the Authority detailed protective device coordination, and short circuit study signed and sealed by a professional engineer registered in British Columbia and provide equipment labelling indicating available energy levels and level of PPE required when servicing the equipment.

7.5.9.2(4) Prepare and submit to the Authority a detailed arc flash study signed and sealed by a professional engineer registered in British Columbia and provide equipment labelling indicating available energy levels and level of PPE required when servicing the equipment.

7.5.9.2(5) Provide a fully selective protection scheme for all of the circuit breakers on all essential system distribution equipment immediately downstream of the transfer switches, for both hydro and generator available fault currents. Additionally, all circuit breakers will be of the electronic fully selective type for all circuit breaker sizes 100A and larger.

7.5.9.2(6) Prepare and submit to the Authority a detailed distribution coordination study signed and sealed by a professional engineer registered in British Columbia.

7.5.9.3 Performance Criteria

7.5.9.3(1) Protect the main electrical room from ground water infiltration and separate it from plumbing and mechanical equipment. Provide raised housekeeping pads, drainage and sump pumps (on vital power) as required in electrical service areas to mitigate the risk of flooding. Design the electrical room to be readily accessible, secure, well ventilated and free of corrosive or explosive fumes, gases or any flammable material. Establish routes clear of obstruction to and from the electrical room which facilitate the addition and removal of the largest current and future components located within the room.

7.5.9.3(2) Main normal power 600V Distribution Equipment will be fed from the power transformers. This equipment will be configured as double-ended with two main breakers, a tie breaker and feeder breakers as required. Key interlocks or electrical interlocks will be in place between the two main breakers and tie breaker. Two equipped spaces will be provided on each half (side) of the distribution equipment.

7.5.9.3(3) The main normal power 600V distribution equipment will directly feed;

- 7.5.9.3(3)(a) automatic transfer switches (ATS) for; the vital branch, delayed vital branch and conditional branch
- 7.5.9.3(3)(b) Surge protection devIce (SPD)
- 7.5.9.3(3)(c) Fire pump transfer switch
- 7.5.9.3(3)(d) Automatic power factor correction systems.

7.5.9.3(4) The main Automatic Transfer Switches (ATS) serving vital, delayed-vital and conditional branches to be closed-transition transfer type with integral dual-source bypass and isolation features. These transfer switches to be similar and have identical voltage and short-circuit withstand ratings; the ampacity (current) rating of the ATS serving the delayed-vital and conditional branches are required to be identical, as is the rating of the ATS serving the vital branch. The preferred source input of each of these transfer switches to be directly connected to a separate air-circuit breaker on the main normal power 600V distribution equipment. The alternate source input of each of these transfer switches to be directly connected to a separate air-circuit breaker on the generator synchronizing switchboard.

7.5.9.3(5) Configure the distribution downstream of the main ATS such that each one of the main ATS's feed a double-ended 600V distribution panel for emergency power, one ATS feeds a double-ended 600V distribution panel for delayed vital power, and one ATS feeds a double-ended 600V distribution panel for conditional power. Provide two such 600V distribution panels for emergency power. One of these distribution panels to be arranged with one main breaker and one tie-breaker and to feed the vital branch plus load breakers. The second emergency 600V distribution panel will be arranged with one main breaker and two tie breakers and to serve the delayed-vital branch loads plus load breakers; the tie breakers to provide redundancy to the vital bus and the conditional bus.

7.5.9.3(6) 600V Switchgear distribution panels:

7.5.9.3(6)(a) Shall be designed, factory-assembled and tested in accordance with CSA C22.2 No.31-10 "Switchgear Assemblies";

7.5.9.3(6)(b) Shall be provided with motorized draw-out moulded case circuit breakers for all feeders servicing critical equipment or sized for 600A or higher. Breakers to comply with ANSI/IEEE 37.13 at mains, ties and outgoing feeder positions and labelled to work continuously at 100% rated current. Fuses shall not be used;

7.5.9.3(6)(c) Shall have circuit breakers with solid-state trip units with adjustable time and current elements for Long time, Short time, Instantaneous, and Ground fault pickup settings. The trip units to have integral digital metering capable of displaying V, A, KVA and KW parameters and retaining the maximum recorded value of each parameter. The metering function of the circuit breaker trip units to be connected to the overall metering system and the building management system; breakers 100A and larger shall be LSI electronic trip fully adjustable selective breakers. Breakers 400A and larger shall be LSGI electronic trip fully adjustable selective breakers;

7.5.9.3(6)(d) Shall have circuit breaker auxiliary contacts connected to the building management system to indicate operational status of each breaker;

7.5.9.3(6)(e) Shall have a coloured lamicoid mimic bus single line diagram riveted on the front;

7.5.9.3(6)(f) Shall have coloured engraved lamicoid nameplates for cubicle and circuit identification on front and rear sections;

7.5.9.3(6)(g) Intentionally deleted.

7.5.9.3(7) Each double-ended emergency 600V switchgear distribution panel to directly feed:

7.5.9.3(7)(a) 600V central distribution panels (CDPs). Provide a minimum of one CDP for each of the vital, delayed vital and conditional branches.

7.5.9.3(7)(b) Motor Control Centres

7.5.9.3(7)(c) Surge Protection Device

7.5.9.3(7)(d) Large individual loads. Example: chillers

7.5.9.3(8) Provide individual dry-type step-down 600V – 120/208V transformers in the main electrical room and all secondary electrical rooms for each of the following distribution branches: vital, delayed-vital, and conditional. Additional 600V 120/208V transformers to be located as required by the design.

7.5.9.3(9) The individual step-down transformers shall be fed from a 600V Centralized Distribution Panel and located in an electrical room.

7.5.9.3(10) Centralized distribution panels located on the same floor shall have tie breakers to at least one other system CDP.

7.5.9.3(11) All Vital, Delayed Vital and UPS CDPs to be connected to and fed from moulded case draw-out type circuit breakers. All CDPs to utilize moulded case circuit breakers to feed their respective loads.

7.5.9.3(12) 600V Centralized Distribution Panels for Vital, and Conditional l power to feed 120/208V Centralized Distribution Panels in electrical rooms. These 120/208V CDPs to feed panel boards on each floor. The 600V Delayed Vital CDP shall feed 120/208V CDPs or panelboards in the same location. Additional 120/208V panelboards shall be installed throughout the Building as required by the design.

7.5.9.3(13) Provide a minimum of two electrical and telecommunication riser rooms on each floor level to house electrical equipment serving that floor, unless it can be demonstrated and approved by the Authority that one will suffice. If it is demonstrated to the Authority that one electrical room on a floor level will suffice, then Design-Builder shall centrally locate the electrical room on the floor plate to the Authority's approval. Vertically stack the electrical rooms on all floors throughout the height of the Building. If a third electrical room is required on any floor, spatially separate the three rooms on plan and position these in different architectural fire-compartments and such that each room can serve one third of the floor plate.

7.5.9.3(14) Install 600:120/208V dry type transformers for small equipment loads in electrical rooms on concrete pads or suspend from structure. Install transformers so that removal can be facilitated without removal of any other equipment or conduit serving the room. Utilize sound and vibration mitigation installation methods for all transformers.

7.5.9.3(15) Install 600:277/480V dry type transformers in electrical rooms connected to 480V equipment supplied by the Authority. These transformers shall be fed from the 600V centralized distribution panels or the 600V distribution panels depending on the size.

7.5.9.3(16) Locate major electrical equipment to minimize run length of feeders and branch circuits and locate within the Facility so as to provide a clean, dry, safe, accessible installation protected from unauthorized access.

7.5.9.3(17) Locate and design electrical equipment for ease of maintenance and with due regard for future expansion and renovation.

7.5.9.3(18) Provide a ground fault protection scheme such that ground faults are selective between the transformer and generator main circuit breakers and the downstream breakers sized 200A and larger.

7.5.9.3(19) Install 120/208V dry type transformers for small equipment loads in electrical rooms on concrete pads or suspend from structure. Install transformers so that removal can be facilitated without removal of any other equipment or conduit serving the room, except for luminaires.

7.5.9.3(20) All transformers will have copper or aluminum windings. Appropriately K-rated transformers are to be employed where subject to significant non-linear loads.

7.5.9.3(21) Provide a dedicated automatic-transfer switches for elevators to allow all elevators to run in the event of an emergency power test.

7.5.9.3(22) Rate all distribution devices to handle available fault duty at line terminals. Perform a computer generated fault study to ensure that all devices are properly rated. All circuit breakers 100A and larger will be fully selective.

7.5.9.3(23) Design and install protection equipment so that the initial electrical installation, future additions and modifications will be fully coordinated to isolate only the faulty portion of the system.

7.5.9.3(24) Select, configure, locate and install all components of transmission and distribution systems to minimize the transmission of noise, vibration or unwanted heat into other parts of the Facility.

7.5.9.3(25) Provide a networked digital metering system to monitor and record electrical loads and quality of power in the Facility.

7.5.9.3(26) Provide power factor correction equipment within the Building to ensure the Building power factor does not fall below .95 lag. Coordinate capacitors with adjustable frequency drives and other harmonic generating equipment to avoid resonance conditions.

7.5.9.3(27) Provide dedicated transformation equipment for diagnostic imaging equipment as required by the imaging equipment vendors.

7.5.9.3(28) Provide circuit breaker type panelboards fully rated to handle calculated fault current level. Series rating of breakers and panel boards is not acceptable.

7.5.9.3(29) Provide oversize neutral(s) for panel boards, feeders and branch circuiting where significant non-linear load(s) are anticipated, such as in open office and other areas with a high density of personal computers.

7.5.9.3(30) Construct flush mounted panel boards with two spare 53 mm conduits stubbed into an accessible location above the panel. Do not feed panelboard from below. All feeders must be routed down from the ceiling for top entry into the panelboard.

7.5.9.3(31) Provide electronic grade panel boards to serve electronic equipment susceptible to electrical transients.

7.5.9.3(32) Install panelboards on the same floor as the loads they serve.

7.5.9.3(33) Do not daisy-chain the feeders to panelboard. All panelboard feeders must be dedicated.

7.5.9.3(34) Provide panelboards with integral surge protective devices to serve all electronic equipment and equipment susceptible to electrical transients including patient care areas, offices and communication equipment.

7.5.9.3(35) Install CDPs and Panelboards on the same floor as the loads they serve. Where panelboards are located outside of electrical rooms, installation of these panelboards shall be in interdepartmental, non-public corridors, provided they are painted to match the adjoining surface for finished appearance. Staff only cross-corridors in inpatient units will also be considered.

7.5.9.3(36) All panelboards to have 25% spare capacity and 25% spare physical space after all connected loads have been installed. Provide metered documentation that proves that the 25% spare capacity has been provided once all loads are connected to the panelboard. Provide metered documentation submittal to the Authority.

7.5.9.3(37) Components of the electrical distribution systems in any public, clinical, administrative or staff area will have long life expectancy without perceptible deterioration and a good appearance. Design and install so as to permit easy and complete cleaning.

7.5.9.3(38) Provide individual enclosed motor starters for individual motors. Utilize motor control centers for groups of four or more motors that require individual motor starters.

7.5.9.3(39) Motor starters will be combination of magnetic MCP (Motor Circuit Protector) type with integral control power transformers, Hand-Off-Auto (HOA) or start/stop control and at least two auxiliary contacts in addition to seal-in contacts. Provide “power on” and “running” LED type indicators on each motor starter.

7.5.9.3(40) Provide combination starters for all motors 1/2 HP and larger that are not already controlled by adjustable frequency drive or include an integral control package. All motors of ½ HP or more will be 600 volt 3 phase.

7.5.9.3(41) Provide voltage transient / surge protection for the main 600V and 120/208V switchgear loads and all other panels serving sensitive electrical loads including diagnostic equipment, lab equipment and adjustable frequency drives.

7.5.9.3(42) All panelboards, CDPs and Switchgear shall be coloured red for Vital, blue for Delayed Vital, yellow for Conditional, and orange for UPS.

7.5.9.3(43) All panels and electrical equipment shall be identified with (lamacoid) labels.

7.5.9.3(44) Nameplates for panels and equipment (lamacoid):

7.5.9.3(44)(a) 3 mm (⅛") thick laminated plastic plates,

7.5.9.3(44)(b) Size to suit number of lines and line heights as identified with minimum 7 mm border on all sides.

7.5.9.3(44)(c) On front and rear sections for switchboards

7.5.9.3(44)(d) engraved lettering to be as follows (unless otherwise identified):

7.5.9.3(44)(e) (a) first line: 11 mm (7/16”) high lettering,

7.5.9.3(44)(f) (b) second line: 7mm (1/4”) high lettering,

7.5.9.3(44)(g) (c) third line: 5mm (3/16”) high lettering,

7.5.9.3(44)(h) colour coded as follows:

7.5.9.3(44)(i) black lettering on white background for panels and equipment on normal power,

7.5.9.3(44)(j) white lettering on red background for panels and equipment on vital power,

7.5.9.3(44)(k) white lettering on blue background for panels and equipment on delayed-vital,

7.5.9.3(44)(l) white lettering on yellow background for panels and equipment on conditional power

7.5.9.3(44)(m) white lettering on light blue background for panels and equipment on UPS power,

7.5.9.3(44)(n) with bevelled edges,

7.5.9.3(44)(o) mechanically attached with self-tapping stainless steel screws.

7.5.10. Metering

7.5.10.1 Basic Requirements

7.5.10.1(1) Provide networked, digital microprocessor metering to provide detailed information about power consumption at key points throughout the Building. Key points include:

7.5.10.1(1)(a) High voltage feeders from the utility;

7.5.10.1(1)(b) High voltage feeders;

7.5.10.1(1)(c) Distribution breakers in the main distribution;

7.5.10.1(1)(d) Secondary feeder of all 25kV-600V step-down transformers;

7.5.10.1(1)(e) 600V centralized distribution panels, mains and each feeder breaker;

7.5.10.1(1)(f) UPS;

7.5.10.1(1)(g) IMIT PDU’s

7.5.10.1(1)(h) Power Panelboards at 600V and 120/208V;

7.5.10.1(1)(i) Lighting Panelboards at 600V and 120/208V;

7.5.10.1(1)(j) Motor control centres;

7.5.10.1(1)(k) Panelboards feeding mechanical equipment and elevators; and

7.5.10.1(1)(l) All other requirements of ASHRAE 90.1 and LEED Gold.

7.5.10.1(2) Ensure that metering is provided to record total energy consumed by lighting fixtures and equipment. Integrate information from all meters on a common software platform residing on a dedicated electrical metering server.

7.5.10.1(3) Metering will be provided on all normal, vital, delayed vital, conditional and UPS power branches.

7.5.10.1(4) Ensure that sufficient metering is provided to record the energy consumed by all major mechanical equipment including chillers, steam consumption, fan and pump motors, medical air and vacuum. Refer to the mechanical section 7.4 Division 25.

7.5.10.1(5) Implement a networked metering system with terminals for maintenance and plant administration, and data transfer to the Building's BMS. Provide network software, hardware, licensing to provide remote monitoring and third party assistance, re-programming and troubling shooting.

7.5.10.1(6) Connect electrical demand and consumption meters to the BMS.

7.5.10.1(7) Include trend logging equipment sensors to comply with and fulfill energy measurement and verification requirements. Logged information shall not be overwritten and will be archived.

7.5.10.1(8) Provide additional meters required to measure energy performance in order to determine performance in accordance with section 7.4 Division 25 and Schedule 9 – Energy & Carbon Guarantee.

7.5.10.2 Performance Criteria

7.5.10.2(1) The metering system will provide easily read locally displayed information for all distribution at primary voltage and for each secondary distribution switchboard.

7.5.10.2(2) Metering intervals will be one hour or less.

7.5.10.2(3) Design the metering system network to store historical data and to have the capability to generate user configurable electronic and printed reports on demand.

7.5.10.2(4) Support the metering system by a backup power source(s), which ensures operation when the metered circuit is de-energized. The metering system shall not be dependent on power from the metered circuit for its operation.

7.5.10.2(5) The metering system will, at a minimum, provide the following information about each metered circuit: Phase-to-Phase Voltage (all phases), Line-to-Neutral Voltage (all phases), Phase Demand and Peak Current (all phases and neutral), KW (peak and average), KVA (peak and average), Power Factor, KWH, VAR, hours and frequency. The metering system will also provide current and voltage harmonic information at the mains of each CDP.

7.5.10.2(6) Utilize power quality type meters for monitoring harmonics and surges / sags. Provide power quality meters capable of monitoring harmonics on the main breakers for the vital, delayed vital and conditional centralized switchboards and the main 25kV hydro supply.

7.5.10.2(7) Draw-out circuit breakers on the 600V main normal and emergency distribution panels will be provided with trip units with integral 3 phase true RMS digital meter with local LCD display to indicate the phase current for each phase, kW and kVA.

7.5.11. Energy Management

7.5.11.1 Basic Requirements

7.5.11.1(1) Provide an integrated energy management system to monitor, record, analyse, report on and control energy consumption from all sources that supply energy to the New Facility. This system to be connected to the BMS. Refer to Section 7.4 of Division 25.

7.5.11.1(2) Design the system to provide sufficient information to enable the Authority to make Facility-wide “demand-side management” decisions relating to overall energy demand, with the intent of reducing overall energy consumption and demand throughout the Facility. Incorporate data from the digital meters required by Section 7.6 of Division 26. Provide and coordinate with the Authority’s representative to provide IP addresses for energy management monitoring capabilities.

7.5.11.1(3) Provide a system and equipment that is flexible, controllable, and will form an integral part of the Building.

7.5.11.2 Performance Criteria

7.5.11.2(1) Design the energy management system to be accessible from any networked computer using appropriate software.

7.5.11.2(2) Provide a minimum of five site software licenses if licensing is required.

7.5.12. Grounding and Bonding

7.5.12.1 Basic Requirements

7.5.12.1(1) Provide grounding and bonding for all electrical equipment and systems in the Facility for the safety of people and for protection against damage to equipment or property in the case of a fault occurring in any of the equipment or systems. Install grounding and boding as required by all applicable standards.

7.5.12.1(2) Provide supplementary grounding per relevant CSA standards in areas identified as patient care areas.

7.5.12.2 Performance Criteria

7.5.12.2(1) Utilize non-alloyed copper for all conductors and all conducting components of electrical equipment which form part of the grounding and bonding systems in the Facility.

7.5.12.2(2) Provide solid system grounding including conductors and bussing.

7.5.12.2(3) Provide a minimum #12 copper bonding conductor in each and every conduit or raceway. Provide a #6 copper bonding conductor on each communications tray and ensure each section of the tray is securely bonded.

7.5.12.2(4) Provide equipotential grounding systems and equipment for all patient care areas. Provide a #6 AWG copper bond from the panelboard to each room reference ground bus RRGB in each patient care area. RRGB will be located in a flush mounted enclosure, installed below the ceiling on the left hand side of the door upon entering the room, above the headwall or outside of room in accessible ceiling space as directed by the Authority. All branch circuits serving the patient care area will be routed through the RRGB enclosure. Provide a stainless steel cover with gasket over the enclosure with an identification label on it.

7.5.12.2(5) Bond all exposed non-current carrying components of communication, radio or television equipment in patient care areas to ground using a properly sized equipment bonding conductor. Uniquely identify each bonding conductor at each end.

7.5.12.2(6) Provide a solidly grounded 120/208V system including conductors and bussing. Provide equipotential grounding systems and equipment for all Clinical Spaces, including a common ground bus for each patient bed location.

7.5.12.2(7) Bond all exposed non-current carrying components of communication, radio or television equipment in Clinical Spaces to ground using a properly sized equipment bonding conductor.

7.5.12.2(8) Provide a ground bus in each electrical and communication room connected to the central grounding system.

7.5.12.2(9) Provide a copper ground conductor within all raceways for feeders and branch circuit wiring.

7.5.12.2(10) Provide a minimum #6 AWG copper ground conductor to be run to the telecommunications main bus bar and bond all communications systems in accordance with relevant standard requirements.

7.5.12.2(11) Label all grounding and bonding conductors and bus bars consisting of the 'bonding backbone' with printed labels.

7.5.12.2(12) Complete a lightning protection study for the Facility, such study to be done by a specialist in lightning protection work and to be signed and sealed by a professional engineer registered in British Columbia. Implement a lightning protection study on any risk value of 4 or higher, as defined by relevant CSA standard. Provide a complete lightning protection system for the Facility if required by study.

7.5.13. Seismic Requirements for Electrical Systems

7.5.13.1 Basic Requirements

7.5.13.1(1) Provide seismic restraint for all electrical equipment and components of electrical systems. Design the electrical systems and its associated equipment to comply with the BC Building Code for a post-disaster facility.

7.5.13.1(2) Provide seismic restraint systems and methods that facilitate ease of maintenance and ease of replacement and reconfiguration of electrical equipment and systems and other equipment and building components.

7.5.13.1(3) Provide seismic restraint systems and methods that coordinate with the Facility's architecture and finishes. Wherever practicable, conceal components of seismic restraints from public view. Where concealment is not practicable, provide systems that complement the Facility's architecture and finishes.

7.5.13.2 Performance Criteria

7.5.13.2(1) Provide seismic support for all electrical equipment and components of electrical systems that have the potential to cause injury or damage during or following a seismic event.

7.5.13.2(2) Use seismic restraint systems that are designed by a professional engineer, registered in British Columbia, or, where an identified pre-designed standard restraint device or system exists for a particular item, that equipment may be used provided that written confirmation of its acceptability for the installation is provided by a professional engineer registered in British Columbia. This Seismic Engineer will cover off all seismic requirements within this schedule. Provide signed and sealed drawings as well as typewritten field reports from a professional seismic engineer, registered in British Columbia. Obtain certification of the main electrical distribution equipment for "seismic withstand capability" and, to maintain the certification, anchor such equipment according to the manufacturer's instructions.

7.5.14. Power Quality

7.5.14.1 Basic Requirements

7.5.14.1(1) Establish and maintain an overall power quality which assures suitable conditions for operation of all electrical and electronic equipment throughout the Facility.

7.5.14.1(2) Provide equipment and systems which assure that electrical equipment and systems will not be harmed or impaired either by external events or conditions, such as lightning and disturbances on the utility service, or by internal events or conditions generated within the Facility.

7.5.14.1(3) Provide harmonic mitigation equipment, as necessary, to ensure that power quality meets the recommendations in IEEE, including relevant standards. For the purposes of measuring the harmonic distortion, the "Point of Common Coupling" will be any of the two main transformers. As part of commissioning, confirm compliance to applicable reference tables by field measurements after building occupancy and under normal operating conditions.

7.5.14.1(4) Provide individual harmonic filters ahead of and coordinated with variable speed drive for every motor greater than 7.5 HP.

7.5.14.2 Performance Criteria

7.5.14.2(1) Provide equipment, such as filters, TVSS (Transient Voltage Suppression System), specifically designed to control and remove all adverse power quality conditions that could damage or impair function of sensitive electronic equipment used in the Facility. Adverse power quality conditions include voltage spikes, dips and droops, transients, harmonics, power factor and radio frequency interference.

7.5.14.2(2) Provide the ability to demonstrate to the Authority at any time that there are no potentially harmful power conditions present and that equipment intended to guard against such conditions is in proper working order.

7.5.14.2(3) The voltage phase imbalance shall not exceed 3 percent between phases A, B, C anywhere within the power distribution system.

7.5.14.2(4) Provide station class lighting arrestors on the primary side of the 25kV-600V main step down transformers. Provide integral surge protective devices (TVSS's) on all 600V Centralized Distribution Panels, all 120/208V Centralized Distribution Panels. 120/208V Panel boards supplying power to sensitive electronic equipment shall also have integral TVSS and dedicated neutrals for electronic equipment.

7.5.14.2(5) Provide phase detection/protection at all centralized distribution panels feeding mechanical equipment, elevator equipment and medical equipment.

7.5.14.2(6) Provide a third party specializing in power quality systems to fully test and commission all power quality systems. Submit the reports with the commissioning documents.

7.5.15. Lighting

7.5.15.1 Basic Requirements

7.5.15.1(1) Design-Builder shall utilize LED technology for all lighting. Utilize hospital grade luminaires in all clinical and general hospital areas and specification grade quality luminaires in utility and storage closets. All luminaires to be selected with emphasis on energy efficiency, aesthetics, glare reduction and high colour rendering. Design-Builder shall provide healthcare luminaires in all clinic service areas. All lighting shall be dimmable and shall provide various lighting levels to accommodate individual control and comfort. Non dimmable lighting is acceptable for night lights, dedicated sink lights, reading lights controlled through the pillow speaker, service rooms, storage rooms, utility rooms, clean/dirty rooms. Housekeeping rooms, public/staff washrooms and exterior lighting. Healthcare luminaires shall be appropriate to the unique requirements of each application, including but not limited to the following:

7.5.15.1(1)(a) Examination lighting to provide high powered lighting for patient exams.

7.5.15.1(1)(b) Task lighting to support a variety of tasks requiring enhanced illumination as noted in Appendix 1A Clinical Specifications and as determined through Schedule 2 Review Procedure.

7.5.15.1(1)(c) Healing lights to soothe the patient during anxiety providing procedures.

7.5.15.1(1)(d) Ambient lighting to promote overall patient wellness.

7.5.15.1(1)(e) Provide night time lighting and motion sensors near exits of Psychiatric Inpatient units to enable people leaving the department to be identified on camera. Exit doors to be alarmed. Coordinate this requirement with Division 27.

7.5.15.1(1)(f) Chart lights to support caregiver notations on patient progress as noted in Appendix 1A Clinical Specifications and as determined through Schedule 2 Review Procedure.

7.5.15.1(1)(g) Wayfinding – night lights in patient rooms and areas to promote overall patient wellness as noted in Appendix 1A Clinical Specifications and as determined through Schedule 2 Review Procedure. lighting shall provide maximum uniformity.

7.5.15.1(1)(h) Provide colour changing (tunable)(Circadian lighting) lighting fixtures within the Special Care Nursery. Control system will include a continuous circadian program cycle that will control the tunable white overhead fixtures in the birthing rooms. An over-ride bypass switch in each room will allow the system to be bypassed to allow for manual control and dimming by the medical staff. The fixtures can easily be returned to the circadian cycle at any time. Provide all hardware, configuring tools, faceplates and associated wiring as required to provide a complete and fully functional system. Provide data connection to BMS to record and display the lighting energy consumption for each switching zone. Provide a direct/indirect lighting solution that takes into account all the necessary lighting levels and illumination required for observation, care and visual task lighting within these areas. Provide a lighting layout in consultation with and as determined through Schedule 2 Review Procedure.

7.5.15.1(1)(i) Provide a robust, flexible, easily maintained and secured lighting control system to meet the operational requirements of a modern hospital. In compliance with the latest energy codes, provide dual technology occupancy/vacancy and daylight harvesting sensors for all public areas, including general corridors, all department corridors, waiting areas and similar areas. Provide all hardware, gateways, energy manager, and receptacle relay controllers, wireless wall stations, configuring tools, faceplates and associated low voltage wiring. Provide software and integrate into the BMS to provide time of day usage, historical data, and power consumption.

7.5.15.1(1)(j) Utilize harm Prevention fixtures throughout the Psychiatric Inpatient Unit and in other areas as determined and directed by any other specification section or reference document. Provide recessed or surface mounted tamper resistant or institutional Vandal Resistant type luminaires.

7.5.15.1(2) All operating room, treatment room and procedure room luminaires to be NSF2 listed IP65 rated UL certified IP65 per IEC 60598., and K230 rated. Provide non-electronic interfering luminaires rated to MIL-STD 461 in all operating rooms, and any room with diagnostics and treatment equipment. Provide FED-STD-209E/Class 1 (ISO 3) Clean rooms and conducted emissions controlled as per MIL-STD-461F luminaires for all operating rooms.

7.5.15.1(3) All operating rooms, treatment rooms, procedure rooms, Patient rooms, patient bays, stretcher bays and similar room luminaries shall be rated to the TM-30 standard for the elevation of light source colour rendition by quantifying fidelity and gamut of a light source. All other areas shall have luminaires rated between CRI 83 and CRI 90.

7.5.15.1(4) Provide aesthetically pleasing, exceptional visual comfort luminaires with dimming and scene setting as detailed in this section.

7.5.15.1(4)(a) Provide aesthetically pleasing specialty lighting for all team care stations, kiosks. Specialty lighting shall consist of suspended fixtures above Millwork, LED cove lighting in bulkhead and architectural clouds and wall washing down lights for feature walls and similar locations.

7.5.15.1(5) Luminaries shall have the following characteristics:

7.5.15.1(5)(a) Interior LED’s to be rated at 3000K to 3500K as directed by the Authority.

7.5.15.1(5)(b) Exterior LED fixtures to be rated at 3000K or as directed by the Authority.

7.5.15.1(5)(c) Areas with a Color Appearance (and Color Contrast) of Very Important as listed in Table 3B of the IESNA RP 29-06 shall be 4100K and have a TM-30 of 90

7.5.15.1(6) Patient room lighting shall accommodate the needs of both patient and caregiver. Lighting requirements within the patient rooms differ based on the task being performed, including testing, patient examination, charting, reading and Wayfinding. Additionally, the patient room shall optimize patient comfort with a residential inspired design. Provide multi-function lighting, night lighting, and chart lighting.

7.5.15.1(7) In Patient Units, locate lighting fixtures that remain on during the night so that they cannot be seen from bed positions from within the Patient Room.

7.5.15.1(8) Patient room lighting shall consist of a multi-function headwall luminaire to provide ambient and exam lighting. Provide examination and general area lighting above bed or stretcher with 0% - 100% dimming. Provide a reading lamp in the headwall design. In addition, provide general overhead room lighting. Provide LED night light for Wayfinding switched at entrance to room. Provide LED charting lights at the headwall location to accommodate charting. Providing multi-function lighting via the over-bed luminaires would be an acceptable alternative to the "multi- function headwall luminaire" provided that the requirement for ambient, examination and reading light functionality was maintained. Provide dimmable down lights for patient visitors area separately switched for convenience. The Design-Builder shall also provide a separately switched wall mounted vanity luminaire above all patient washroom sinks, a separately switched dimmable down light above the toilet.

7.5.15.1(9) Corridors / team care station and similar area lighting to meet performance requirements as follows:

7.5.15.1(9)(a) Sealed for infection control;

7.5.15.1(9)(b) Appropriately placed lighting for tasks;

7.5.15.1(9)(c) Wayfinding capabilities;

7.5.15.1(9)(d) Dependable and effective signage exit and emergency lighting;

7.5.15.1(9)(e) Provide suspended pendant mounted cylinder type fixtures mounted above the Care Team desk and similar locations.

7.5.15.1(9)(f) Provide colour changing RGBW LED cove lighting in all bulkheads, architectural clouds and similar drop ceiling features above the Care Team area and similar locations.

7.5.15.1(9)(g) Provide recessed wall washing down lights for feature walls.

7.5.15.1(9)(h) Provide RFID lighting fixtures for all corridor and common use areas. Provide all hardware, wireless switches, configuring tools, faceplates and associated allow voltage wiring.

7.5.15.1(9)(i) Provide master override dimming control for at least one fixture in all inpatient bedrooms and observation rooms.

7.5.15.1(9)(j) Provide master override dimming control in all observation alcoves to control at least one fixture in all inpatient bedrooms and observation rooms.

7.5.15.1(9)(k) Corridor lighting primary requirement is the ability to ease transitions to adjacent areas. Provide recessed ceiling lighting on UPS power to ensure lighting levels are maintained in corridors during transition from loss of building power to generator pickup. Provide down lights in alcoves and similar locations to deliver soothing corridor illumination.

7.5.15.1(10) Design-Builder shall provide operating, surgical imaging and Urology lighting to performing requirements as follows:

7.5.15.1(10)(a) Non ferrous;

7.5.15.1(10)(b) Mitigation of electromagnetic interference (EMI);

7.5.15.1(10)(c) Conducted emissions controlled as per MIL-STD-461G.

7.5.15.1(10)(d) Sealed and gasketed for infection control;

7.5.15.1(10)(e) All Luminaires shall have Two operating modes complete with 405nm wavelength disinfection patented technology.

7.5.15.1(10)(f) Shall be NSF2 splash/non-food zone.

7.5.15.1(10)(g) UL certified IP65 per IEC 60598.

7.5.15.1(10)(h) Provide FED-STD-209E/Class 1 (ISO 3) Clean rooms.

7.5.15.1(10)(i) Dimmable LED technology for enhancing operational safety and patient control;

7.5.15.1(10)(j) Designed for ease of maintenance;

7.5.15.1(10)(k) Provide aesthetically pleasing, exceptional visual comfort, dimming and scene setting.

7.5.15.1(11) Design-Builder shall provide patient room, patient holding and stretcher bay and similar area lighting to the performance requirements as follows:

7.5.15.1(11)(a) Conducted emissions controlled as per MIL-STD-461G.

7.5.15.1(11)(b) Sealed and gasketed for infection control;

7.5.15.1(11)(c) One 405nm wavelength disinfection patented technology downlight to be provided in each Patient Room Washroom.

7.5.15.1(11)(d) Multi-function capability;

7.5.15.1(11)(e) Aesthetic appeal;

7.5.15.1(11)(f) Ease of maintenance and cleanability;

7.5.15.1(11)(g) Dimmable lighting.

7.5.15.1(12) Provide luminaires and light sources that enhance safety and allow personnel to circulate throughout spaces and perform required tasks.

7.5.15.1(13) Design lighting with the objective of creating a comfortable working environment and an environment conducive to healing and recovery.

7.5.15.1(14) Lighting will comply with all characteristics recommended by the CSA Standard Z317.5-98 Illumination Systems in Health Care Facilities and ANSI/IESNA RP-29-06.

7.5.15.1(15) Lighting power density levels will be lower than the latest adopted version of the ASHRAE Standard 90.1 by 20% and the lighting installation shall meet the requirements of Appendix 1A Clinical Specifications and ASHREA standard 90.1.

7.5.15.1(16) Provide lighting control system complete with occupancy, vacancy, daylight sensor, dimmers and switches where lighting control is required. Provide connections to the BMS and energy management system.

7.5.15.1(17) An electrically powered LED "Laser In Use" sign will be located outside any room in which a laser is anticipated to be used, such as all operating and procedure rooms. The sign will be connected to an internally illuminated switch inside the room label "Laser". The switch will be interlocked with the laser equipment such that the equipment shall not operate with the switch in the “off” position. The “laser In Use” sign will be interlocked with the doors to the operating room and the laser will not function while the doors are open. Internal illumination of the switch will be on only when the “Laser in Use” sign is illuminated.

7.5.15.1(18) An electrically powered LED "X-ray In Use" sign will be located outside any room in which fixed or mobile x-ray equipment is anticipated to be used, such as the OR. The sign will be connected to an internally illuminated switch inside the room label "X-ray". The switch will be interlocked with the x-ray equipment such that the equipment shall not operate with the switch in the “off” position. The “X-Ray In Use” sign will be interlocked with the doors to the operating room and the X-Ray machine will not function while the doors are open. Internal illumination of the switch will be on only when the “X-ray in Use” sign is illuminated.

7.5.15.2 Performance Criteria

7.5.15.2(1) Provide luminaires that require minimal cleaning and permit practical and easy access and disassembly. All luminaries shall be CSA listed. Luminaires in patient care areas to be provided with anti-microbial finish, and rated for intended usage.

7.5.15.2(2) Utilize LED lighting. Use wall sconces or down lighting for decorative purposes. Do not use incandescent, fluorescent, compact fluorescent or HID lighting.

7.5.15.2(3) Light emitting diodes (LEDs) will be minimum 1.2 to 3W per LED. For colour temperature consistency, LEDs to be from the same bin number. To ensure a full lamp life, control the maximum temperature at the base of the “LED cap” mounted to the substrate. LEDs shall be measured to LM79 standards and tested to LM80 and L70 using TM-21 standards.

7.5.15.2(4) Minimize use of battery-operated unit emergency lighting. Battery-operated emergency lighting may be an acceptable alternative as a second level of emergency lighting in areas including operating rooms, procedure rooms, inpatient areas, electrical rooms, mechanical areas and other areas determined and directed by any other specification section or reference document, code or standard. Remote heads shall utilize LED technology.

7.5.15.2(5) Connect, at a minimum, 20% of the lighting in Clinical Spaces and rooms and areas used by the public to the UPS system.

7.5.15.2(6) No area will have luminaires circuited from one power source only. Circuit the luminaires in all interior and exterior areas from diverse power sources, so that if one power source is not available, emergency light levels are met.

7.5.15.2(7) Utilize harm Prevention fixtures throughout the Psychiatric Inpatient Units and in other areas as determined and directed by any other specification section or reference document. Provide recessed or surface mounted tamper resistant or institutional Vandal Resistant type luminaires as directed.

7.5.15.2(8) Tamper resistant type luminaires shall be durable with minimum 16-guage housing, high impact resistant clear polycarbonate lenses (6mm thick), tamper-proof hardware and ligature proof when wall or surface mounted.

7.5.15.2(9) Institutional Vandal Resistant type luminaires shall provide a maximum security & durable construction with minimum 14-gauge housing, high impact resistant clear polycarbonate lenses (9.5mm thick), tamperproof hardware and ligature-proof when wall or surface mounted.

7.5.15.2(10) Utilize recessed volumetric or indirect LED luminaries in offices, reception areas, team care stations and other areas where computer terminals and similar screens are present. Provide lighting control in accordance with ASHREA 90.1 latest adopted addition. Provide dual technology occupancy sensors with manual on/auto off in offices. Utilize 1% - 100% dimming control or multi-level switching and daylight dimming where appropriate.

7.5.15.2(11) Design lighting in conference rooms, meeting rooms and video conferencing facilities to maximize viewing of monitors and screens and provide suitable vertical and horizontal illumination of people being viewed. Provide fully dimmable lighting with switching to allow for general and ambient lighting selection. Provide at a minimum 60 foot candles of illumination measured at the work-plane (1 meter above floor) throughout all conference rooms.

7.5.15.2(12) Provide special task lighting designed for the types of procedures conducted for rooms and areas where treatment is provided, including medication rooms, team care stations and rooms and areas where specialized analytical or diagnostic work is carried out, e.g., sterile core, biomed, birthing units, inpatient bedrooms, Triage/Observation, surgical, operating, procedure rooms and similar.

7.5.15.2(13) As architectural features, design lighting in main lobbies, waiting areas, staff lounges and the main entrance will be provided with high quality products aesthetically pleasing to the public and staff. Staff areas and rooms shall have multiple switching and dimming controls. Wall sconces will be ADA compliant and will be an LED 1%-100% dimming fixture.

7.5.15.2(14) Where patients are being transferred and/or lying on a stretcher provide volumetric or indirect lighting to limit glare to patients.

7.5.15.2(15) Where patients are being transferred and/or lying on a stretcher provide volumetric or indirect lighting separately controlled by a master multi-zone low voltage controller located in the team care station and observation alcoves. Areas include stretcher bays, stretcher recover bays in higher acuity, recovery and operating room support areas, interim PARR and other similar areas.

7.5.15.2(16) Provide LED under counter lights on a dedicated switch for all above counter cabinets.

7.5.15.2(17) Provide an LED above counter light on a dedicated switch for all hand hygiene sinks.

7.5.15.2(18) Where multi-level lighting is required, each luminaire shall have multiple levels of lighting. Switching of different luminaires on and off shall not constitute multi-level lighting control.

7.5.15.2(19) Intentionally deleted.

7.5.15.2(20) Controls to be to ASHRAE 90.1 requirements. Occupancy and Vacancy sensors to be dual technology and designed for the application in which they are used.

7.5.15.2(21) Provide luminaires and light sources that enhance safety and allow personnel to circulate throughout spaces and perform required tasks. Tamper resistant fixtures shall be provided in the Psychiatric Inpatient Unit.

7.5.15.2(22) Lighting level for bike storage shall comply with CSA Z317.5 Illumination Systems in Health Care Facilities.

7.5.15.2(23) Exterior luminaires to be LED vandal resistant and have full cut off.

7.5.15.2(24) Lighting design will consider the light pollution reduction requirements as outlined in LEED to eliminate light trespass from the building and site, improve night sky access and reduce development impact on nocturnal environment. Fixtures for exterior area shall be mounted at a height no more than 10m above ground surface being illuminated.

7.5.15.2(25) Utilize LED type edge lit green pictogram exit signs in finished areas, and steel in unfinished areas. All exit signs shall be LED type powered by the vital system. Provide exit signs as required by Code. Additional exit signs shall be provided to provide wayfinding to all exit doors and paths of egress from all internal corridors and corridor intersections. Provide direction to two paths of egress from corridors and intersections.

7.5.15.2(26) Operating/Surgical and Procedure Rooms

7.5.15.2(26)(a) Provide maximum uniformity between zones in all surgical and operating rooms. Provide illumination as recommended by relevant CSA standard. Provide minimal luminance contrast between zones to allow surgical teams to work effectively and in maximum comfort for extended time periods. Provide optical systems design to achieve maximum luminance uniformity between all three zones;

7.5.15.2(26)(b) Provide IP65 rated UL certified IP65 per IEC 60598 and K230 rated luminaires suitable for a "Clean Room" environment;

7.5.15.2(26)(c) Luminaires will meet the MIL Standard 461E/462/463 for EMI and RF. Filter to eliminate RFI from power supply and line feedback. Minimum attenuation 30 to 60dB common and transverse mode;

7.5.15.2(26)(d) Connect Surgical Procedure Lights to the UPS branch;

7.5.15.2(26)(e) Provide infrastructure services (power, raceway, grounding, wiring) for all special operating room lighting provided by vendors. Design-Builder to supply/install, set-up, test and commission all Authority supplied equipment. Provide all necessary devices/equipment and provide all connections and installation in accordance with manufacturers requirements;

7.5.15.2(26)(f) Provide dimmable down lights or 1’ x 4’ recessed luminaires around the perimeter of the room; 0%-100% dimmable

7.5.15.2(26)(g) Provide separately switched 0%-100% dimmable down lights above the team care station desk, Anaesthetist’s Work Area and Storage areas;

7.5.15.2(26)(h) Provide dimmable LED surgical luminaires above the surgical field. Connect these luminaires to the Vital and UPS branch;

7.5.15.2(26)(i) Provide dual mode 405nm disinfection lighting controls to control all general lighting. Locate controls at entrance to rooms.

7.5.15.2(27) Control Rooms

7.5.15.2(27)(a) Provide volumetric or indirect recessed fixtures;

7.5.15.2(27)(b) Provide for under counter lighting at workstations on a separate switch;

7.5.15.2(27)(c) Provide room lighting dimmable to 0%.

7.5.15.2(28) Medical Devices Reprocessing Cart Marshalling areas and Sterile Core

7.5.15.2(28)(a) Provide IP65 rated UL certified luminaires suitable for a "Clean Room" environment;

7.5.15.2(28)(b) Provide separately switched task lighting at each of the workstations in addition to room/area lighting;

7.5.15.2(28)(c) In computer workstation/monitor locations, provide volumetric lighting and position ceiling luminaires to avoid direct and reflected glare.

7.5.15.2(29) Offices and Workrooms

7.5.15.2(29)(a) Provide uniformly luminous, recessed mounted volumetric or indirect luminaires;

7.5.15.2(29)(b) Position ceiling luminaires to avoid direct and reflected glare;

7.5.15.2(29)(c) Provide multi-level or dimming lighting controls, dual technology occupancy sensors with manual on/auto off and daylight sensing.

7.5.15.2(29)(d) Provide under counter luminaire for above sinks and under upper cabinetry. Provide separate switching for these lights.

7.5.15.2(30) Meeting Rooms (including Multipurpose, Videoconference, Conference/Education Rooms)

7.5.15.2(30)(a) Provide recessed mounted volumetric or indirect luminaires or linear luminaries mixed with down lights. Provide appropriate luminaires where videoconferencing will take place to illumine faces while minimizing glare;

7.5.15.2(30)(b) Position ceiling luminaires to avoid direct and reflected glare;

7.5.15.2(30)(c) Provide dimming lighting controls, dual technology occupancy sensors with manual on/auto off and daylight sensing where appropriate;

7.5.15.2(30)(d) Provide under counter luminaire above sinks and under upper cabinetry. Provide separate switching for these lights;

7.5.15.2(30)(e) Provide six zone lighting controller in all meeting (including Multipurpose, Videoconference, Conference/Education Rooms) to provide pre-set lighting zones as determined in consultation with the user groups.

7.5.15.2(31) Public Areas, such as Reception, Waiting, Lobby and Seating

7.5.15.2(31)(a) Provide decorative lighting for visual interest, and lighting that illuminates feature wall and specialty signage, design features, and special features of the area;

7.5.15.2(31)(b) Wall sconces shall comply with ADA requirements;

7.5.15.2(31)(c) Provide low voltage master controls and dimmers at reception, team care stations and other similar areas not available to the public for lighting controls for these areas. Provide master dimmable control of all corridors, stretcher bays and general area lighting.

7.5.15.2(32) Team Care Stations, Decentralized Team Care Stations

7.5.15.2(32)(a) Provide volumetric or indirect recessed lighting and down lighting;

7.5.15.2(32)(b) All lighting to be dimmable;

7.5.15.2(32)(c) Provide decorative lighting;

7.5.15.2(32)(d) Provide specialty lighting;

7.5.15.2(32)(e) Provide dual technology occupancy sensors with manual on/auto off and daylight sensors where appropriate and required by ASHRAE, except in areas where doing so could potentially subject staff, patients or public to potential safety or security concerns;

7.5.15.2(32)(f) Provide dimming controls for the corridor holding bays, stretcher bays and team care station lighting at the team care stations;

7.5.15.2(32)(g) Provide an override on/off dimmer switch for all patient bay lighting at the team care stations;

7.5.15.2(32)(h) Provide master dimming controls for at a minimum one luminaire within Inpatient rooms.

7.5.15.2(33) Staff and Public Washrooms

7.5.15.2(33)(a) Provide down lighting for general illumination and aesthetically pleasing vanity light above sink.

7.5.15.2(33)(b) Provide ceiling mounted dual technology occupancy sensor.

7.5.15.2(34) Public and Non-Public Corridors

7.5.15.2(34)(a) In publicly accessible corridors, provide volumetric or indirect recessed lighting and in corridors not accessible by the public provide lensed recessed lighting;

7.5.15.2(34)(b) Provide daylight dimming sensors for corridors with exterior glazing. Provide dimming controls of corridors. Lighting in corridors to be reduced to 50% at each fixture during night time.

7.5.15.2(34)(c) Corridor lighting to be 50% UPS power, 50% vital power UPS powered luminaires to be located at corridor intersections and corners.

7.5.15.2(35) Patient Preparation/Holding Bays, Triage/Observation and Patient Stretcher Bays, (including Isolation Rooms).

7.5.15.2(35)(a) Provide two asymmetrical 1'x4' (flanking the patient bed) with antimicrobial finish. Patient exam room lights shall function as exam light and ambient light with no glare and be architecturally pleasing;

7.5.15.2(35)(b) Intentionally deleted.

7.5.15.2(35)(c) Provide separate controls for the patient exam fixtures at each of the following locations:

(a).49 inside the room at the entrance from the corridor; and

(a).50 the headwall.

7.5.15.2(35)(d) Provide a multi-function bedhead luminaire with different illumination levels for tasks, including ambient room, patient exam, patient charting. Provide controls at the headwall and entrance locations. Alternatively, multi-function lighting via the over-bed luminaires is an acceptable approach to the multi-function headwall luminaire;

7.5.15.2(35)(e) Provide a separately switched vanity luminaire above all hand hygiene sinks;

7.5.15.2(35)(f) Lighting in recovery bays to be dimmable;

7.5.15.2(35)(g) Lighting in inpatient rooms shall be dimmable, with at a minimum one fixture being controlled from the team care station;

7.5.15.2(35)(h) Provide a separately switched dimmable down light shared between two bays.

7.5.15.2(36) Interim Post Anaesthetic Recovery Room (PARR)

7.5.15.2(36)(a) Provide a wall or ceiling mounted exam light for each PARR bay. Locate as directed by the Authority.

7.5.15.2(36)(b) Provide separate controls for the patient exam light at each of the following locations:

(a).51 On the column at the entrance to the PARR bay; and

(a).52 On the column on the Patient side.

7.5.15.2(36)(c) Provide an amber LED nightlight that is switched from the column at each PARR bay;

7.5.15.2(36)(d) Provide a separately switched vanity luminaire above all hand hygiene sinks;

7.5.15.2(36)(e) Lighting in recovery bays to be dimmable;

7.5.15.2(36)(f) Provide a separately switched dimmable down light shared between two bays.

7.5.15.2(37) Patient Rooms (including Isolation and Bariatric)

7.5.15.2(37)(a) Provide two dimmable, asymmetrical, 1'x4' (flanking the patient bed) with antimicrobial finish. Patient exam room lights shall function as exam light and ambient light with no glare and be architecturally pleasing.

7.5.15.2(37)(b) Provide at a minimum one amber LED night light that is switched inside the room at the entrance from the corridor, in the ante-room.

7.5.15.2(37)(c) Provide a multi-function headwall luminaire to provide ambient and exam lighting. Include for a reading lamp in the headwall system.

7.5.15.2(37)(d) Provide dimmable down lighting at visitor areas.

7.5.15.2(37)(e) Provide separate dimming controls for all fixtures separately at the following locations:

(a).53 inside the room at the entrance from the corridor;

(a).54 the headwalls;

(a).55 the patient-controlled nurse call pillow speaker;

(a).56 the ante-room if required.

7.5.15.2(37)(f) Provide at a minimum at least one fixture within the patient room to be controlled from the nurses observation/charting alcove.

7.5.15.2(37)(g) Provide task lighting in the respective ante-room and general area recessed lighting.

7.5.15.2(38) Patient Washrooms (including Bariatric and Isolation)

7.5.15.2(38)(a) Provide an amber LED night light in each Patient Washroom that is not switched. Provide a dimmable aesthetically pleasing vanity light over the sink and dimmable general area lighting utilizing down lights switch together. Night light to illuminate on photocell only.

7.5.15.2(39) Psychiatric Inpatient Rooms

7.5.15.2(39)(a) Provide tamper resistant or Institutional vandal resistant type ceiling mounted or wall mounted luminaires throughout. The fixtures will dim 1-100%..

7.5.15.2(39)(b) Intentionally deleted.

(a).57 Intentionally deleted.

(a).58 Intentionally deleted.

7.5.15.2(39)(c) Intentionally deleted.

(a).59 Intentionally deleted.

(a).60 Intentionally deleted.

(a).61 Intentionally deleted.

(a).62 Intentionally deleted.

7.5.15.2(39)(d) Intentionally deleted.

7.5.15.2(39)(e) Intentionally deleted.

7.5.15.2(40) Psychiatry Inpatient Unit Washrooms

7.5.15.2(40)(a) Provide vandal resistant amber nights lights. Night light shall be located near the toilet and sink such that toilet and sink are visible without turning on ceiling light.

7.5.15.2(40)(b) Provide flush ceiling mounted vandal resistant vanity lighting in washroom.

7.5.15.2(41) Secure Room

7.5.15.2(41)(a) Provide ceiling recessed, vandal resistant, ligature proof, and dimmable luminaires.

7.5.15.2(41)(b) All dimmer switches for lighting in secure room shall be located in the Anteroom.

7.5.15.2(41)(c) Luminaries shall be vandal resistant, locate away from other equipment that could assist in gaining access.

7.5.15.2(42) Exam Rooms and Similar Rooms

7.5.15.2(42)(a) Provide dimmable, asymmetrical, volumetric or indirect 1'x4' ceiling mounted recessed lights with antimicrobial finish. The fixtures will dim 1-100%.

7.5.15.2(42)(b) Provide connection and controls for Patient Exam Light.

7.5.15.2(42)(c) Provide dual technology occupancy sensor.

7.5.15.2(43) Consulting Rooms, and Multipurpose Rooms

7.5.15.2(43)(a) Provide dimmable, asymmetrical, volumetric or indirect 1'x4' ceiling mounted recessed lights with antimicrobial finish. The fixtures will dim 1-100%.

7.5.15.2(43)(b) Provide dual technology occupancy sensor.

7.5.15.2(44) Exterior Lighting

7.5.15.2(44)(a) Provide LED fixtures suitable for exterior use with full cut off and vandal resistant. Provide low level lighting, bollards, wall mounted and post top lighting where needed to provide safe, well-lit walkways, parking areas and roads.

7.5.15.2(44)(b) Exterior lighting to be connected to the Vital and Conditional power sources. Mix lighting sources so no area is dark with loss of one source of power.

7.5.15.2(44)(c) Control exterior lighting to ASHRAE 90.1 requirements.

7.5.15.2(44)(d) Comply with LEED requirements for light trespass and light pollution.

7.5.15.2(44)(e) Connect Exterior lighting to the BMS system. Exterior lights to be controlled via astronomical time clock and photocell.

7.5.15.2(45) Special Nursery Unit

7.5.15.2(45)(a) Provide effective illumination with colour tunable lighting fixtures and control system (Circadian Rhythm) in the infant spaces. The system will achieve the following functions.

(a)..1 Programmable colour temperature variability across a range from 2700°K to 6500°K.

(a)..2 Programmable dimming from a maximum lighting intensity at 750 lux average down to a minimum of >0%, plus OFF

7.5.15.2(45)(b) Programmable astronomic, 365 day/year, automatic time-of-day control of ON/OFF, lighting intensity and colour temperature with a minimum of four schedule settings. Suggested colour temperature settings for initial set up:

(b)..1 morning 7Am to 2PM 6000°K

(b)..2 afternoon 2PM to 6PM 4100°K

(b)..3 evening 6PM to 8PM 3000°K

(b)..4 night-light 8PM to 7AM 2700°K

7.5.15.2(45)(c) System to allow scheduled program settings to be manually overridden through a local control station at team care station.

7.5.15.2(45)(d) Colour temperature and lighting intensity program changes to fade smoothly across a programmable time period so illumination changes are not abrupt.

7.5.16. Control

7.5.16.1 Basic Requirements

7.5.16.1(1) Lighting controls to comprise a significant part both of the energy management of the Facility and of the flexibility required to adjust lighting to suit functions and activities.

7.5.16.1(2) Lighting control to permit simple and integrated control of lighting; controls will be easily operated and located for each area and function in consultation with the Authority.

7.5.16.1(3) Lighting controls are to meet or exceed ASHRAE 90.1 requirements.

7.5.16.1(4) Lighting controls to be a cohesive mix of addressable digital, line and/or low voltage type except where not permitted by the Canadian Electrical Code CSA standards for healthcare facilities. Addressable lighting controls to be provided for corridors (public and back-of-house) areas and shall be fully programmable.

7.5.16.1(5) All of the lighting in a space to be capable of being switched at all entrances to the space.

7.5.16.1(6) Integrate the lighting control system with the Building Management System for remote control of the lighting and energy management.

7.5.16.1(7) Staff and patients to have the ability to control the lighting in their environment. All Clinical Spaces to have staff and patient lighting control. All other rooms to have staff lighting control.

7.5.16.1(8) Patient to have the ability to control the lighting levels in their room or bay directly and easily from their beds

7.5.16.1(9) Dual Technology Occupancy Sensors, Vacancy Sensors and daylight dimming control systems to be utilized to maintain light levels at levels based upon the occupancy of the room and the quantity of daylight. On/Off daylight controls are not permitted.

7.5.16.2 Performance Criteria

7.5.16.2(1) Where lighting controls are required to be located in areas accessible to the public, they will be protected from unauthorized operation. Corridor lighting controls to be located at the team care stations and reception desks, where applicable. Controls to be multilevel (to provide a lower light level at night) and capable of overriding the BMS night setback control. There will be no night setback in critical care areas.

7.5.16.2(2) Lighting control system to be interfaced to the BMS to permit override ‘100% on’ and night set back control. Lighting program to be established by the Authority and Design-Builder to address different conditions such as power outage and fire alarm.

7.5.16.2(3) All manually operated lighting controls to be of a type, which can be completely cleaned and disinfected without requiring any disassembly. Manually operated controls shall not be deteriorated or otherwise adversely affected by frequent cleaning and disinfections.

7.5.16.2(4) Lighting controls in locations where they may be subjected to excessive moisture or to chemicals that might cause deterioration are to be rated specifically for the application.

7.5.16.2(5) Locate all lighting control panels and relay devices within electrical rooms and non-public corridor walls, and not within ceiling spaces. Provide dedicated lighting panels for all lighting. Do not mix lighting loads with power loads.

7.5.16.2(6) Provide lighting control schedules that respond to individual departmental requirements and occupancy/use. Design a schedule of lighting control and include in the design specifications.

7.5.16.2(7) Lighting in open areas and common areas to be zoned and subdivided to permit energy management control and variation of light levels.

7.5.16.2(8) Provide zone control of lighting for all corridor, circulation, waiting and gathering areas. Zoning control will include floor by floor and department by department, as a minimum. Provide master switches to control groups of lighting zones with the capability of direct on/off control or on/flick-then-off control ('flick-then-off' function is that the lights will flick prior to turning completely off). Any master switch which could cause an occupant to be left in the dark shall have the 'flick-then-off' warning function.

7.5.16.2(9) Dual Technology Occupancy Sensors in ceilings will be automatic on/off type and will control both room lighting and HVAC systems (via sensor contact interface to BMS).

7.5.16.2(10) Dual technology occupancy sensors on the wall to be manual on/automatic off type and will control both lighting and HVAC systems (via sensor contact interface to BMS).

7.5.16.2(11) Vacancy sensors, a subset of occupancy sensors, manual on/off/dimming, automatic off type.

7.5.16.2(12) Daylighting controls to be provided in accordance with ASHRAE 90.1-2016 requirements. Provide dimming to 1% of lamp output, then OFF. Provide combination daylight harvesting and occupancy control where required to satisfy ASHRAE 90.1- 2016.

7.5.16.2(13) Intentionally delete.

7.5.16.2(13)(a) Intentionally deleted.

7.5.16.2(13)(b) Intentionally deleted.

7.5.16.2(14) Occupancy sensors and daylighting controls to be extra-low or line voltage type; and where low voltage shall be integrated into the lighting control system and located on ceilings to avoid interference with furniture. Occupancy sensors will typically be dual technology with other types to suit application.

7.5.16.2(15) Exterior lighting to be controlled via BMS and photocell.

7.5.17. Mechanical Equipment Connections

7.5.17.1 Basic Requirements

7.5.17.1(1) Provide electrical power control and monitoring connections to all mechanical equipment as required for proper operation, protection and maintenance of the equipment. Materials and installation methods will result in safe, reliable and serviceable mechanical equipment and systems in the Facility.

7.5.17.2 Performance Criteria

7.5.17.2(1) Utilize institutional or industrial quality cables, connectors, conduit systems, fittings and hardware used to make connection to mechanical equipment so as to provide for high levels of reliability, durability and ease of maintenance of the equipment.

7.5.17.2(2) Design connections made to motors and/or motor driven equipment or equipment with noticeable levels of vibration to accommodate the vibration.

7.5.17.2(3) Design connections to mechanical equipment to easily permit removal and replacement of the equipment.

7.5.17.2(4) Size motor control centres, main feeders to motor control centres, and mechanical distribution centres to accommodate the current mechanical equipment with an additional 25% spare capacity.

7.5.17.2(5) Utilize motor control centres when four 3-phase motors that require a starter are located within 50 m of each other.

7.5.17.2(6) Provide labelling on MCC's to match motors.

7.5.17.2(7) Provide wring diagrams of each starter type.

7.5.17.2(8) Provide full size starters.

7.5.17.2(9) For motors 20 hp. and above, provide reduced current starters. Provide integral harmonic cancellation devices to limit harmonics to 5% current harmonics (iTHD) of the full load fundamental current if solid-state starters are employed.

7.5.17.2(10) Starters and MCC's to be indoor sprinkler-proof, type 2 enclosures. Arc Flash reducing type shall be utilized for 600V MCCs.

7.5.17.2(11) Provide individual control transformers for each starter.

7.5.17.2(12) Electrical connections and power-paths to mechanical equipment should reflect the redundancy considerations of the corresponding mechanical system or portion of the mechanical system serving an area.

7.5.18. Major Medical Equipment

7.5.18.1 Basic Requirements

7.5.18.1(1) Provide all electrical requirements for connection, operation and monitoring and control of any supplied major medical equipment.

7.5.18.2 Performance Criteria

7.5.18.2(1) Each item of equipment to be installed and electrically connected for proper and full operation.

7.5.18.2(2) Electrical characteristics of this equipment, including voltage, wattage, phase, demand, inrush, frequency, connection method and control and monitoring requirements to be confirmed by the designer and provided for.

7.5.18.2(3) Space, access and ventilation requirements and other operation critical characteristics of this equipment to be provided for and outlets and connection points to be located correctly for installation and so as to permit proper and safe isolation for servicing and disconnection for removal or replacement.

7.5.18.2(4) Any motorized equipment is to be equipped with a local lockable disconnect switch.

7.5.18.2(5) Feed all major medical equipment (imaging, procedure, OR) from a dedicated transformer.

7.5.19. Medical Service Headwall Units Systems

7.5.19.1 Basic Requirements

7.5.19.1(1) Incorporate headwall power, communications, equipment mounting, medical gases, nurse call and lighting control into the medical service units specified under another division. Provide data, power, nurse call and lighting control systems as describe within and as noted in all relevant Appendices and as directed by user group consultation.

7.5.19.1(2) Provide the minimum quantity of power outlets in patient care areas in accordance with relevant CSA standard and the classification of loads and branches in accordance with this standard.

7.5.19.1(3) Provide the minimum quantity of data outlets in accordance with Divisions 27 and 28.

7.5.19.2 Performance Criteria

7.5.19.2(1) Provide horizontal or vertical type medical service headwall units as directed by department representative and identified in Appendix 1A Clinical Specifications.

7.5.19.2(2) Coordinate and install the required electrical services, including nurse call, normal, emergency and UPS power, IP Video Surveillance, Patient entertainment, patient information, communications outlets, exam light, and reading light and switches, in the medical service units.

7.5.19.2(3) Conceal within walls all of the mechanical and electrical services feeding the medical service units.

7.5.19.2(4) Avoid back to back installations between bedrooms that could compromise acoustic rating of such assembly. Where back to back installations are unavoidable, acoustic isolation will be provided.

7.5.19.2(5) Exact medical service unit dimensions and configurations to depend on the room layout and the available space. Generally, the medical service unit length will suit the quantity and location of outlets and all outlets will be clear from the width of the bed.

7.5.19.2(6) Design-Builder shall note that if an area behind the bed is free of services that these services be placed on the side of the bed;

7.5.19.2(7) Provide twelve of the Facility inpatient rooms and seven of the Facility's LDRP rooms with double headwalls.

7.5.19.2(8) Provide concealed headwalls in the Psychiatric Inpatient Unit.

7.5.20. Specialty Systems

7.5.20.1 Basic Requirements

7.5.20.1(1) Special electrical and communications systems are required in the Facility (as described in this Schedule) and form essential parts of the Building. Provide power supply, specially conditioned power and communication conduits and other electrical operational support equipment to meet all requirements of these special electrical and electronic systems.

7.5.20.2 Performance Criteria

7.5.20.2(1) Utilize institutional or industrial quality cables, connectors, conduit systems, fittings and hardware to make connection to special equipment and to provide for high levels of reliability, durability and ease of maintenance of the equipment.

7.5.20.2(2) Provide connections to special equipment that easily permit removal and replacement of the equipment.

7.5.21. Clock System

7.5.21.1 Basic Requirements

7.5.21.1(1) Provide a synchronized wireless clock system to assure accurate, consistent time is available in the Facility. The system will provide automatic correction for daylight savings time and self-correct if power fails.

7.5.21.1(2) Provide master time controllers and all clocks by a recognized industry leader with all components by the same manufacturer.

7.5.21.1(3) All synchronized clocks to be clearly identified as a synchronized clock. Provide 260 analog clocks throughout the Facility.

7.5.21.1(4) Provide digital synchronized clocks in the operating rooms.

7.5.21.2 Performance Criteria

7.5.21.2(1) Install battery-operated analog type synchronized clocks that will receive correction signals from the master clock. Use batteries rated to last a minimum of 5 years.

7.5.21.2(2) Provide synchronized clocks minimum 300 mm in diameter with sweeping second hand and 24 hour numbering. Numbering to include hours 1-12 in large numbers on outer ring and hours 13-24 in smaller numbers on inner ring.

7.5.21.2(3) Locate synchronized clocks so that the faces are clearly visible to users in areas as required to ensure that staff are able at all times to view a clock when caring for patients, whether in a room or down a corridor.

7.5.21.2(4) In the event of a power loss, the control system will continuously maintain proper internal time.

7.5.21.2(5) Provide GPS antenna or wireless network connection to provide signal to all clocks in the Facility where required.

7.5.21.2(6) The clock system to have an independent wiring system and raceway system to any other building system.

7.5.21.2(7) Provide clocks in all corridors, back of house areas, food prep areas, team care stations, treatment, exam, four clocks located in all departments and or areas and one clock located in all patient rooms and the remaining clocks to be located as directed by the Authority.

7.5.22. Fire Alarm System

7.5.22.1 Basic Requirements

7.5.22.1(1) Provide a new fire alarm system for the Facility and ensure that that system meets or exceeds the requirements in this Section.

7.5.22.1(2) Provide a complete two stage (general and evacuation), supervised, 24 VDC fire detection and alarm system that includes addressable, intelligent, automatic and manual initiation devices and audio/visual alarm devices with voice evacuation capabilities. Alarm activation will be initiated by manual pull stations, smoke / heat detection, and fire sprinkler water flow devices. Alarm indication to consist of visual and combination visual/audible devices.

7.5.22.1(3) The fire alarm system to comply with all applicable standards, including:

7.5.22.1(3)(a) Can/UL S524 Standard for Installation of Fire Alarm Systems;

7.5.22.1(3)(b) Can/UL S537 Standard for Verification of Fire Alarm Systems;

7.5.22.1(3)(c) Applicable NFPA Codes; and

7.5.22.1(3)(d) Elevator Code CSA-B44.

7.5.22.2 Performance Criteria

7.5.22.2(1) Install all fire alarm wiring in conduit. Provide two hour rated cable where required to meet survivability requirements of NFPA 72.

7.5.22.2(2) Provide addressable smoke detectors as required, self-correcting analog type to maintain consistent sensitivity. The following areas to be provided with smoke detector coverage, in addition to sprinklers, for early detection:

7.5.22.2(2)(a) Electrical rooms;

7.5.22.2(2)(b) Communication rooms;

7.5.22.2(2)(c) Operating and Procedure rooms and similar areas;

7.5.22.2(2)(d) Corridors;

7.5.22.2(2)(e) Patient bays;

7.5.22.2(2)(f) Patient bedrooms;

7.5.22.2(2)(g) Stretcher bays.

7.5.22.2(3) Provide addressable two stage manual pull stations at all exit doors and entrances to exit stairs as required.

7.5.22.2(4) Connect the sprinkler system to the fire alarm system and provide full annunciation of all alarms and trouble conditions (wet, dry and pre-action).

7.5.22.2(5) Connect the fire alarm to the generator system to annunciate 'Generator Run' and 'Generator Fail-to-Run' troubles.

7.5.22.2(6) Provide fire alarm speakers throughout the Facility as required. Speaker system will be available to announce alarm conditions and for use as public address announcements. Provide a microphone at the main reception desk, with telephone interface, for use of the speaker system. Pre-programmed messages will be transmitted over overhead paging system to annunciate origin of alarm. Any program sources on paging system to be muted while alarm messages are transmitted. Audible alert levels to be 10dBA above ambient with a minimum of 75dBA, and be audible in every room of the Building.

7.5.22.2(7) Alternate fire alarm speakers to be wired to the same circuit with a minimum of two (2) circuits per floor (riser wiring in two separate locations).

7.5.22.2(8) Use combination audible alarm and visual notification devices where applicable, including boiler, conference rooms and mechanical rooms.

7.5.22.2(9) Include control devices and connection to close fire and smoke doors on activation of alarm condition.

7.5.22.2(10) Incorporate smoke control systems with control fans and dampers.

7.5.22.2(11) Provide a minimum of 2 isolation modules per floor for alarm circuits to isolate wire to wire shorts.

7.5.22.2(12) Provide separate paging zones for all operating, procedure, treatment, patient rooms and similar areas.

7.5.22.2(13) Provide a graphic annunciator complete with LCD display at the main reception area for the Facility, as required and approved by the local fire department.

7.5.22.2(14) Provide remote annunciators at all team care stations, and as noted and required by relevant code or standard.

7.5.22.2(15) The fire alarm system to control the smoke evacuation system. Facility controls to interface with the fire alarm system to provide an integrated system.

7.5.22.2(16) Cross-corridor doors to be equipped with electromagnetic hold-open devices and electric locks, magnetic locks and to be released on first stage fire alarm.

7.5.22.2(17) Provide elevator homing and sequencing on first stage alarm.

7.5.22.2(18) The fire alarm system to have the capability for remote notification.

7.5.22.2(19) Full automatic smoke detection coverage for major egress corridors will be provided, in addition to the patient sleeping room and inpatient corridors.

7.5.22.2(20) The fire alarm system to monitor fire pumps, heat tracing for sprinkler system and generator equipment.

7.5.22.2(21) The smoke detector in the patient sleeping room will also annunciate at the nurse call dome light located outside of the patient room, and at the nurse call zone light in the corridor and at the nurse call master station and be annunciated on the fire alarm system annunciator located at all team care stations.

7.5.22.2(22) Fire detectors in Psychiatric Inpatient Unit shall be of the tamper resistant type. Protection cages over the detector as tamper resistant shall be ULC listed to match the relevant listed smoke detector, the protection cage shall have maximum detachment force to prevent ligature risk of 30lbs. Demonstrate the detachment force to the Authority in a mock up.

7.5.22.2(23) Provide LED type indicators for remote indication that a heat and/or smoke detector has been activated in an elevator shaft (located at elevator lobby ceiling) or duct sensors that are not readily visible (located on ceiling or at visible location nearest to sensor installation). Provide remote detection (air sampling) for elevator shafts and other inaccessible locations.

7.5.22.2(24) Sprinkler zoning and fire speaker zoning to be compatible with the fire alarm zoning.

7.5.22.2(25) Provide a computer workstation in the maintenance department and main security office within the Facility.

7.5.22.2(26) The fire alarm control panel (FACP), remote annunciators and printers will indicate general alarm and trouble conditions.

7.5.22.2(27) Provide gel electrolyte type batteries with overcharge protection for FACP and all transponders. Provide solid state battery charger(s) with capacity to recharge entire battery system in 4 hours. Batteries will have enough capacity (with 25 percent spare time) to operate entire system (except magnetic door holders) in accordance with the BC Building Code.

7.5.22.2(28) Train staff on operation of system and incorporate fire plan in training to alert staff to policy and procedures in case of fire alarm, and safe gathering points in case of evacuation.

7.5.22.2(29) Provide a CACF room with direct access to the exterior and no access to the interior of the building.

7.6 Communications (Division 27)

7.6.1. Principles, Guidelines and Assumptions

7.6.1.1 Achieving the "Next Generation" electronic health record (EHR) is the ultimate goal of the Authority when it comes to gathering, storing and transmitting patient information. The intent of the EHR is to allow health care providers the ability to make more accurate, faster decisions on courses of action for patients, provide efficiencies for staff and patients to reduce costs, and provide better privacy and security of the patient record by controlling where it is stored.

7.6.1.2 It is envisioned that all components of the next generation electronic health record will be developed and will be ready for deployment within the Facility. This goal has implications for the degree of automation of workflow, integration of systems and devices and overall reliance on the information system infrastructure that need to be supported.

7.6.1.3 Most applications will be hosted on servers located at a remote data center. Some applications may be hosted locally within the Facility. The local data center, any applications/systems installed therein and the processes for maintenance of said systems are all subject to the Authority's defined standards/requirements outlined in this Schedule and the appendices.

7.6.1.4 The management of all the Authority's employees' and patients' information is the responsibility of the Authority.

7.6.1.5 Except as expressly stated otherwise Design-Builder will be responsible for designing and constructing all required infrastructure, servers and software required to support the communication systems specific to Nurse Call, Security and RTLS functions to be included within the facility.

7.6.2. Basic Requirements

7.6.2.1 The communications systems in the Facility will be an extension of the Authority's communications systems, and must meet all of the Authority's standards at the time of procurement. Design-Builder will ensure that all new technology, systems, and equipment are fully compatible and seamlessly interfaced with the existing systems and equipment used at the Authority.

7.6.2.2 All applications used in the Facility for clinical purposes will be provided by the Authority. Design-Builder will provide all communication infrastructure necessary to support, interface, and integrate these systems.

7.6.2.3 The communications systems will be proven technology for use in Facility similar to the Facility.

7.6.2.4 All communications systems infrastructure and equipment provided by Design-Builder and not covered by existing Authority standards will be the latest proven version of the equipment at the time of procurement.

7.6.2.5 Communication systems utilized in the Facility consist of multiple tiers of technical infrastructure and services applied in support of both clinical and non-clinical Authority services.

7.6.2.5(1) "Server": a server is a computer that provides hosting services for one or more applications including also acting as a data repository. Servers typically have additional processing capacity, memory, and data storage availability than basic or home computers. These requests between clients and servers are usually transported via standard TCP/IP network connectivity. Examples of server roles within the Authority include: authentication servers, application hosting, data repository servers, web servers, utility servers, building operation and life safety servers.

7.6.2.5(2) "Software": also known as applications, software's role is to execute computer based instructions resulting in defined outputs supporting the Authority's end user's business and clinical workflow requirements including building control and life safety systems, Software is grouped into two general categories: application based software and operating system software (including operating and related utilities). Samples of application based software within the Authority include: Cerner, Meditech, Oracle Databases and Microsoft Office suites. Samples of operating systems and related software utilities include HP Unix, Redhat Linux, Microsoft Server 2008, SCCM, SCOM and Symantec Backups and Antivirus systems.

7.6.2.5(3) "System Lifecycle" means the time periods from Substantial Completion of the Building following which Design-Builder is required to renew or replace the applicable IMIT System and Equipment as set out in this Schedule and Appendix 1D Technology Narrative.

7.6.2.6 A summary of responsibilities for IMIT Systems and Equipment, including categorization of responsibility for Software and Server, Infrastructure and Interface, and including Operating Period responsibilities is included in Appendix 1D(I) Technology Responsibility Matrix.

7.6.2.7 Design-Builder will be responsible for:

7.6.2.7(1) Integrating all IMIT Systems and Equipment in accordance with Good Industry Practice with the overall design of the Facility and will include such IMIT Systems and Equipment as part of the design development.

7.6.3. IMIT Design and Construction Responsibility

7.6.3.1 System Design and Architectural Review Board

7.6.3.1(1) Design-Builder will design all IMIT Systems and Equipment in conformance with the applicable industry telecommunications standards plus the Authority technical standards and integration, interfacing, performance and quality requirements as described in this Schedule and the Appendices to this Schedule. In the event of any conflict between standards, the more stringent requirement will apply.

7.6.3.1(2) All systems that will be Integrated with, or that Interface with the Authority's systems must be reviewed.

7.6.3.2 System Procurement

7.6.3.2(1) If a system procured for use in the Facility represents a net new addition to the overall Authority systems inventory, Design-Builder will ensure that any contract it enters into for that system includes provisions:

7.6.3.2(1)(a) permitting assignment of the contract to the Authority on the same terms and conditions as included in the contract between Design-Builder and the system vendor; and

7.6.3.2(1)(b) allowing use of the system to be expanded beyond the Facility to other Authority sites provided the associated increase of scope charges are paid;

7.6.3.2(2) Design-Builder will ensure that all of its contracts for supply of IMIT Systems and Equipment:

7.6.3.2(2)(a) have a defined service level commitment that supports the Authority service level expectation as detailed in this Schedule; and

7.6.3.2(2)(b) have a privacy and security schedule that aligns with the British Columbia Freedom of Information and Protection of Privacy Act / Personal Information Protection and Electronic Documents Act legislation as applicable;

7.6.3.2(3) Applications, software modules and any related software installed, operated or used by Design-Builder must not interfere with the operation or performance of, or reduce the security or privacy of, any Authority applications or equipment.

7.6.3.3 System Development/Implementation

7.6.3.3(1) For development and implementation of all systems that will be Integrated with, or that Interface with the Authority's systems, Design-Builder will comply with Schedule 2 Review Procedure.

7.6.4. Telecommunications Infrastructure

7.6.4.1 Basic Requirements

7.6.4.1(1) Physical network design and installation by Design-Builder will have high availability and security that meets or exceeds the industry standard for use in and support of acute care hospital applications.

7.6.4.1(2) The following network separation will be provided in the Facility:

7.6.4.1(2)(a) the Authority's network (data, voice, video);

7.6.4.1(2)(b) patient monitoring systems;

7.6.4.1(2)(c) the BMS;

7.6.4.1(2)(d) nurse call system;

7.6.4.1(2)(e) patient entertainment; and

7.6.4.1(2)(f) RTLS system.

7.6.4.1(3) Design-Builder will consult with the Authority and meet all of the Authority's policies and standards for all connections to the Authority's data, voice or video networks. The above list is indicative only and does not limit Design-Builder's obligation to provide all physical networks required for the Facility.

7.6.4.1(4) Provide systems which promote operational efficiency and integrate systems where this integration provides efficiency and operational and cost advantages.

7.6.4.1(5) The communications systems will accommodate all media types, including data, voice, video and public address.

7.6.4.1(6) Train the Authority's IM/IT specialist(s) on configuration/setup and testing of the communication systems equipment in the Facility.

7.6.4.1(7) Design and install equipment and infrastructure to remain operational during and after disasters.

7.6.4.1(8) Provide all necessary infrastructure, including power, pathways, conduits, spaces and structured cabling, to support UBC's clinical academic program as outlined in Appendix 1A Clinical Specifications.

7.6.4.2 Performance Criteria

7.6.4.2(1) IP Protocol will be used for data, voice, and video network based equipment. Telecom equipment will be a mix of VoIP, and analog equipment.

7.6.4.2(2) All network protocols will be IPV4 compatible.

7.6.4.2(3) Design-Builder will maintain the manufacturer's warranties on all communications systems equipment and ensure that the warranties are assignable to the Authority.

7.6.4.2(4) All communications systems equipment provided by Design-Builder will support all applications run generally by the Authority, which include Cerner, PACS and Microsoft Office.

7.6.4.2(5) All networked equipment provided by Design-Builder intended for integration with Authority networks/systems will include any adapters necessary to integrate with the Authority's IP based network.

7.6.4.2(6) All technology systems must be approved through regular Authority processes, including but not limited to Change Management and the IM/IT architecture review board.

7.6.4.2(7) Design-Builder will provide redundant incoming copper and fiber services via physically diverse and redundant pathways. Outside plant cable infrastructure will be continuous and terminate in the new redundant entrance facility rooms. Design-Builder will perform all work (including providing all necessary parts and components) required to connect to the Authority's IMIT infrastructure. Design-Builder will terminate all fibre and copper cables as directed by the Authority. Design-Builder will provide the fibre patch cables for actual network connectivity and will cross connected any copper cabling.

7.6.4.3 Quality Requirements

7.6.4.3(1) Design-Builder will:

7.6.4.3(1)(a) use the latest technology for transferring, securing, and storing information available at the date of procurement of the communications system for the Facility;

7.6.4.3(1)(b) use equipment and materials that are certified and clearly sealed by CSA or ULC or other testing agency approved and accepted by the Local Inspection Authorities;

7.6.4.3(1)(c) comply with all Appendices of this Schedule.

7.6.4.3(1)(d) In the event of a conflict between applicable industry standards, Authority standards or this Schedule, the more stringent standard will apply.

7.6.5. Site Utilities / Access Provider

7.6.5.1 Design-Builder will coordinate the design of the Facility with the Authority's access providers to achieve two physically diverse, redundant telecommunications services to the Facility. The redundant services will not share a common duct bank or fire compartment before entry into two separate entrance facilities.

7.6.5.2 The communications systems that will be integrated or interoperate with Authority systems will be compatible with the systems of the Authority's service providers as of the date of installation of the systems and be designed to integrate with the service providers' equipment and, as appropriate, to utilize the Authority's existing service agreements by extending them to the Facility.

7.6.6. Telecommunication Equipment Rooms

7.6.6.1 Basic Requirements

7.6.6.1(1) Design-Builder will provide telecommunication equipment rooms to accommodate the telecommunications infrastructure and equipment in accordance with the Authority standards and EIA/TIA standards.

7.6.6.1(2) "Telecommunication equipment room" includes the following room types: Entrance Facility Room (EF), Primary Equipment Room (PER), Secondary Equipment Room (SER) and Telecommunication Room (TR).

7.6.6.1(3) Locate PER and SER to minimize the possibility of both rooms being adversely impacted simultaneously (including impact resulting from flood, fire, vandalism, mechanical or structural failure).

7.6.6.1(4) Minimum design requirements for the telecommunication equipment rooms will comply with EIA/TIA-1179. Provide and size telecommunication equipment rooms to accommodate the telecommunications requirements of the Facility, including all required equipment racks, cabling systems and all active and passive network equipment, devices and infrastructure.

7.6.6.1(5) All structured cabling between all telecommunication equipment rooms.

7.6.6.1(6) Entrance Facility Room (EF) –All incoming service cables entering a building must terminate in an at least one EF room. The Entrance Facility Room accommodates the joining of inter and intra building telecommunications backbone facilities.

7.6.6.1(7) Provide two EFs (EF-A and EF-B) to accommodate the two physically diverse, redundant telecommunications services to the Facility.

7.6.6.1(8) Locate EF-A and EF-B to minimize the possibility of both rooms being adversely impacted simultaneously (including impact resulting from flood, fire, vandalism, mechanical or structural failure).

7.6.6.1(9) All telecommunication equipment rooms must provide sufficient redundant cooling capacity to permit all racks to be fully populated with a total load of 5KW of conditioned power per rack.

7.6.6.1(10) UPS and Conditional power sources, providing a minimum of 5kw of fully redundant power to each rack, are to be provided within each Telecom room.

7.6.6.1(11) Main Communication Center (MCC)

7.6.6.1(11)(a) Main Communication Center (MCC) will host Authority network equipment and Authority servers. The MCC will be designated as an ANSI/TIA-942 Tier Level 2 Data Center.

7.6.6.1(11)(b) No horizontal cabling to telecommunication outlets located outside of the MCC will terminate in the MCC.

7.6.6.1(11)(c) The MCC will be equipped with a minimum of 3 server racks and 2 network racks at 50 sq ft per rack or 600 sq ft of floor space.

7.6.6.1(11)(d) A TR may be combined with an MCC provided that 1) space for both MCC and the TR meet the requirements herein as unique spaces; 2) that the growth allowance is for both the MCC and the TR (not just growth of one or the other) is maintained; and 3) horizontal cabling is terminated in the TR portion of the combined room.

7.6.6.1(12) Backup Communication Center (BCC)

7.6.6.1(12)(a) Backup Communication Center (BCC) will host Authority and Design-Builder network equipment, and Design-Builder and third party servers. The SER will be designated as a ANSI/TIA-942 Tier Level 2 Data Center.

7.6.6.1(12)(b) No horizontal cabling to telecommunication outlets located outside of the BCC will terminate in the BCC

7.6.6.1(12)(c) The BCC will be equipped with a minimum of 2 server racks and 2 network racks at 50 sq ft per rack or 350 sq ft of floor space.

7.6.6.1(12)(d) A TR may be combined with an BCC provided that 1) space for both BCC and the TR meet the requirements herein as unique spaces; 2) that the growth allowance is for both the BCC and the TR (not just growth of one or the other) is maintained; and 3) horizontal cabling is terminated in the TR portion of the combined room.

7.6.6.1(13) Telecommunications Room (TR)

7.6.6.1(13)(a) TRs will comprise enclosed architectural spaces throughout the facility to house telecommunications equipment, provide horizontal cross connects and cable terminations.

7.6.6.1(13)(b) All horizontal and riser data/voice cabling for a given floor terminates at a TR. A TR includes the relay racks and network hubs for that floor.

7.6.6.1(13)(c) TRs will only serve the floor they are located on and will minimize the distances for cable runs. TRs will provide easy access for equipment modifications and working space, and will avoid interference with other services and systems. For mechanical penthouse spaces where the number of horizontal runs are limited to 12 or less, the horizontal cabling may be routed to the TR on the floor immediately below provided all other requirements are met and the Authority has been consulted.

7.6.6.1(13)(d) The TR rooms will also support the Cisco 802.11a/b/g/n/ac wireless access points and telephones, both of which require PoE functionality and standards based QoS (Quality of Service) traffic prioritization.

7.6.6.1(13)(e) Size and locate TR rooms so that the maximum horizontal cabling length is limited to 80 meters to all building perimeter walls. Calculation of the 80 meter distance is calculated based on routing of horizontal cabling parallel to building lines. In extreme cases and subject to review during design development stages, the Authority may consider diagonal conduits in very limited use.

7.6.6.1(13)(f) Diagonal conduits penetrating the TR shall be in addition to the penetrations required for all other cables.

7.6.6.1(14) End-use equipment will be connected to the TR layer 3 switch (Cisco 3850) and a 10/100/1000 base T Ethernet 802.3 protocols run on Category 6A twisted pair.

7.6.6.1(15) All network ports will be activated.

7.6.6.1(16) Equipment Racks

7.6.6.1(16)(a) types of equipment rack will be installed in telecommunication rooms. These will include network racks, voice gateway, fibre termination, TR equipment racks and server racks.

7.6.6.1(16)(b) Except as noted otherwise, all racks will be provided with floor space per TIA standards.

7.6.6.1(16)(c) The voice gateway, fibre termination and TR equipment racks will be four-post equipment racks.

7.6.6.1(16)(d) The network rack and server racks will be four-post types. 4-post network racks shall also meet the PHSA standards for “Four Post Equipment rack”, and server racks shall meet PHSA “MER Cabinets” requirements. Provide minimum 6 inch wide vertical wire management between each four-post equipment rack and minimum 8 inch wide vertical wire management on the end of each row of four-post equipment rack.

7.6.6.1(16)(e) Provide one network rack in each of the MCC and BCC. These racks will be extra-wide to accommodate a Cisco 4500 core switch and cable management. These racks will be directly seismically anchored to the PER or SER floor.

7.6.6.1(16)(f) Each server rack requires approx. 50 sq ft of floor space with a min distance of 4.5 ft from any electrical panel or outlet.

7.6.6.1(16)(g) server racks must meet or exceed industry standard specifications with front and rear door locks, 42U in size, width=19”, Depth=39.7 “, Height=78.7”.

7.6.6.1(16)(h) All server racks, unless otherwise specified, will be mounted on seismic isolation bases. The platforms will be bolted together and seismically anchored.

7.6.6.1(16)(i) Provide each voice gateway rack and TR rack with sufficient quantity of rack mounted electronic power distribution units (ePDU) to accommodate all rack mounted equipment. ePDU's will be designed for switching non phase synchronized AC power sources. The ePDU will monitor both power inputs and providing a fast switch transfer from 120Vac UPS power to 120Vac Conditional power source without interruption.

7.6.6.1(16)(j) server rack will include redundant PDU's (Power Distribution Units) connected to separate L15-30R-208V (3 phase) circuits, one on UPS, the other on Conditional power. Each PDU will be capable of supporting C13, C14 and C19 power connections.

7.6.6.1(16)(k) network rack will include one ePDU and redundant PDUs, each connected to separate L21-20R 208V (3 phase) circuits, one on UPS, the other on Conditional power. The ePDU will monitor both power inputs and providing a fast switch transfer from 120Vac UPS power to 120Vac Conditional power source without interruption. Each PDU will be capable of supporting C13, C14 and C19 power connections.

7.6.7. Structured Cabling

7.6.7.1 Basic requirements

7.6.7.1(1) All structured cabling will be designed, installed and tested in accordance with EIA/TIA 1179 standards.

7.6.7.1(2) The cabling infrastructure will be universal and support the networks and systems required in the Facility, including voice (VOIP and analog), data, video, RTLS, CCTV and security systems and to allow all forms of end-use equipment, including computers, telephones, video conferencing equipment and other digital end-use equipment. access to the various IT, telecommunication, and digital video networks.

7.6.7.1(3) Any cabling required by Design-Builder to support its own networks will be provided in addition to that required to support the Authority equipment.

7.6.7.1(4) Design-Builder will cause:

7.6.7.1(4)(a) the cabling infrastructure to be designed by an RCDD;

7.6.7.1(4)(b) the RCDD to work with the Authority to complete the physical network design; and

7.6.7.1(4)(c) the RCDD to provide, as necessary, a network plan which would include the following: all active network devices, non-Authority applications, all connecting End-Use Equipment and each separate network. Design-Builder will assist the Authority in the network plan by supplying all necessary information to the Authority about their building network. The building network equipment is to match the network equipment specified by the Authority.

7.6.7.1(5) Design-Builder will provide preliminary conceptual drawings of proposed telecommunications outlet locations in advance of the first detailed room review meetings with the Authority.

7.6.7.1(6) As part of the design process described in Section 2.9 Construction Documents, provide detailed plans including risers, rack layouts, telecommunication equipment layout, infrastructure, raceways, expansion space, elevations of telecommunication equipment room walls including IDT layouts in each of the MCC, BCC and TRs.

7.6.7.1(7) Create, in consultation with the Authority, an operational plan for the cable infrastructure, including a management strategy and resource requirements for maintenance.

7.6.7.1(8) Design-Builder will test all cable infrastructure in consultation with the Authority.

7.6.7.1(9) Provide and install a complete structured cabling solution for the Facility in accordance with all applicable standards as detailed in Section 2.7.

7.6.7.1(10) Provide separate physical networks, in accordance with Good Industry Practice or equipment vendor specifications and in consultation with the Authority, as required for the telecommunications systems and equipment installed or used in the Facility. At a minimum, provide a separate physical network for each of the networks identified in Section 7.6.9.

7.6.7.1(11) In consultation with the Authority, design and provide physically diverse and redundant pathways between the PER, SER and TRs.

7.6.7.1(12) Telecommunication Outlets and Data Drops

7.6.7.1(12)(a) In this Schedule and the Appendices to this Schedule, the terms “telecommunication outlet”, “data outlet” and “communications outlet” are used interchangeably. Notwithstanding any standard referenced in this Schedule, all such outlets included in the Facility will:

(a)..1 include a minimum of three data drops (two active and one inactive, with each “data drop” comprising a complete Category 6A structured cabling connection between the RJ45 outlet jack and the port on a network switch;

(a)..2 comply with all requirements set out in EIA/TIA 1179 standards.

(a)..3 have a minimum conduit size as defined in Section 7.7.2.1(8) serving an outlet box as defined in Section 7.7.2.3;

(a)..4 include a 4 port cover plate with RJ45 jacks as required to terminate the supplied cabling, plus blank filler plates on unused outlets;

(a)..5 use Category 6A termination technique. No differentiation will be made between data and voice cables.

7.6.7.1(12)(b) All horizontal cables will be terminated on GigaBIX termination hardware located in a TR. Provide harness cabling for each horizontal cable and connect through to the corresponding switch port.

7.6.7.1(12)(c) Intentionally deleted.

7.6.7.1(12)(d) Design-Builder will, in consultation with the Authority, assign each room and space in the Facility a work area data drop density ("High", "Medium" or "Low") in accordance with the ANSI/TIA-1179 Healthcare Facility Telecommunications Cabling Standard Table 51. Notwithstanding the quantities defined in ANSI/TIA-1179, Design-Builder will provide a minimum quantity of data drops as defined below:

(d)..1 Low Density Work Area – provide 6 data drops;

(d)..2 Medium Density Work Area - provide 8 data drops;

(d)..3 High Density Work Area - provide 10 data drops.

7.6.7.1(12)(e) Design-Builder will provide additional data drops in excess of the minimum quantity required by Section 7.8.8.1(12)(d) as required:

(e)..1 to support all of the networks, systems and equipment (including the Equipment) to be installed or used in the Facility; and

(e)..2 by Good Industry Practice to provide convenience, flexibility or use and operational support throughout the Facility.

7.6.7.1(12)(f) Design-Builder will design each room in the Facility such that data drops are distributed throughout the room as required to support clinical functionality and convenient use of equipment by Facility Users and in accordance with Good Industry Practice.

7.6.7.1(12)(g) Design-Builder will co-locate, at each telecommunications outlet location, an appropriate number of power outlets.

7.6.7.1(13) Terminate all cables in TRs in accordance with Section 7.8 of this Schedule and EIA/TIA-1179 standards.

7.6.7.1(14) The Authority will provide the analog gateways, for which Design-Builder will provide appropriate racks, UPS, power, cooling and connectivity in each of the MCC and BCC.

7.6.7.1(15) All conduit pathways will have spare capacity at least as per TIA/EIA standards. All communications rooms will have physical floor and wall space to accommodate such expansion. For each GigaBIX cross-connect wall, provide adequate space to accommodate 50% expansion on the same and adjacent wall. Provide adequate floor space to facilitate at least 2 expansion racks to be located adjacent to required racks.

7.6.7.1(16) All ceiling spaces will have telecommunication outlets for wireless network access points, information display systems, and other ceiling mounted digital devices.

7.6.7.1(17) Follow the equipment and cabling labelling standards per the Authority. Confirm details with the Authority prior to labelling.

7.6.7.1(18) Provide floor telecommunications outlets and floor power to connect floor mounted self-registration systems, electronic directional systems and patient education kiosks, as approved by the Authority.

7.6.7.1(19) Provide a data outlet for all public phones, minimum 1 per lobby area per department in the Facility.

7.6.7.1(20) Run category 6A network cables in a ring topology (qty 4) between each communication room (MCC to BCC to each TR) to accommodate the patient monitoring infrastructure required.

7.6.8. Equipment

7.6.8.1 Design-Builder’s Equipment

7.6.8.1(1) Provide end-use equipment and communications equipment to provide a fully operational Facility and that Design-Builder may require for its own use for the performance of its obligations under this Agreement ("Design-Builder's End-Use Equipment").

7.6.8.1(2) Do not connect any of Design-Builder's End-Use Equipment to the Authority's network, both wired and wireless, without prior approval from the Authority. Design-Builder is responsible for paying any additional cost incurred by the Authority for Design-Builder's use of Design-Builder's End-Use Equipment on the Authority's network.

7.6.8.1(3) The Authority will accommodate any of Design-Builder's End-Use Equipment that has been approved for connection to the Authority's network.

7.6.8.1(4) Servers and related equipment for Design-Builder's End-Use Equipment will be located in the BCC. They will not be located in TR's.

7.6.8.1(5) Any wireless devices used by Design-Builder will not interfere with the Authority's wireless infrastructure or devices.

7.6.8.1(6) The Authority wishes to have a single communications infrastructure but where required this infrastructure may be physically separated with approval of the Authority.

7.6.8.1(7) If Design-Builder elects to reside on the Authority's network, Design-Builder will conform to all Authority network, end-use standards and will be subject to the Authority's Total Cost of Ownership (TCO) model.

7.6.8.2 Authority's End-Use Equipment

7.6.8.2(1) The Authority will provide its own end-use equipment including:

7.6.8.2(1)(a) computer, desktop;

7.6.8.2(1)(b) computer, laptop;

7.6.8.2(1)(c) tablet PCs;

7.6.8.2(1)(d) laser, multifunction;

7.6.8.2(1)(e) photocopiers;

7.6.8.2(1)(f) facsimile machines, general: facsimile, multifunction;

7.6.8.2(1)(g) healthcare card readers;

7.6.8.2(1)(h) dictation microphones;

7.6.8.2(1)(i) scanner, barcode;

7.6.8.2(1)(j) registration kiosks;

7.6.8.2(1)(k) PDAs;

7.6.8.2(1)(l) telephone, desktop, digital, multiline;

7.6.8.2(1)(m) cart, medication with computer;

7.6.8.2(1)(n) dispenser, medication (host) and dispenser, medication, lock module and dispenser, medication, mobile;

7.6.8.2(1)(o) computer, desktop;

7.6.8.2(1)(p) printers, label;

7.6.8.2(1)(q) scanner, barcode;

7.6.8.2(1)(r) handheld computer devices;

7.6.8.2(1)(s) monitor, blood glucose;

7.6.8.2(1)(t) television, minimum 60”, flat panel;

7.6.8.2(1)(u) bed, residential, single; bed birthing; bed, electric; bed, electric, bariatric;

7.6.8.2(1)(v) pump, infusion, single; pump, infusion, controller, modular; pump, enteral; pump infusion, PCA;

7.6.8.2(1)(w) device integration for real –time clinical assessment and physiological data documentation;

7.6.8.2(1)(x) interactive patient station;

7.6.8.2(1)(y) Conexall connectivity engine;

7.6.8.2(1)(z) multifunction communication devices; and

7.6.8.2(1)(aa) telehealth clinical devices; (collectively, the “Authority Supplied End-Use Equipment”).

7.6.8.2(2) Design-Builder will:

7.6.8.2(2)(a) include the installation of the Authority Supplied End-Use Equipment as part of the Move-in Schedule;

7.6.8.2(2)(b) assist the Authority to define locations for the Authority Supplied End-Use Equipment;

7.6.8.2(2)(c) provide adequate space, infrastructure, power, and wired network data outlets for the Authority Supplied End-Use Equipment; and

7.6.8.2(2)(d) provide jack number information (on the Authority's cable information Excel spreadsheet) to the Authority to facilitate placement of the Authority Supplied End-Use Equipment.

7.6.9. Authority Network

7.6.9.1 Basic Requirements

7.6.9.1(1) For the Authority's network and patient monitoring network, the Authority will:

7.6.9.1(1)(a) provide to Design-Builder network switches for installation by Design-Builder;

7.6.9.1(1)(b) complete all logical network design (excluding structured cabling) and network equipment programming and configuration; and

7.6.9.1(1)(c) be responsible for all network management licensing.

7.6.9.1(2) For the Authority's network and patient monitoring network, Design-Builder will:

7.6.9.1(2)(a) install all network switches and connect harness cabling; and

7.6.9.1(2)(b) complete all physical network design and provide all structured cabling.

7.6.9.1(3) For all other networks required in the Facility, Design-Builder will:

7.6.9.1(3)(a) provide all required network equipment, including network switches;

7.6.9.1(3)(b) in consultation with the Authority, complete the logical network design and program and configure all network equipment;

7.6.9.1(3)(c) be responsible for all network management licensing; and

7.6.9.1(3)(d) locate network and other equipment in the BCC or TRs.

7.6.9.1(4) For all of the networks described above, Design-Builder will mount and connect all network switches, harness cables, and cross connect and test all network equipment and cable infrastructure per EIA/TIA-1179 standards and in consultation with the Authority.

7.6.9.1(5) Design-Builder will provide and install harness cables for all network switches for all networks plus spare capacity.

7.6.9.1(6) Design-Builder will provide patch cords for all network switches for all networks.

7.6.9.1(7) Install all network equipment in accordance with all applicable IEEE and EIA/TIA standards, including the 802.1 and 802.3 standards.

7.6.9.1(8) The Authority will provide and manage all firewalls, security and IDS/IPS systems for connections to the Authority's networks.

7.6.9.1(9) Design-Builder is responsible to provide and manage all firewalls, security and IDS/IPS systems for connections to all networks in the Facility other than the Authority's network and patient monitoring network.

7.6.9.1(10) Retain a vendor certified network engineer trained on Design-Builder's network equipment.

7.6.9.1(11) Redundancy and security will be incorporated in all network designs.

7.6.10. Authority Servers

7.6.10.1 Basic Requirements

7.6.10.1(1) Servers will be installed in the PER by the Authority.

7.6.10.1(2) All servers will align with Authority policies and operational procedures with regards to security and operations.

7.6.10.1(3) Servers will meet minimum "Lights out" requirements where all servers will have remote access cards and data outlets for remote management and support.

7.6.10.2 Performance Criteria

7.6.10.2(1) Design-Builder will provide infrastructure (including structured wiring to support each server with the required network and power redundancy by means of dual power supplies and dual Network Interface Cards installed in each server. Each power supply will be connected to separate redundant rack PDU`S and each network card would be connected to separate core routers in the PER and SER communication rooms.

7.6.10.2(2) Design-Builder will provide the cable infrastructure to support each server.

7.6.11. Design-Builder Servers

7.6.11.1 Basic Requirements

7.6.11.1(1) All servers must align with Authority policies and operational procedures with regards to security and operations in accordance with this Schedule and its Appendices. This includes aligning to the Authority operating system and hardware patching processes.

7.6.11.1(2) Servers must meet minimum “Lights out” requirements where all servers must have remote access cards and data outlets for remote management and support.

7.6.11.1(3) Servers will be the latest technology, as of the date of installation (Intel processor latest model or similar acceptable to the Authority) and will interface to the Ethernet network via a 1000Mb network interface card.

7.6.11.1(4) All servers deployed must align with the Authority’s standards for procuring equipment including hardware models, operating systems, software licenses, maintenance and contract agreements. All agreements must be maintained for the life cycle of the hardware and or application.

7.6.11.1(5) All servers as well as the applications hosted on those servers must be entered into the Authority’s change management database system as configuration items and dependencies identified and linked. All changes, incidents, and problems relating to said servers and applications must be managed, monitored, and tracked using the Authority’s change, incident, and problem management processes as defined within this Schedule and its Appendices.

7.6.11.2 Performance Criteria

7.6.11.2(1) Each server will require network and power redundancy by means of dual power supplies and dual NIC cards installed in each server. Each power supply will be connected to separate redundant rack PDU`S and each network card would be connected in consultation with the Authority.

7.6.11.2(2) All network attached servers will include the installation and management of Antivirus software that aligns with the Authority’s antivirus policies.

7.6.11.2(3) All network attached servers will include the installation and management of enterprise data backup and retention software that aligns with the Authority’s Backup and Retention policies and procedures.

7.6.11.2(4) Hardware and software configuration of servers provided by Design-Builder must be reviewed and approved by Authority.

7.6.11.2(5) Servers for the technology and communication systems will be Microsoft compliant (version acceptable to the Authority) and will be from a common manufacturer.

7.6.12. Telephone Equipment

7.6.12.1 Basic Requirements

7.6.12.1(1) Design and construct the Facility including infrastructure per EIA/TIA-1179 standards to support the Authority's VoIP, EOC Satellite telephone, patient telephone, and public telephone systems.

7.6.12.1(2) Design-Builder will install Authority-supplied hard-wired phone in lobbies instead of payphones in consultation with the Authority.

7.6.12.1(3) For the patient telephone system the Authority will utilize a third party provider. It is contemplated that Hospitality Networks will provide this service.

7.6.12.1(4) Design-Builder may at its cost use the Authority phone system for its telecommunications needs. If Design-Builder intends to use the Authority phone system, Design-Builder will provide and, in consultation with the Authority, install additional capacity and functionality as required.

7.6.12.2 Performance Criteria

7.6.12.2(1) See EIA\TIA-1179 Standards.

7.6.13. Cellular Services

7.6.13.1 Basic Requirements

7.6.13.1(1) Design-Builder will provide all infrastructure and equipment required to support a singular distributed antennae system that will universally support the following cellular service providers: Telus, Bell, and Rogers.

7.6.13.1(2) Ensure that the system installed supports both cellular voice and data requirements. The system will function effectively in all areas of the Facility, including underground parking.

7.6.13.1(3) Design-Builder will work with the Authority and the cellular service providers to coordinate a transfer of the contract to the Authority upon Substantial Completion.

7.6.14. Wireless Networks

7.6.14.1 Basic Requirements

7.6.14.1(1) In consultation with the Authority design and install a complete 802.11 wireless network solution for the Facility to support the extension of the Authority wireless network into the Facility. The Authority currently utilizes a single wireless network that extends across all its facilities. Design-Builder will not install any other 802.11 wireless network in the Facility.

7.6.14.1(2) The wireless network in the Facility will have sufficient wireless access points to support the Wireless Staff Communication system in accordance with Vocera standards to a level of -60db at 12mw.

7.6.14.1(3) Refer to Section 7.8.20.1(9) regarding use of the Authority's 802.11 wireless network by the RTLS system in the Facility.

7.6.14.1(4) The Authority will:

7.6.14.1(4)(a) procure, configure, maintain and refresh Wireless Lan Controllers (WLC) to support the Authority's wireless network within the Facility.

7.6.14.1(4)(b) procure, program and configure wireless access points and provide to Design-Builder for installation.

7.6.14.1(5) Design-Builder will install all structured wiring, wireless access points, Wireless Lan Controllers (WLC), and test all cable infrastructure and wireless system devices for the wireless network in consultation with the Authority. Install all network equipment in accordance with all applicable standards.

7.6.14.1(6) The wireless infrastructure will service 802.11b (2.4Ghz DSSS), 802.11g (2.4Ghz OFDM), 802.11a (5Ghz OFDM), 802.11n Draft 2.0, or newer (5Ghz and 2.4Ghz MIMO), and 802.11ac wireless communications and data transfer requirements for access by wireless devices to data and voice services within the Facility and across the Authority, via the Authority WAN.

7.6.14.1(7) Provide a complete structured cabling infrastructure that will allow the installation of the complete wireless network, including PoE wireless access points. Design-Builder will install telecommunication outlets and access points in consultation with the Authority. Note that the patient monitoring wireless access points will be installed independently from the Authority wireless network.

7.6.14.1(8) Test all aspects of the wireless network and provide heat maps for the Facility indicating the channel coverage, signal level, data rate and noise floor for 802.11 standard including 802.11b, 802.11g, 802.11a and 5GHz 802.11n wireless networks.

7.6.14.1(9) Design-Builder will update the Authority's wireless management applications to include the Facility floor plans including wireless access point locations mapped to a floor plan with RF characteristics defined for structural composition which will include glass, concrete, wood, drywall, metal, and permanently mounted RF obstacles.

7.6.14.1(10) The wireless network will provide 100% coverage that meets the Authority's performance requirements, throughout the Facility including elevator cabs, mechanical spaces, service areas, facility exterior (excluding the parking lots), stairwells, and secured exterior courtyards and gardens.

7.6.14.2 Performance Criteria

7.6.14.2(1) Work with the Authority in creating an operational plan for the wireless network complete with management strategy alerts notification and resource requirements for maintenance.

7.6.14.2(2) Retain a RCDD certified network engineer with expertise and experience in working with the Authority approved equipment to design the wireless network.

7.6.14.2(3) Each wireless access point will have a singular data drop terminated at a telecommunication outlet installed in accordance with EIA/TIA-1179 standards.

7.6.14.2(4) Design the facility including equipment locations (e.g., microwave ovens) that does not interfere beyond the noise floor and signal strength requirements (SNR) of the wireless network. The resulting RF environment in the Facility must be consistent with the strictest specifications of the wireless end-use equipment.

7.6.14.2(5) Provide an adequate signal strength to the boundaries of the Facility/Site to support the Authority wireless communication system.

7.6.15. Staff Communication System

7.6.15.1 Basic Requirements

7.6.15.1(1) The Authority's wireless network will support a complete wireless staff to staff communication system.

7.6.15.1(2) The staff communication system will allow staff to initiate 2-way voice conversations from their staff communication system device to:

7.6.15.1(2)(a) other staff communication system devices;

7.6.15.1(2)(b) VoIP telephone and

7.6.15.1(3) The staff communication system will allow staff to receive 2-way voice conversations into their staff communication system device from:

7.6.15.1(3)(a) other staff communication system devices;

7.6.15.1(3)(b) VoIP telephone;

7.6.15.1(3)(c) nurse call consoles;

7.6.15.1(3)(d) patient stations;

7.6.15.1(3)(e) staff/duty station; and

7.6.15.1(3)(f) external telephone.

7.6.15.1(4) The system will align with the region's current standard Vocera staff communication system and allow for the central management of devices and users via the existing Vocera administrative modules.

7.6.15.1(5) The Design-Builder will provide all wireless end-use devices and centralized staff communication services, allow for 200 badges, 400 batteries, 50 – 8 port chargers and lanyards.

7.6.15.1(6) Design-Builder will ensure that all required systems integrate with the staff communication system. At the Authority's discretion, some of the system integration may be performed through the Authority's phone system.

7.6.15.1(7) Design-Builder may use a different system for its own communication such as portable radios. Any such devices or system must not interfere with the Authority's wireless communication devices or systems or other devices or systems.

7.6.15.1(8) The wireless system will function throughout the Facility including elevator cabs, mechanical spaces, service areas, facility exterior, stairwells, and secured exterior courtyards and gardens.

7.6.15.2 Performance Requirements

7.6.15.2(1) Provide adequate space and power outlets for wireless device charging stations inside each department, taking in to account that charging units with multiple devices may cause signal concentrations that impact active unit performance. Sufficient spread of units must be maintained for both charging and storage areas so as not to impact operational performance of active units.

7.6.16. Public Address System

7.6.16.1 Basic Requirements

7.6.16.1(1) Provide cable infrastructure and equipment for a public address system in the Facility. This public address system is intended to be used for general and emergency voice paging. Other communications systems will be also used for routine communications between staff and patients.

7.6.16.1(2) The public address system will be separate from and act independently of the fire alarm system paging system. Provide interconnects between the systems as required by all applicable regulatory standards or codes.

7.6.16.1(3) Provide, in consultation with the Authority interface to the public address system from the telephone system. The public address system integration will facilitate single-step dialing from a telephone handset directly to a paging zone. This will accommodate speed-dial functionality.

7.6.16.1(4) Voice paging will typically be performed via a telephone located at the switchboard. In addition, provide a hard-wired backup microphone in a location to be advised by the Authority in the event the phone system fails. This backup microphone must be able to page the entire Facility.

7.6.16.1(5) Generally, voice paging will be on an 'all-page' basis. Provide physical zoning of the public address system by department to enable each department to page itself, if so desired.

7.6.16.2 Operational Requirements

7.6.16.2(1) Provide complete speaker coverage throughout 100% of the Facility so that emergency voice pages can be heard everywhere in the Facility, including specifically situated speakers within each meeting room, and on-call sleep areas, with high intelligibility and low loss of articulation of consonants (%ALCONS).

7.6.16.2(2) Provide sound levels as follows throughout the Facility:

7.6.16.2(2)(a) Normal voice paging: 60 dB minimum.

7.6.16.2(2)(b) Fire alarm messages: 75 dB minimum.

7.6.16.2(2)(c) Voice paging sound levels will be at least 10 dB above ambient noise levels in mechanical rooms and similar locations.

7.6.16.2(3) Provide all equipment necessary for a fully operational public address system, including:

7.6.16.2(3)(a) paging amplifiers;

7.6.16.2(3)(b) flush ceiling speakers in finished areas, with adjustable volume levels;

7.6.16.2(3)(c) trumpet type speakers in mechanical and other high ambient locations;

7.6.16.2(3)(d) microphone(s);

7.6.16.2(3)(e) mixers; and

7.6.16.2(3)(f) telephone/network system interfaces.

7.6.16.2(4) Size amplifiers to handle total load plus 20% spare capacity.

7.6.16.2(5) Provide telephone access for public address with a maximum delay of 1 second between accessing system and ability to transmit page.

7.6.17. Intercommunication System

7.6.17.1 Basic Requirements

7.6.17.1(1) Local Video Intercom systems are required at locked entrance doors that delivery personnel or the public will need access through, and at doors provided with Access Controls.

7.6.17.2 Quality Requirements

7.6.17.2(1) The intercom systems will be manufactured by recognized industry leaders in the intercom business.

7.6.17.3 Performance Criteria

7.6.17.3(1) Provide a video intercom system at all entrance locations in consultation with the Authority and based on the facility threat and risk assessment.

7.6.17.3(2) Provide a video intercom door-station at the entrance to each inpatient department. Each inpatient department will have master stations at each collaboration station and care hub. Calls from the door-station will be broadcast to each master station simultaneously and may be answered from any of these locations. Any master station will be capable of releasing the inpatient entrance door.

7.6.17.3(3) Coordinate the provision of video intercom systems for all other areas with the Authority.

7.6.17.3(4) Door stations will be provided as follows:

7.6.17.3(4)(a) full colour surveillance camera with ability to pan and tilt;

7.6.17.3(4)(b) hands-free full duplex audio capability;

7.6.17.3(4)(c) call buttons;

7.6.17.3(4)(d) SIP enabled and

7.6.17.3(4)(e) vandal resistant and weatherproof where required.

7.6.17.3(5) Master stations will be provided as follows:

7.6.17.3(5)(a) capable of being desk and wall mounted;

7.6.17.3(5)(b) full colour display screen with ability to control pan and tilt of door station;

7.6.17.3(5)(c) hands-free full duplex audio capability; and

7.6.17.3(5)(d) capability to release to the secure entry door

7.6.17.3(6) Provide desk loud-speaking master station with handset at locations as determined in consultation with the Authority, including:

7.6.17.3(6)(a) each imaging control room; and

7.6.17.3(6)(b) pharmacy dispensing area.

7.6.17.3(7) Provide dedicated duplex voice intercom system between each Seclusion room and the local nurse station. Nurse station will have the capability of turning the volume off, or up, as required. Intercom will be hands free in the Seclusion room and will be ceiling mounted behind a guard and a station outside the room.

7.6.18. Video Conferencing and Telehealth

7.6.18.1 Basic Requirements

7.6.18.1(1) All videoconferencing systems will interface with Authority's videoconferencing infrastructure and systems as identified in the section.

7.6.18.1(2) Provide the supporting infrastructure including power, telecommunication outlets, audio-video wiring, raceways, outlet boxes, structural requirements necessary to deliver Telehealth requirements.

7.6.18.1(3) Design and construct video conference capable rooms and locations within rooms in accordance with UBC audio visual standards as a reference for clinical and academic spaces requiring audio visual systems to achieve a consistent user experience throughout the Facility.

7.6.18.1(4) Retain audio visual professionals with expertise and experience in the application, use and integration of audio/video conferencing systems for the design, configuration and integration of the required videoconference rooms and systems.

7.6.18.2 Quality Requirements

7.6.18.2(1) Comply with all applicable standards and codes, including the latest IP based video conferencing standards or the latest high-speed common standard.

7.6.18.2(2) Audio quality will be comparable to voice quality found in typical PSTN voice networks. Video quality will be high definition (1080p) and synchronized with the audio content. Video conference systems will allow for adjustments of compression and audio and video quality to accommodate for bandwidth management.

7.6.18.3 Performance Criteria

7.6.18.3(1) Design and construct videoconference rooms and locate microphones, video cameras, video monitors, lighting systems and sound attenuation structures/materials to optimize the performance of the video conferencing systems.

7.6.18.3(2) Coordinate with the Authority for network access. Video conferencing systems will be configured in consultation with the Authority and adhere to the Authority security and quality of service requirements so not to negatively impact the Authority's network performance in any way.

7.6.19. Real Time Location System (RTLS)

7.6.19.1 Basic Requirements

7.6.19.1(1) In consultation with the Authority, design and install a complete RTLS solution for the Facility that includes the following applications and systems:

7.6.19.1(1)(a) equipment and asset tracking;

7.6.19.1(1)(b) patient tracking;

7.6.19.1(1)(c) staff duress;

7.6.19.1(1)(d) patient wandering

7.6.19.1(2) RTLS will utilize a server and allow multiple workstations to access the system for supervision, control and reporting purposes. Each of the above applications and systems will have a dedicated customized monitoring and reporting interface for each of the following departments:

7.6.19.1(2)(a) protection services;

7.6.19.1(2)(b) biomedical department;

7.6.19.1(2)(c) logistics department (equipment depot);

7.6.19.1(2)(d) emergency department

7.6.19.1(2)(e) all clinical departments.

7.6.19.1(3) Design-Builder will coordinate with the Authority to ensure that departmental tracking/dashboard displays in each department listed above are capable of displaying real-time location mapping of RTLS-tagged staff, patient and equipment.

7.6.19.1(4) The RTLS equipment and asset location system will provide for PAR level management, asset utilization, shrink control, preventative maintenance and provide custom reports for such.

7.6.19.1(5) Provide the following quantities of RTLS tags:

7.6.19.1(5)(a) 200 Patient tags (this does not include infant tags, but does include patient wander tags);

7.6.19.1(5)(b) 150 Duress Tags; and

7.6.19.1(5)(c) 500 Equipment tags

7.6.19.1(6) The Authority's existing 802.11 wireless network is designed to maximize use for voice and data (with emphasis on the staff to staff communication system). Design-Builder may not use the Authority's wireless network for the RTLS system in the Facility, subject to the following conditions:

7.6.19.1(6)(a) Design-Builder will not be permitted to add to, modify, reconfigure or tune the Authority's wireless network to facilitate use by the RTLS system; and

7.6.19.1(6)(b) use of the wireless network by the RTLS system must not negatively impact the Authority's wireless network.

7.6.19.1(6)(c) The WiFi may not be used for location services.

7.6.19.1(7) The RTLS solution must integrate with and be approved by Cerner.

7.6.19.1(8) Provide a complete structured cabling infrastructure that will allow the installation of the complete RTLS network, including access points, exciters, and/or ultrasonic receivers if applicable. Design-Builder will install telecommunication outlets and access points in consultation with the Authority.

7.6.19.1(9) Test all aspects of the RTLS network and provide heat maps for the Facility indicating the channel coverage, signal level, data rate and noise floor for the wireless network.

7.6.19.1(10) The RTLS system will provide 100% coverage throughout the Facility including elevator cabs, service areas, facility exterior, stairwells, secured exterior courtyards and gardens, and detect access to mechanical spaces.

7.6.19.1(11) For exterior spaces, provide detection and location at all exit/entry points to detect tags leaving and entering the building at any exit/entry point.

7.6.19.2 Quality Requirements

7.6.19.2(1) Provide an RTLS manufactured by a recognized industry leader in the RTLS business.

7.6.19.2(2) Tags must have a minimum of 12 months of battery life in a typical usage scenario.

7.6.19.3 Performance Criteria

7.6.19.3(1) The RTLS must provide the following functionality:

7.6.19.3(1)(a) tracking of patient, staff in all areas within the Facility to floor and room level;

7.6.19.3(1)(b) all entry/exit locations to the Facility and each Department must have an RTLS array capable of determining direction of travel and be interfaced with the corresponding access control system such that a ‘lock-down’ of a door based on ‘tag’ credentials can be initiated automatically;

7.6.19.3(1)(c) patient tags must be non-line of sight and must work when covered with bed sheets and shirt sleeves;

7.6.19.3(1)(d) the RTLS system will provide absolute detection of tags within elevator cabs. Provide additional exciters in each elevator cab to ensure adequate accuracy;

7.6.19.3(1)(e) identifying equipment and asset location, patient location, and staff duress location within the Facility by floor, within a 3 m x 3 m or smaller area. Where 3M x 3M location resolution is not practicable, larger location resolution may be used through consultation with the Authority;

7.6.19.3(1)(f) reporting on tag button press and alerting based on button press;

7.6.19.3(1)(g) tags must be submersible and cleanable within the Authority's infection control standards;

7.6.19.3(1)(h) tags must support configuration in "always on" mode;

7.6.19.3(1)(i) tags must be resistant to tampering and will immediately alarm if the tag is cut, damaged or modified for unauthorized removal from the patient or equipment;

7.6.19.3(1)(j) tags must have a visual alerting option (LED or light on tag);

7.6.19.3(1)(k) tags must have multiple attachment options, including integration with patient wrist bands and staff ID badge lanyards.

7.6.19.3(2) Design the RTLS to include features that assist the Authority to achieve the highest possible tag recovery rate.

7.6.19.3(3) For the emergency department only, the RTLS must:

7.6.19.3(3)(a) be flexible and allow for reconfiguration to respond to emergency department care space changes.

7.6.20. Patient Tracking / Wandering

7.6.20.1 Basic Requirements

7.6.20.1(1) Provide an RTLS based patient tracking / wandering system, in accordance with Section 7.6.19 (Real Time Location System).

7.6.20.1(2) Patients may be provided with RTLS tags/bracelets, ID bands, badges, or bracelets.

7.6.20.1(3) Provide a quantity of tags as follows:

7.6.20.1(3)(a) 200 Patient Tracking tags.

7.6.20.2 Performance Criteria

7.6.20.2(1) The Patient Tracking / Wandering system will be capable of locating and tracking a patient anywhere within the Facility.

7.6.20.2(2) The system will incorporate latest encryption techniques to secure patient ID and location.

7.6.20.2(3) Design-Builder will coordinate with the Authority to ensure that departmental tracking/dashboard displays in each Clinical and mental health department, and Protection Services are capable of displaying real-time location mapping of RTLS-tagged staff and patients.

7.6.20.2(4) Design-Builder will provide a PC based application that will provide a presentation of patient locations by superimposing positional data on a facility floor plan and providing patient tag-based information.

7.6.20.2(5) Provide an RTLS based Patient Tracking / Wandering system that:

7.6.20.2(5)(a) performs alerting and reporting based on patient location, patient proximity to location, patient duration in location and patient proximity to other tagged items or persons;

7.6.20.2(5)(b) has the capacity to send an alarm signal if a particular piece of equipment or a patient pass through a door that leads to the exterior of the Facility;

7.6.20.2(5)(c) provides alerting for RTLS tagged patients based on:

(c)..1 location within the Facility;

(c)..2 movement within the Facility;

(c)..3 status of a tag (low battery, tag removal, tamper, failure).

7.6.20.2(5)(d) upon the initiation of an alert the system will identify the location of the event and the particular patient and annunciate on the local clinical department and protection services workstation and status boards.

7.6.20.2(6) In each department, the Patient Tracking system will be provided with a wireless Patient Tracking tag test device that audibly and visually indicates on a pass / fail basis the functionality and battery life of the Patient Tracking tag. The testing device will be a closed loop device/station that allows for full functional testing without activating the Facility's Patient Tracking alarm system and will provide audit function as required.

7.6.20.2(7) At all entry/exit locations to the Facility and at each Department provide an RTLS array that is capable of determining direction of travel and proximity to a secure door. This functionality will be interfaced with the corresponding access control system such that a 'lock-down' of a door can be initiated automatically.

7.6.20.2(8) The patient tracking / wandering system will interface with the CCTV system such that when an RTLS-tagged patient exits through a Department or Facility perimeter door, all local CCTV cameras associated with the door are displayed at the local Protection Services workstation, and a local audible/visual alarm is activated at the point of exit. The event will also be transmitted to the Staff Communication system.

7.6.20.2(9) The patient tracking / wandering system will interface with all elevators such that these elevators will not operate when a tagged patient is present in the elevator cab.

7.6.20.2(10) Patient Tracking / Wandering system tags will have a barcode label affixed for the purpose of positive patient identification and integration to the Authority's clinical systems.

7.6.21. Paging System

7.6.21.1 Basic Requirements

7.6.21.1(1) Provide a complete Facility-based radio frequency voice and alphanumeric capable paging system including all required infrastructure, equipment and interfaces.

7.6.21.1(2) The paging system will not be reliant upon the Authority Network for continued operation.

7.6.21.1(3) The paging system will be independent of the fire alarm system.

7.6.21.2 Performance Criteria

7.6.21.2(1) Provide 100% coverage of the Facility site such that paging system will work in all interior and exterior spaces/areas.

7.6.21.2(2) Provide an interface between the paging system and the regional Authority telephone system to enable local voice paging.

7.6.21.2(3) Infrastructure for this system includes antennae, transmitters, and receivers.

7.6.22. Patient Entertainment System

7.6.22.1 Basic Requirements

7.6.22.1(1) The patient entertainment system will provide patient, visitor, and staff television and limited content. The system will be administered after Facility Completion by a third party provider under the direction of the Authority.

7.6.22.1(2) Design - Builder will be responsible for design and provision of the complete infrastructure, including conduit, power, CAT6A and coaxial cabling to support the Patient Entertainment System.

7.6.22.1(3) The Authority will procure and deliver the IP TV's and wall mount brackets for the TV's to Design-Builder. See Appendix 1B Furniture and Medical Equipment for equipment categorization.

7.6.22.1(4) The patient entertainment system will consist of internet protocol based display units (Television). Refer to the Appendix 1B Furniture and Medical Equipment for information regarding televisions.

7.6.22.1(5) The patient entertainment and education system will both utilize the same display and audio. User controls for these systems will not necessarily be the same.

7.6.22.1(6) The patient entertainment system will operate over physical networks other than the Authority's network.

7.6.22.1(7) Design-Builder will be responsible for the complete system design and installation including off-site connections, entrance services, demarcation, and distribution. The Authority will be responsible for the ongoing cost of the TV (cable) service after Substantial Completion.

7.6.22.1(8) The patient entertainment system in a smart hospital environment is a hub for interfacing technologies and systems. Incorporate in the planning, design and installation the multiple virtual and physical interfaces, and pathways that are required to support an integrated patient centric system. In addition to the interfacing of systems, physical pathways, interconnections, and interfacing are also required to support control of the patient entertainment/education system from the smart bed, and transmission of audio signals to the smart bed speakers.

7.6.22.1(9) Patient entertainment outlets will be installed at:

7.6.22.1(9)(a) each patient bed location, patient care area, and each patient use area in all patient use and patient care areas/rooms/units of the Facility including: General Medical/Surgical Inpatient, Intensive Care/Telemetry, Maternity, Psychiatric, Emergency, Ambulatory/Daycare, Clinics, Surgical Daycare, Cardio-Pulmonary, and Medical Imaging; and

7.6.22.1(9)(b) each team care station, care hub, nurse station, staff lounge, waiting room, sunroom, main entrance/lobby area, cafeteria (two outlets), on call room, doctor sleeping room and physician lounge.

7.6.22.1(10) At patient entertainment locations other than inpatient bed location Authority staff will control the channels/programming via remote control and will be able to change program channels or television inputs for access to patient entertainment programming.

7.6.22.1(11) At patient bed locations patients will control content including channels, programming, volume via pillow speakers connected to the nurse call system.

7.6.22.1(12) At each patient location in all clinical areas:

7.6.22.1(12)(a) provide a patient entertainment outlet capable of receiving television programming, patient education resources, clinical applications, and internet access.

7.6.22.2 Quality Requirements

7.6.22.2(1) The patient entertainment system will be manufactured by an industry leader and all components will be of that manufacturer.

7.6.22.3 Performance Criteria

7.6.22.3(1) A patient entertainment outlet consists of a quad-plex receptacle, two data outlets, and one coaxial cable. A patient entertainment outlet will serve a patient entertainment display, a patient education display, or a combined patient entertainment/education display. All cabling will be connected in the closest TR.

7.6.22.3(2) At each patient entertainment outlet location provide sufficient structural support and backing for a 55” display (TV) unit.

7.6.22.3(3) Arrange for the installation and connection of TV service including the complete backbone, horizontal, and distribution connections throughout the Facility.

7.6.23. Patient Education System

7.6.23.1 Basic Requirements

7.6.23.1(1) The Authority intends to provide the application services, programs and electronic educational material that will be displayed via the Authority’s network on televisions, patient entertainment displays, video conferencing equipment, information kiosks, tracking dashboards, and personal computers.

7.6.23.1(2) Design-Builder will be responsible for design and provision of the complete infrastructure, system, and interfaces necessary to support the education system.

7.6.23.1(3) The patient entertainment and education system will both utilize the same display, audio, and control features.

7.6.23.1(4) The Authority will procure the patient education platform.

7.6.23.1(5) Design-builder will provide the Bright Sign controller behind each patient education TV

7.6.23.2 Performance Criteria

7.6.23.2(1) At each inpatient bed location the patient education system will utilize a webcam for Telehealth and other applications.

7.6.23.2(2) At each inpatient bed location provide infrastructure and interface to accommodate an over-bed microphone which will connect to the patient education system.

7.6.23.2(3) At patient education locations other than inpatient bed locations Authority staff will control the channels/programming via remote control and will be able to change program channels or television inputs for access to patient education programming.

7.6.23.2(4) At inpatient bed locations patients will control content and volume via pillow speakers connected to the nurse call system.

7.6.24. Nurse Call Systems

7.6.24.1 Basic Requirements

7.6.24.1(1) The nurse call system will utilize the latest proven technology used in facilities similar to the Facility.

7.6.24.1(2) The nurse call system in a smart hospital environment is a hub for interfacing technologies and systems. Incorporate in the planning, design and installation the multiple virtual and physical interfaces, and pathways that are required to support an integrated patient centric system. In addition to the interfacing of systems, physical pathways, interconnections, and interfacing are also required to support lighting and blind control from the smart bed, and control of the patient entertainment/education system from the smart bed.

7.6.24.1(3) Prior to designing and installing the nurse call system and as required by the Authority, coordinate the technical capabilities of the nurse call system, hardware interface and integration requirements, system layout, and functionality with the Authority and the Authority's clinical staff.

7.6.24.1(4) Installation of the nurse call system will be to the satisfaction of the Authority including programming, configuration, interfacing, testing and commissioning of the system.

7.6.24.1(5) Train Authority staff on the nurse call system, training schedule to be determined in consultation with the Authority.

7.6.24.1(6) Provide a full feature audio and visual nurse call system with full duplex communications in any and all patient use and patient care areas/rooms/units of the facility as noted in Appendix 1A Clinical Specifications.

7.6.24.1(7) The nurse call system will be:

7.6.24.1(7)(a) the primary communication device for patients to contact staff in each clinical use and patient care area; and

7.6.24.1(7)(b) the primary communication device for Authority staff to alert other staff that they need assistance in a clinical use or patient care area.

7.6.24.2 Quality Requirements

7.6.24.2(1) Comply with all applicable standards, including UL1069, CSA C22.2 and CSA Z32.

7.6.24.3 Performance Criteria

7.6.24.3(1) Interface the nurse call system with other systems in a seamless manner to achieve the integrated functional requirements as determined in consultation with the Authority.

7.6.24.3(2) The nurse call system will fully interface with conexall to enable bi-directional communications and transfer of all required data.

7.6.24.3(3) Integrate the nurse call system with the network and provide sufficient audio channels, in consultation with the Authority, for the requirements of the Facility.

7.6.24.3(4) The nurse call system will provide a full range of software applications as offered by the nurse call vendors most current systems intended for use in a similar care facilities. The applications will include system administration and supervision, staff assignment and messaging.

7.6.24.3(5) Provide network separation of the nurse call system. Provide all network equipment for the nurse call system and integrate this network, in consultation with the Authority, with other Facility networks.

7.6.24.3(6) Utilize standard Category 6A (or greater based on standard in place at the time of procurement) cabling and connectors for nurse call cabling as applicable. Where communications protocol is not IP-based, Category 5E may be utilized provided it meets manufacturer's recommendations.

7.6.24.3(7) Install nurse call terminal cabinets in telecommunication rooms as approved by the Authority. All nurse call network horizontal runs to telecommunications rooms (TR) will be terminated in accordance with EIA/TIA-1179 standards.

7.6.24.3(8) The nurse call system will annunciate on the wireless staff communication system (staff communication device, wireless phone devices, PDA's or phones) for near instant alarm response as a secondary alerting system. The nurse call system will operate seamlessly with the wireless staff communication devices and allow two-way VoIP communication into all patient locations.

7.6.24.3(9) The nurse call system will utilize VoIP communications between all major components including staff consoles, patient stations, staff stations and all telephones and staff communication devices.

7.6.24.3(10) At a minimum, provide a staff console in each clinical nursing area including team care stations, care hubs, nurse stations, reception, and administrative.

7.6.24.3(11) Staff consoles will be colour, touch screen, user configurable, allow multiple screens, soft key enabled, hands-free full duplex capability with handset for private conversations.

7.6.24.3(12) Staff consoles will have the capability to redirect all calls to other staff consoles on a manual, automatically scheduled basis, call escalation, or console failure.

7.6.24.3(13) Patient stations will be installed at each patient bed location, patient care area, and each patient use area.

7.6.24.3(14) In each General Medical/Surgical inpatient room provide the following, in accordance with Appendix 1A Clinical Specifications:

7.6.24.3(14)(a) one patient station with audio for each bed location;

7.6.24.3(14)(b) one bath station with audio and pull cord capability; and

7.6.24.3(14)(c) one pull/call cord station for each patient chair location.

7.6.24.3(15) Patient stations will be individually programmable to allow multiple call classification and priority levels. Patient stations will be capable of connecting two nurse call cords or auxiliary alarm inputs. Provide the ability to place the staff console into day/night mode and also adjust the volume level at any staff console.

7.6.24.3(16) Where smart beds are planned the nurse call patient station will fully interface with the full range of smart bed call and audio functions.

7.6.24.3(17) The nurse call system will provide an interface such that the audio from the patient entertainment/education system will be connected and audible through the smart bed speakers.

7.6.24.3(18) The nurse call system will also provide an interface such that the smart bed is capable of controlling patient headwall lighting, and up/down control of the patient room electric blinds.

7.6.24.3(19) Provide nurse call cords for each patient station plus 10% spare. 25% of the call cords will be pillow speaker type, with the remainder being standard call cords.

7.6.24.3(20) Nurse call cords in Psychiatry Inpatient Units to conform to Anti-Ligature standards.

7.6.24.3(21) Provide emergency pull cord stations at all patient bathrooms, shower rooms, and change room locations complete with audio and staff emergency alarms.

7.6.24.3(22) Pull cords will be washable and compliant with the Authority's infection control policies.

7.6.24.3(23) Provide multi-call classification dome light (minimum 4 LEDs) to annunciate staff presence or calls in all rooms with nurse call devices. Locate dome lights in a manner that allow Authority staff the best possible view from the outside of the room where the nurse call device is located. Provide zone lights at all corridor intersections to direct and lead staff from anywhere within or outside the unit to the origin of the call.

7.6.24.3(24) The code blue system will be integral to the nurse call system.

7.6.24.3(25) Provide a code blue system that achieves the following sequence of operation:

7.6.24.3(25)(a) Upon a code blue button activation a priority call signal will be annunciated at the staff console, a pop-up message will also be displayed on all switchboard workstations that will indicate the precise origin of the code blue call.

7.6.24.3(25)(b) Provide dome/zone lights at all corridor intersections elevator lobbies to direct and lead the code blue team from anywhere within or outside the unit to the origin of the code blue call.

7.6.24.3(25)(c) A message will be automatically sent to all unit-based staff communication and paging devices as directed and determined by the Authority.

7.6.24.3(25)(d) Upon authentication of the code blue event by the unit clinical staff to the switchboard, a code blue signal will be manually initiated by the switchboard staff. The code blue signal will comprise a coded message on the public address system, and a text message which is sent to the code blue teams staff communication devices, and a pre-recorded message to be sent to the radio system.

7.6.24.3(25)(e) Switchboard staff will also activate an elevator homing command by way of keyswitch at the switchboard location.

7.6.24.3(25)(f) Switchboard will also activate a pushbutton which confirms to the access control system that the code blue event is genuine. The access control system determines the origin of the code blue call from the nurse call system. The access control system provides the code blue response team with an unrestricted route to the origin of the code blue call.

7.6.24.3(25)(g) Each code blue team member will have the ability to recall any elevator from any elevator lobby by means of a elevator recall keyswitch, The code blue team will assume control of the elevator by means of a code blue keyswitch located inside each elevator cab.

7.6.24.3(25)(h) Upon cancellation of the code blue call at the patient station all systems will reset and resume normal operation.

7.6.24.3(26) Provide adequate staff/duty stations for each nurse call system to ensure that tones are heard throughout each department. Provide the capability to mute each staff/duty station.

7.6.25. Electronic Security Systems

7.6.25.1 General

7.6.25.1(1) Design, provide and install a security system to meet the Authority's security programs within a healthcare facility environment.

7.6.25.1(2) Provide fully networked integrated security systems to protect staff, patients, visitors and property. As part of this security management program, at a minimum, provide a closed-circuit television system to view and record events, an access control system to restrict access to secure areas to authorized personnel only and to support the safe operation of the Facility, an infant abduction system, an intrusion alarm detection systems to detect and report unauthorized entry into protected spaces, a Facility wide panic duress system (wired and wireless) to protect staff and a 2-way voice-based radio system to support the operation of protection services personnel.

7.6.25.1(3) Develop the security design based on the facility threat and risk assessment.

7.6.25.1(4) Design-Builder will be responsible for the initial programming of proximity cards. Design-Builder will locate all security devices and provide monitoring and alarm annunciation requirements to the satisfaction of the Authority.

7.6.25.1(5) The Authority’s security personnel will monitor the security system from their present security office location.

7.6.25.1(6) All electronic security systems will reside on a dedicated security systems VLAN as part of the Authority's information technology infrastructure connected via the structured cabling system and network devices to allow the Authority the opportunity to review events and monitor the status of security systems from off-Site locations. The system will be fully accessible through the Authority's network.

7.6.25.1(7) Electronic security systems will be scalable to allow for future additions and interconnections of many devices and subsystems from different manufacturers.

7.6.25.1(8) The security system will incorporate commercial off-the–shelf equipment and proven designs from manufacturers regularly engaged in the production of models and types of equipment used in the security industry. Products will be quality control tested and verified for the intended operation prior to installation at site.

7.6.25.1(9) Electronic security systems will maintain dependability and reliability under all operational environmental conditions, capable of 24 hours per day, seven days per week continuous operation.

7.6.25.1(10) Interconnect security systems to the fire alarm system and other systems as required by applicable codes and standards.

7.6.25.1(11) Arrange meetings with the Authority to coordinate system design, interconnections and programming requirements to integrate with the Authority's security systems.

7.6.25.1(12) Train Authority staff on the use and operation of security systems and location of all security devices. Coordinate and schedule training with the Authority.

7.6.25.1(13) Security systems infrastructure must comply with the manufacturer's technical specifications and configuration requirements.

7.6.25.1(14) All electronic security systems will meet all Authority privacy standards pertaining to storage and operation of devices. Provide all necessary documentation and completed privacy impact assessment (PIA) required to meet Authority privacy/confidentiality standards.

7.6.25.1(15) Provide duress stations that are highly visible, illuminated, and accessible. Duress stations upon activation will annunciate locally by means of a minimum 90dBA siren, a xenon strobe, and will be supervised by protection services monitoring, and be integrated with the CCTV system and radio system.

7.6.25.1(16) Provide duress station such that no location within the area is further than 30 meters from a duress station for the following areas:.

7.6.25.1(16)(a) Parking areas; and,

7.6.25.1(16)(b) Pathways leading from building exits to parking areas.

7.6.25.1(17) Ensure that all Facility entrances and exits, including stairwells, are capable of being viewed with either PTZ or fixed CCTV. Coverage will be to a level that will allow facial identification. The term "facial identification" or "facial recognition" means capturing a target's face with CCTV cameras and providing images of 80 pixels per foot (PPF).

7.6.26. Access Control

7.6.26.1 Basic Requirements

7.6.26.1(1) The Authority intends to maintain and manage the access control system locally.

7.6.26.1(2) Provide an access control system that is compatible with the Authority's existing systems standards.

7.6.26.1(3) The access control system will lock and unlock doors via time schedule and card readers utilizing proximity field effect technology to grant or restrict access to employees via a programmable classification system with sufficient capacity to handle at minimum 65,000 regional employees down to the field panel level, and operate over a standard TCP / IP Ethernet network.

7.6.26.1(4) Refer to Appendix 1A Clinical Specifications for a schedule of doors required, at a minimum, to be equipped with card access control.

7.6.26.1(5) All doors that require card access control will be equipped with:

7.6.26.1(5)(a) door position contacts/monitors,

7.6.26.1(5)(b) request to exit sensors, hardware, or pushbuttons,

7.6.26.1(5)(c) electric strikes or magnetic locks,

7.6.26.1(5)(d) proximity card readers,

7.6.26.1(5)(e) interface relays, and

7.6.26.1(5)(f) power supplies.

7.6.26.1(6) Locking systems will be fail secure as a preference, or as required by code. The access control and monitoring system will be integrated with the alarm interface unit and event recorder providing graphic display of door position status and operating interface for central locking/unlocking of doors.

7.6.26.1(7) The access control system will permit full control functionality from off-site and on-site workstations.

7.6.26.1(8) The access control system will interface with the CCTV system such that when an alarm is initiated at an access controlled door all local CCTV cameras associated with the door are displayed at the local Protection Services workstation.

7.6.26.1(9) The access control system will integrate with the infant abduction and patient wandering system to prevent unauthorized egress.

7.6.26.2 Performance Criteria

7.6.26.2(1) All access controlled doors will be provided with keyed hardware, on both sides of the door if required, to override all access controls and allow passage through the door in either direction.

7.6.26.2(2) All mag lock controlled doors will be able to be manually unsecured by means of a keyswitch which directly interrupts power to the doormag(s). A key override will be provided on each side of the door(s).

7.6.26.2(3) All doors from the stairwells leading into the Facility will be equipped with proximity card access control.

7.6.26.2(4) All seclusion rooms will require simultaneous operation of a local pushbutton and proximity card to enter the room. A single card reader inside the room will enable egress. Each seclusion room will have a remote release toggle switch and door locked/unlocked indicators at the local nurse station. All switches and indicators will be clearly labeled to indicate their function.

7.6.26.2(5) All access control panels / field controllers will reside in TRs.

7.6.26.2(6) All access control panels will either have integral battery backup for minimum 2 hour continual operation, be connected to vital power, or be connected to UPS power. Access controls and door hardware components required in secure doors in the Facility which do not fail secure, will be provided battery backup for 60 minutes and UPS power. Determination of these battery backed secure doors will be made by the Authority during the design phase.

7.6.26.2(7) All remote power supplies serving access control components and door hardware will have battery backup for 2 hour continual operation, and these will be connected to Vital power.

7.6.26.2(8) Each access controlled door and its associated electrical door hardware components including door strikes, door mags and hold open devices will be supplied with individually fused, battery-backed circuits. Individual power supply units will not serve more than 48 doors, or more than 1 department, or multiple floors of the building, or an area greater than 1000m2.

7.6.26.2(9) All doors will have their hardware keyed to provide fail-safe mechanical override of the access control;

7.6.26.2(10) Card access system will utilize a file server and allow multiple workstations to access this file server for control and annunciation purposes. All alarms will be annunciated locally and allow concurrent remote monitoring capability both on and off-Site.

7.6.26.2(11) Design-Builder will provide a user interface at the local monitoring station that will provide the following functionality:

7.6.26.2(11)(a) presentation of access control system alarm locations superimposed on a facility floor plan,

7.6.26.2(11)(b) ability to configure and control each door, or monitored point,

7.6.26.2(11)(c) alarm handling, and

7.6.26.2(11)(d) real-time indication of door/device status.

7.6.26.2(12) The access control system will be integrated with code blue emergency response procedures to provide unrestricted access through designated code blue travel routes. Code blue carts within two metres of a secure door will cause the secure door to automatically open. Secure doors will then close and secure once the code blue team is two metres or more beyond the secure door.

7.6.26.2(13) Each access controlled door will have the capability to emit an audible tone/alarm signal to annunciate door held open and door forced open alarms. This tone will be adjustable in volume and will have a programmable option allowing the tone to be silenced or removed for door functionality as required on access or egress.

7.6.26.2(14) The access control system will function at the field controller level without connection to the PC Host or gateway. All field controllers will be connected by TCP/IP using the structured cabling.

7.6.26.2(15) The access control system will have the capability to lock down departments or other areas identified by the Authority in the event of an emergency or per an established schedule on a door by door basis or global command. Determine and program final access control system configuration in consultation with the Authority.

7.6.26.2(16) The access control system will use dual technology (proximity and microchip) type readers and will be capable of reusing all existing cards presently distributed across the Authority. Volume level of the tones emitted by the card reader will be adjustable and will be suitable for quiet environments. Card readers will also have will have a silent operation capability.

7.6.26.2(17) The access control system will be compatible with the Authority's existing systems to allow existing Authority cards to work on the system and allow new cards for the Facility to work on systems in the rest of the Authority's region. Provide base programming and coordination with the Authority.

7.6.26.2(18) Provide six hundred (600) blank HID 26-bit proximity cards with smart technology for Authority staff. Consult with the Authority on card numbering sequence and format before ordering cards to ensure compatibility with existing cards and equipment.

7.6.26.2(19) Provide delayed egress operation and alarms at emergency exit doors; alarms to annunciate audibly locally and via the integrated access system.

7.6.26.2(20) Interconnect and interface all electronically controlled doors for remote “lock & unlock” capability through the access control system on a door-by-door or global command basis.

7.6.26.2(21) Provide clear signage indicating entry procedures. Consult with the Authority for appropriate and acceptable wording.

7.6.26.2(22) All security alarms will be logged and archived. Logging system will be capable of external archiving/backup in order to extend the event info storage duration.

7.6.26.2(23) Access control system will provide canned reports and custom reporting capability as defined during consultation with the Authority.

7.6.26.2(24) Provide interconnection access to the applicable control and reporting platform to security workstations located in the security offices.

7.6.26.2(25) Provide an maintenance/administration workstation (MAW) PC complete with operating & application software, monitor, keyboard, mouse and interconnection to the security system. Locate MAW in Main data room, accessible to authorized personnel and Authority staff.

7.6.26.2(26) Determine, in consultation with the Authority the location of access control doors and door alarms within the Facility. Provide card readers, locking hardware, request-to-exit devices, door closers, door position/alarm contacts with all associated mechanical and electric hardware and field devices, including power supplies for a fully operational system.

7.6.26.2(27) Provide access control doors and door alarms for the following:

- 7.6.26.2(27)(a) administration and cash offices;
- 7.6.26.2(27)(b) IPU main entrances;
- 7.6.26.2(27)(c) medical records;
- 7.6.26.2(27)(d) stairwells;
- 7.6.26.2(27)(e) care hubs;
- 7.6.26.2(27)(f) staff / locker rooms, staff lounges, staff washrooms;
- 7.6.26.2(27)(g) video conference rooms;

7.6.26.2(27)(h) teaching rooms;

7.6.26.2(27)(i) service rooms;

7.6.26.2(27)(j) computer rooms, MCC, BCC, TRs and equipment rooms;

7.6.26.2(27)(k) perimeter entrances;

7.6.26.2(27)(l) pharmacy, drug storage & medication rooms;

7.6.26.2(27)(m) support spaces (FMO, Stores, Logistics, Clean rooms/storage; OT splinting room);

7.6.26.2(27)(n) building management rooms (boiler rooms, fan rooms, hazmat storage);

7.6.26.2(27)(o) staff only corridors;

7.6.26.2(27)(p) entrances to locker rooms;

7.6.26.2(27)(q) morgue;

7.6.26.2(27)(r) operating department entrances;

7.6.26.2(27)(s) all elevators (both hall call and inside the cab), with floor by floor control;

7.6.26.2(27)(t) roof access;

7.6.26.2(27)(u) stairwells (mhas, perinatal and roof access);

7.6.26.2(27)(v) all seclusion rooms;

7.6.26.2(27)(w) mental health and addiction services (MHAS);

7.6.26.2(27)(x) designated as high risk by the Authority.

7.6.26.2(28) Following consultation with the Authority, provide combination pin code/proximity card readers at all access/egress locations to/from all strictly controlled areas identified by the Authority, such as:

7.6.26.2(28)(a) ambulance entrance(s); and

7.6.26.2(28)(b) ambulance patient transport locations;

7.6.26.2(29) combination pin code/proximity card readers will be fully integrated into the Facility's access control platform (stand-alone, non-integrated pin pads are not acceptable). Combination pin code/proximity card readers will facilitate access by the following methods:

7.6.26.2(29)(a) pin code only;

7.6.26.2(29)(b) card read only; and

7.6.26.2(29)(c) pin code and card read.

7.6.26.2(30) Provide pan/tilt colour video intercom communications between the secure side of main entry doors and reception/care stations in departments and areas that are strictly controlled. Provide momentary remote pushbutton operation to release main entry doors when activated by staff or security personnel. Integrate the video intercom system with the access control system as required.

7.6.26.2(31) All delayed-egress doors intended for emergency use only will be alarmed locally at the care hub and collaboration desk, and at the protection services monitoring stations via the access control system. Alarms will be silenced through use of a keyswitch that will be integral to the panic hardware.

7.6.27. Fixed Panic System

7.6.27.1 Basic Requirements

7.6.27.1(1) The fixed panic system will provide staff with the ability to either discreetly or overtly initiate a call for assistance.

7.6.27.1(2) The fixed panic system will indicate the exact location of the call on a local protection services office workstation, the local Dispatch Centre, and transmit a message to the staff communication system.

7.6.27.1(3) The fixed panic system will interface and integrate with the RTLS based wireless staff duress system such that the system annunciates an alarm from either system in a similar fashion. See Section 7.8.20 (Real Time Location System (RTLS)).

7.6.27.1(4) The access control system will not be utilized for integrating the fixed panic system.

7.6.27.2 Performance Criteria

7.6.27.2(1) Fixed panic system buttons will be strategically located, suitably sized, clearly identified, suitable for application, and require key to reset.

7.6.27.2(2) Provide fixed panic system buttons for staff to initiate emergency assistance calls in areas of the Facility as determined in consultation with the Authority, including but not limited to:

7.6.27.2(2)(a) main lobby reception/security kiosk;

7.6.27.2(2)(b) each department nurse station and sub station;

7.6.27.2(2)(c) care/sub-care station reception desks;

7.6.27.2(2)(d) medication rooms;

7.6.27.2(2)(e) pharmacy;

7.6.27.2(2)(f) each interview room;

7.6.27.2(2)(g) imaging exam rooms (including but not limited to general radiology, CT and ultrasound;

7.6.27.2(2)(h) decontamination room;

7.6.27.2(2)(i) all triage desks;

7.6.27.2(2)(j) trauma rooms;

7.6.27.2(2)(k) gift shop;

7.6.27.2(2)(l) patient registration and information desk;

7.6.27.2(2)(m) patient admitting;

7.6.27.2(2)(n) in and out patient clinics; and

7.6.27.2(2)(o) Secure rooms as per Provincial Quality, Health & Safety Standards and Guidelines for Secure Rooms in Designated Mental Health Facilities under the B.C. Mental Health Act.

7.6.27.2(3) Upon activation of a fixed panic button a signal will identify the exact location of the event while providing the name of the device that initiated the alarm on mapping software located at specified care stations and Facility protection services offices. A local audible and visual alarm will be annunciated so that it may be seen and heard by staff throughout certain areas as determined by the Authority during the duress system design.

7.6.27.2(4) The fixed panic system will integrate with the radio system to automatically broadcast voice messages to all protection services radios. The voice message will indicate the specific location from which the fixed panic call was initiated. Provide all middleware and converters required to interface the radio system with the fixed panic system.

7.6.27.2(5) The fixed panic system will be hard-wired and supervised such that a trouble/error message will reported to both Design-Builder and protection services.

7.6.27.2(6) The entire fixed panic system will be supervised for the following:

7.6.27.2(6)(a) power loss;

7.6.27.2(6)(b) system trouble;

7.6.27.2(6)(c) communication loss; and

7.6.27.2(6)(d) wiring and button (including short, ground fault, open circuit).

7.6.28. Staff Duress system

7.6.28.1 Basic Requirements

7.6.28.1(1) Provide an RTLS based staff duress system, in accordance with Section 7.8.20 (Real Time Location System).

7.6.28.1(2) Staff will be provided with staff duress system pendants.

7.6.28.1(3) Provide a quantity of tags as follows:

7.6.28.1(3)(a) 200 staff duress system tags.

7.6.28.1(4) The staff duress system will provide 100% coverage throughout the Facility including elevator cabs, mechanical spaces, service areas, facility exterior, stairwells, and parking lots.

7.6.28.2 Performance Criteria

7.6.28.2(1) The staff duress system will be capable of locating and tracking a staff member anywhere within the Facility.

7.6.28.2(2) Design-Builder will provide a PC based application that will provide a presentation of staff locations by superimposing positional data on a facility floor plan and providing patient tag based information.

7.6.28.2(3) Provide an RTLS based staff duress system that provides the following functionality:

7.6.28.2(3)(a) the system will be capable of identifying the staff duress tag location within the Facility by floor, within a 3M x 3M or smaller area;

7.6.28.2(3)(b) the system will alert a duress system tag based on:

(a).63 operation of the staff duress pendant pushbutton;

(a).64 status of a tag (low battery, pendant failure);

7.6.28.2(3)(c) staff duress location tracking must update continuously when activated;

7.6.28.2(3)(d) the system will interface and integrate with the fixed panic system such that the system annunciates an alarm from either system in a similar fashion. See Section 7.9.5 (Fixed Panic System);

7.6.28.2(3)(e) the system will integrate with the overhead paging system to automatically broadcast voice messages to all protection services radios. The voice message will indicate individual room location from which the staff duress call was initiated. Provide all middleware and converters required to interface the radio system with the RTLS wireless staff duress system.

7.6.28.2(3)(f) upon the initiation of an alert the system will identify the location of the event and the particular staff member on the local clinical department and protection services workstation and status boards.

7.6.28.2(3)(g) the system will interface with the CCTV system such that when an RTLS-tagged staff member activates a staff duress system pendant, all local CCTV cameras associated with the event are displayed at the local Protection Services workstation. The event will also be transmitted to the staff communication system.

7.6.28.2(3)(h) Each department utilizing wireless duress will be provided with a wireless duress pendent test device that audibly and visually indicates on a pass / fail basis the functionality and battery life of the duress pendent. The testing device will be a closed loop device/station that allows for full functional testing without activating the Facility's staff duress system and will provide audit function as required.

7.6.29. Infant Abduction

7.6.29.1 Basic Requirements

7.6.29.1(1) Provide an infant abduction system that does not utilize the Authority's 802.11 wireless network.

7.6.29.1(2) The system will be provided for the following departments:

7.6.29.1(2)(a) Maternity Newborn Child;

7.6.29.1(2)(b) Pediatrics;

7.6.29.1(3) Newborn, infant and pediatric patients will be provided with infant abduction tags.

7.6.29.1(4) Provide a quantity of tags as follows:

7.6.29.1(4)(a) 200 infant abduction system tags.

7.6.29.2 Performance Criteria

7.6.29.2(1) The infant abduction system will be capable of identifying and tracking an infant or pediatric patient anywhere within the Maternity Newborn Child and Pediatric departments within 3M of its actual location.

7.6.29.2(2) Design-Builder will coordinate with the Authority to ensure that departmental tracking/dashboard displays located within the Maternity Newborn Child and Pediatric departments are capable of displaying real-time location mapping of tags.

7.6.29.2(3) All entry/exit locations to the specified departments must have an array capable of determining direction of travel and be interfaced with the corresponding access control system such that a 'lock-down' of a door based on 'tag' credentials can be initiated automatically.

7.6.29.2(4) The infant abduction system will interface with all elevators such that these elevators will not operate when an unaccompanied tagged infant is present in the elevator cab. The elevator inhibit feature will not operate when the infant is in transport mode.

7.6.29.2(5) Design-Builder will provide a PC based application that will provide a presentation of infant abduction tag locations by superimposing positional data on a facility floor plan and providing Infant Abduction tag based information.

7.6.29.2(6) Provide an infant abduction system that:

7.6.29.2(6)(a) provides alerting for tagged infant or pediatric patients based on:

(a).65 proximity to the department perimeter for infant abduction tags;

(a).66 of a tag (low battery, tag removed, tag tamper, tag failure).

7.6.29.2(6)(b) upon the initiation of an alert, the system will identify the location of the event and the particular Infant on the local clinical department and protection services workstation and status boards.

7.6.29.2(6)(c) When an infant abduction system tag is in close proximity to a department perimeter:

(a).67 all local CCTV cameras associated with the perimeter door are displayed at the local protection services workstation;

(a).68 the event will also be transmitted to the staff communication system;

(a).69 a local siren and strobe is activated;

(a).70 the perimeter secure doors are secured via the access control system;

(a).71 message automatically sent to protection services radio system; and

(a).72 displayed on status boards

7.6.29.2(7) The infant abduction system will integrate with the radio system to automatically broadcast voice messages to all protection services radios. The voice message will indicate the specific department exit door from which the call was initiated. Provide all middleware and converters required to interface the radio system with the infant abduction system.

7.6.29.2(8) Infant abduction tags must have a minimum of 12 months of battery life in a typical usage scenario.

7.6.29.2(9) Patient tags must be non-line of sight and must work when covered with bed sheets and shirt sleeves.

7.6.29.2(10) Each department utilizing the infant abduction system will be provided with a wireless tag test device that audibly and visually indicates on a pass / fail basis the functionality and battery life of the pendant. The testing device will be a closed loop device/station that allows for full functional testing without activating the Facility's infant abduction system and will provide audit function as required.

7.6.30. Intrusion Detection

7.6.30.1 Basic Requirements

7.6.30.1(1) Intrusion detection systems will be installed in all areas where protection of physical assets is deemed critical by the Authority.

7.6.30.1(2) Performance Criteria

7.6.30.1(2)(a) The intrusion detection system(s) will utilize industry proven devices for intrusion alarm detection and reporting capable of 24 hours per day, seven days per week continuous operation, with a minimum of 8 hours battery backup operation in the event of power outages.

7.6.30.1(2)(b) Provide intrusion detection system(s) including alarm controllers, local keypads, motion sensors, shock sensors, glass break sensors, door contacts, strobes, sirens and other alarm initiating devices as needed for a reliable and fully operational system(s).

7.6.30.1(2)(c) Control each system with keypad(s) located inside the department or area being protected. Install intrusion detection systems in all areas where protection of physical assets is critical including:

(c)..1 main lobby reception/security kiosk;

(c)..2 each department nurse station and sub station;

(c)..3 care/sub-care station reception desks;

(c)..4 medication rooms;

(c)..5 pharmacy;

(c)..6 each interview room;

(c)..7 imaging exam rooms (including but not limited to general radiology, CT and ultrasound;

(c)..8 decontamination room;

(c)..9 all triage desks;

(c)..10 trauma rooms;

(c)..11 gift shop;

(c)..12 patient registration and information desk;

(c)..13 patient admitting;

(c)..14 in and out patient clinics;

(c)..15 secure rooms; and

(c)..16 areas designated as high risk by the Authority.

7.6.30.1(2)(d) Intrusion alarm system and all associated alarm panels must be compatible and remotely programmable from existing Authority system equipment.

7.6.30.1(2)(e) The intrusion alarm system will integrate with the radio system to automatically broadcast voice messages to all protection services radios. The voice message will indicate the specific department area from which the call was initiated. Provide all middleware and converters required to interface the radio system with the intrusion alarm system.

7.6.31. CCTV

7.6.31.1 Basic Requirements

7.6.31.1(1) Provide all necessary infrastructure required to support the following systems:

7.6.31.1(1)(a) CCTV;

7.6.31.1(1)(b) clinical cameras;

7.6.31.1(1)(c) OR cameras (2 cameras per Operating room); and

7.6.31.1(2) Provide CCTV throughout the Facility, and exterior areas for the purpose of viewing and recording video to enhance the level of security and assist Authority staff in providing a safe environment for patients, staff, visitors and the general public while protecting the physical assets. With respect to CCTV coverage of doors, provide as a minimum, CCTV in accordance with Design-Builder will post signage at the main entrances to the Building. The signage as per Authority standards will notify the public that this area is under video surveillance. CCTV processes will be governed by the Public Surveillance System Privacy Guidelines for the Province of BC as well as the Freedom of Information and Protection of Privacy Act (British Columbia).

7.6.31.1(3) The system must be able to record clear images of individuals, which would allow distinction of gender, ethnicity and age category. System will provide recorded images of sufficient quality to be used as court evidence in Canada.

7.6.31.1(4) The CCTV system will allow web based access to all live recording images and all system programming from remote Authority sites.

7.6.31.1(5) Interface requirements between the CCTV system and other systems are described in this Section and in other Sections identified in Appendix 1D Technology Narrative.

7.6.31.2 Performance Criteria

7.6.31.2(1) System(s) will be a dedicated software-based virtual matrix that integrates to the existing Authority CCTV system using the structured cable plant for transmission and recording of images.

7.6.31.2(2) Provide the appropriate encoding/decoding capability to support 2 way (video and control) communications with any and all CCTV camera, individually and/or in predetermined clusters via the Authority network.

7.6.31.2(3) Provide video storage capacity for minimum of 30 days at 15 frames per second, minimum HD (1920 x 1080p) resolution. The CCTV system will have the option of recording each camera at various resolution levels and FPS depending on use and location, as well as by schedule or event. Provide file servers, workstations, and optical storage devices and connect to network. The system will have activity detection and incorporate smart search capabilities. Playback speed will be capable at 5x normal rate. During alarm conditions, allow for higher recording rates.

7.6.31.2(4) CCTV system will integrate with other systems identified in Appendix 1D.

7.6.31.2(5) CCTV display and review system will be network-based client application allowing for authorized users to remotely view, control and manage all aspects of the CCTV system across the network. System will have network and web access for remote monitoring, using predefined user authentication.

7.6.31.2(6) Display and review for all the cameras will be accessible through dual screen workstations located in the security office. Provide CCTV workstations with all required operating and application software, monitors, keyboard, mouse, joystick control with interconnection to security system network.

7.6.31.2(6)(a) Indoor cameras will be fixed type, capable of facial recognition, colour, high-resolution, high sensitivity (day/night), smoke dome type with an auto iris and zoom capability. Mounting will be appropriate for the environment, unobtrusive, matching colour with hidden cabling. Fixed cameras will be vandal resistant wall mounted and / or mounted at protective locations and heights.

7.6.31.2(6)(b) Outdoor cameras will be pan-tilt-zoom (PTZ) colour dome cameras, high resolution, capable of minimum 35x optical zoom, high-speed with low light day/night operation capability with 360 degrees rotation in less than 3 seconds. Domes will mount on poles, parapets and walls located to provide optimum unobstructed viewing of the area under surveillance. PTZ cameras will have the ability to mask portions of view through software and remote programming.

7.6.31.2(6)(c) Outdoor cameras will be complete with weatherproof housing and internal heater as required for suitable operation under varying environmental conditions.

7.6.31.2(6)(d) Cameras will not be set up in private areas such as patient rooms, treatment rooms or clinical areas (unless specifically identified for use by clinical department staff), locker rooms or washrooms. Cameras will not be placed or reviewed for the purpose of observing work performance of employees.

7.6.31.2(6)(e) CCTV clinical activity monitors will be located out of public view as required to protect privacy.

7.6.31.2(6)(f) Provide controller at security office to view and control all PTZ CCTV cameras.

7.6.31.2(6)(g) Provide minimum 24” LED CCTV monitors on site.

7.6.31.2(6)(h) Provide 1 workstations located at the Security Office complete with virtual matrix controller and 2x42" 1080p monitors. Integrate these monitors with the existing system to permit remote supervision of the Facility.

7.6.31.2(6)(i) Provide megapixel cameras in consultation with Authority to capture appropriate identification footage.

7.6.31.2(6)(j) All entry and exit points to departments and associated areas require recorded video surveillance integrated to the CCTV security system. Where required by the Authority, provide video monitors for department staff to monitor local CCTV cameras associated with the department.

7.6.31.2(7) Provide CCTV equipment to monitor and record the identity of all persons entering and exiting the Facility's main entrances, corridor/links and utilizing elevators in strictly controlled high risk departments and associated areas, as identified in consultation with the Authority.

7.6.31.2(8) Provide CCTV cameras at locations determined in consultation with the Authority, including:

(a)..1 lobby reception/security kiosk;

(a)..2 each department nurse station and sub station;

(a)..3 care/sub-care station reception desks;

(a)..4 medication rooms;

(a)..5 pharmacy;

(a)..6 each interview room (Clinical Cameras);

(a)..7 imaging exam rooms (including but not limited to general radiology, CT, nuclear medicine and their associated stretcher bays);

(a)..8 decontamination room;

(a)..9 all triage desks;

(a)..10 trauma rooms (Clinical Cameras);

(a)..11 gift shop;

(a)..12 patient registration and information desk;

(a)..13 patient admitting;

(a)..14 in and out-patient clinics;

(a)..15 secure rooms (Clinical Cameras); and

(a)..16 areas designated as high risk by the Authority.

7.6.31.2(8)(b) Emergency department will include recorded and non-recorded (clinical) CCTV coverage. Areas in which CCTV is employed will have 100% CCTV coverage;

7.6.31.2(8)(c) Emergency department non-recorded CCTV coverage will be monitored locally at the team care station. The non-recorded areas will include:

(a).73 secure rooms

7.6.31.2(9) Provide clinical observation cameras in the set of 5 patient rooms closest to the Team Care Station of Psychiatry Inpatient Unit.

7.6.31.2(10) Provide an interface between the CCTV system and the fire alarm system such that when a fire alert or fire alarm is activated, the CCTV cameras in the vicinity of the fire alarm or alert will automatically be displayed in the Facility security office.

7.6.32. Emergency Distributed Antennae System (DAS)

7.6.32.1 Provide infrastructure and equipment for a fully operational emergency distributed antenna system (DAS) to support emergency radio communications.

7.6.32.2 System shall inclusive of all components and wiring, including donor antennae, BDAs (bi-directional amplifiers), splitters, remote antennae units and antennae.

7.6.32.3 Provide 100% contiguous coverage inside the Facility and exterior spaces.

7.6.32.4 Provide a minimum NEMA4 battery backup units so that the Emergency DAS will continue to operate for a minimum of 2 hours during a power outage.

7.6.32.5 Consult with the Authority and local emergency response to ensure radio compatibility.

PART 8. SITE, INFRASTRUCTURE AND LANDSCAPE SUBGROUP SPECIFICATIONS

8.1 Earthwork (Division 31)

8.1.1. General

8.1.1.1 All works shall be designed and constructed in accordance with the latest version of the BC Building Code.

8.1.1.2 All works shall be designed and constructed in accordance with the City of Terrace's Subdivision & Development Control Bylaw No 1751, 2001.

8.1.1.3 All works shall be designed and constructed in accordance with the latest edition of the Master Municipal Construction Documents.

8.1.2. Embankment and Site Grading

8.1.2.1 Basic Requirements

8.1.2.1(1) All earthworks are to be constructed in accordance with the geotechnical report.

8.1.2.1(2) The excavation, trenching and backfill shall be constructed in accordance with the geotechnical report.

8.1.2.2 Performance Requirements

8.1.2.2(1) All earthworks to be compacted to the densities specified by the geotechnical engineer.

8.1.2.2(2) All utility trenches to be compacted to the densities specified by the geotechnical engineer.

8.2 Exterior Improvements (Division 32)

8.2.1. General

8.2.1.1 All works shall be designed and constructed in accordance with the latest version of the BC Building Code.

8.2.1.2 All works shall be designed and constructed in accordance with the City of Terrace's Subdivision & Development Control Bylaw No 1751, 2001.

8.2.1.3 All works shall be designed and constructed in accordance with the latest edition of the Master Municipal Construction Documents.

8.2.2. Aggregate Base Courses

8.2.2.1 Basic Requirements

8.2.2.1(1) Utilize granular sub-base for stability of surface treatment through freeze thaw cycles and for its ability to store moisture.

8.2.2.1(2) Place granular sub-base and base only on an underlying subgrade that has been properly compacted and approved by the geotechnical engineer.

8.2.2.1(3) The granular sub-base and base course will consist of crushed rock, gravel and sand consisting of hard, clean durable material, free from coatings of silt, clay or other deleterious materials and containing no organic matter. Refer to geotechnical report.

8.2.2.2 Performance Criteria

8.2.2.2(1) Design the depths of aggregate base courses to exceed limits defined by regional average freeze thaw cycles averaged over a twenty year period.

8.2.2.2(2) Design aggregate base courses to meet or exceed the specifications of the pavement structure design for intended loads and climate conditions found on site.

8.2.3. Asphalt Paving

8.2.3.1 Basic Requirements

8.2.3.1(1) Utilize asphalt paving in areas where vehicle traffic and snow clearing equipment require a smooth surface for travel.

8.2.3.1(2) Place hot mix asphalt only on an underlying base course that has been compacted and approved by the geotechnical engineer.

8.2.3.1(3) Design asphalt mix for the intended load and climate conditions found on site.

8.2.3.2 Performance Criteria

8.2.3.2(1) Asphalt will meet or exceed the specifications of the pavement structure design and asphalt mix design. Pavement structure thicknesses will be as specified in the geotechnical report.

8.2.4. Concrete Curbs

8.2.4.1 Basic Requirements

8.2.4.1(1) Provide appropriate support along the perimeter of asphalt surfaces to suit grading, drainage and structural integrity.

8.2.4.1(2) All concrete works are to meet or exceed Best Practice requirements for load and climate conditions found on site.

8.2.5. Painted Pavement Markings

8.2.5.1 Basic Requirements

8.2.5.1(1) Provide temporary and permanent painted pavement markings.

8.2.5.1(2) All pavement markings to be in accordance with the latest edition of TAC Manual of Uniform Traffic Control Devices.

8.2.5.2 Performance Criteria

8.2.5.2(1) Taped, painted and thermoplastic pavement markings to be selected for their suitability and durability.

8.3 Utilities (Division 33)

8.3.1. Site Water Utility Distribution Piping

8.3.1.1 Provide a watermain system capable of providing domestic and fire fighting capacity for the Facility.

8.3.1.2 Provide reduced pressure backflow preventer(s) to protect the municipal system and onsite Facility from contaminants.

8.3.1.3 Provide adequate fire hydrants around the site in accordance with NFPA-24 and the City of Terrace Fire Department requirements.

8.3.2. Site Sanitary Sewer Piping

8.3.2.1 Basic Requirements

8.3.2.1(1) The sanitary sewer system will include the pipes, manholes, quality testing and all other required appurtenances to comply with the current MMCD specifications and the City of Terrace Subdivision and Servicing Bylaw.

8.3.3. Site Storm Sewer Piping

8.3.3.1 Basic Requirements

8.3.3.1(1) The storm sewer system will include the pipes, manholes, and all other required appurtenances to comply with the current MMCD specifications and the City of Terrace Subdivision and Servicing Bylaw.

8.3.3.2 Performance Criteria

8.3.3.2(1) Flooding/ponding are not permitted except in designated stormwater detention facilities.

8.3.3.2(2) Utilize best management practices for stormwater management.

8.3.4. Manholes and Catch Basins

8.3.4.1 Basic Requirements

8.3.4.1(1) Provide monolithic concrete manholes with transition to lid frame, covers, anchorage, and accessories.

8.3.4.1(2) Provide modular precast concrete manhole sections with tongue and groove joints with masonry transition to lid frame, covers, anchorage, and accessories.

8.3.4.2 Performance Criteria

8.3.4.2(1) Locate and size manholes and catch basins in accordance with MMCD and the City of Terrace Subdivision and Servicing Bylaw. Avoid situating catch basins in walking areas.

8.3.4.2(2) All joints will be watertight.

8.3.4.2(3) All manholes and catch basin lids, frames and grates in vehicle traffic areas to be designed for H20 traffic loading.

8.3.5. Utility Visibility

8.3.5.1 Basic Requirements

8.3.5.1(1) Locate refuse/recycling areas, shipping, loading or utility areas, satellite dishes, and other similar structures, such as outdoor vents, mechanical equipment, or transformers out of view from streets and from adjacent properties.

8.3.5.1(2) In cases where the above items cannot be located out of view, they must be screened out of view from streets and from adjacent properties.

8.3.5.1(3) Garbage and recycling bins must be easily accessible, and contained within roofed/walled enclosures or screened from public view and from adjacent properties.

8.3.5.1(4) Electrical services lines should not be visible and should not interfere with vegetation.

8.3.5.2 Performance Criteria

8.3.5.2(1) Refuse/recycling areas, shipping, loading or utility areas, satellite dishes, and other similar structures, such as outdoor vents, mechanical equipment, or transformers must be screened out of view from streets and from adjacent properties using hedging, shrubs, trees, fencing or walls.

8.3.5.2(2) Garbage and recycling bins must be easily accessible, and contained within roofed/walled enclosures, or screened from public view and from adjacent properties using hedging, shrubs, trees, fencing or walls.

8.3.5.2(3) Bury electrical wires.

8.4 Trees, Shrubs, and Groundcover

8.4.1. Tree Retention and Protection

8.4.1.1 Basic Requirements

8.4.1.1(1) Existing trees and mature vegetation are to be retained where they do not conflict with Site development or Site grading. Trees and mature vegetation that will be retained must be protected during construction.

8.4.1.1(2) To reinforce the image of a well-established landscape, retention and incorporation of mature trees and landscape into the development Site is encouraged.

8.4.1.2 Performance Criteria

8.4.1.2(1) Engage a certified arborist (licensed with the ISA) to evaluate the existing trees to remain.

8.4.1.2(2) Submit the arborist report submittal.

8.4.1.2(3) Treat the retained trees as directed by the arborist and under the direct guidance of the arborist (e.g. root pruning, limb pruning, watering, fertilizing).

8.4.1.2(4) Trees and vegetation that will be retained must be protected during construction with fencing to the Critical Protection Zone as defined in the CLS.

8.4.1.2(5) No excavation, storage of materials, parking, vehicular driving, preloading, digging, trenching, or filling will occur within the Critical Protection Zone of the trees being preserved.

8.4.1.2(6) Intentionally deleted.

8.4.1.2(7) Intentionally deleted.

8.4.1.2(8) Where necessary, provide tree wells and/or creative grading of the ground away from existing vegetation to remain. Where tree wells are to be constructed, the wells must be a minimum distance of 1.5 times the distance from the trunk of the tree to the drip line.

8.4.1.2(9) Removal of existing dangerous trees will be the responsibility of the Design-Builder.

8.4.2. Landscape Planting

8.4.2.1 Basic Requirements

8.4.2.1(1) Provide plantings to support the landscape design by reinforcing spatial relationships and way-finding. The plant selection and placement will address micro-climates surrounding the Facility and mitigation of heating and cooling loads. Planting will shade and screen parking lots. Planting will provide habitat for birds and other animals.

8.4.2.1(2) Provide landscape treatments for the complete Site that contributes to the creation of a liveable, healthy and responsive community.

8.4.2.1(3) Use large calliper coniferous trees that provide seasonal interest in association with ground covering shrub plantings. Use a variety of plant material to reflect seasonal change. Avoid tree species which would have difficulty surviving or be difficult to maintain.

8.4.2.1(4) Use similar plant species to help unify the character, create recognizable spaces, contribute to site orientation and create a strong sense of place, recognizing that a diversity of tree specifies may increase the survival ratio of new landscape planting.

8.4.2.1(5) Use of indigenous flora will be considered a priority, in terms of minimizing maintenance and expressing an attitude about the site context.

8.4.2.1(6) Landscape open space and setbacks to include existing trees that are of high quality, desirable species and appropriately situated.

8.4.2.1(7) Mature plant sizes do not interfere with walks, door movement, eaves, downspouts or any other architectural or Site feature.

8.4.2.1(8) Mature plant sizes do not interfere with vehicular door movement, vehicular driving sight lines, or any other vehicular operations.

8.4.2.1(9) Provide visual screening to neighbouring properties.

8.4.2.2 Performance Criteria

8.4.2.2(1) All planting is to be per CLS.

8.4.2.2(2) All plant selections to be appropriate for the Terrace climate.

8.4.2.2(3) Locate the nursery source in a hardiness Zone 7a. Note that not all plants form Zone 7a will be acceptable for use on this Project.

8.4.2.2(4) Imported plant material must be accompanied with necessary permits and import licenses.

8.4.2.2(5) Source any roses from areas free of the pathogen Phytophthora ramorum. Provide written proof upon request.

8.4.2.2(6) Landscape densities and buffers to be per the City zoning bylaw requirements.

8.4.2.2(7) In addition to the landscape densities & buffers identified in the zoning bylaw requirements, an additional 50 coniferous trees and 75 shrubs are to be supplied and installed on the site in courtyard areas and adjacent to pathways.

8.4.2.2(8) Ensure the irrigation system is fully operational prior to installing plants.

8.4.2.2(9) Minimum acceptable size for coniferous trees to be seven gallon pot at time of installation.

8.4.2.2(10) Shrubs will be no smaller than #1 pot size upon installation. Shrub spacing and quantities to be appropriate for the installation sizes (e.g. no large gaps between plants).

8.4.2.2(11) Groundcover/perennials/ornamental grasses will be no smaller than #1 pot size upon installation.

8.4.2.2(12) To ensure safety and security, sightlines must be provided through any cluster of tall growing vegetation by keeping all under storey plants to a maximum of 1.2 m in height.

8.4.2.2(13) Use some flowering and fruiting trees and shrubs to promote natural avian habitat.

8.4.2.2(14) The trees on Site will be a combination of small trees, medium-sized trees and large trees (in terms of ultimate size) with no less than 50% of the total number of trees being large trees.

8.4.2.2(15) Do not install any plants listed as poisonous to humans by the Canadian Government's 'Canadian Poisonous Plants Information System'.

8.4.2.2(16) Group plants to minimize the use of water, chemicals and fossil fuel use for routine maintenance and to promote a healthy local ecosystem using sustainable measures.

8.4.2.2(17) Provide elements of healing gardens in the courtyards and close to Building entries to stimulate senses of sight, smell, and touch.

8.4.2.2(18) Shrubbery within 2 m of walkways will not exceed 50 cm in height.

8.4.2.2(19) Trees planted in narrow planting areas (e.g. 'Street Trees') between hard surfaces (e.g. curbs, sidewalks, roads, buildings) will have a continuous volume growing medium available to their roots along the length of the planting area (i.e. no tree pits). Minimum widths of planting areas to be 1.5 m, but wider planting areas are encouraged.

8.4.2.2(20) Trees will be planted in areas that will provide root zone access to a volume of growing medium sufficient to support proper growth. This may include linear tree trenches, structural soil beneath pavement or other means necessary to provide ample growing medium. Provide soil volume per tree as follows:

8.4.2.2(20)(a) 5 cubic metres for small trees;

8.4.2.2(20)(b) 10 cubic metres for a medium-sized tree; and

8.4.2.2(20)(c) 20 cubic metres for a large tree.

8.4.2.2(21) Provide a continuous vegetative screen between the adjacent residential properties and the Facility.

8.4.2.2(22) Provide a maintenance strip of washed river rock under the entire dripline of the Facility. This maintenance strip shall be minimum of 200mm thick round river rock that is 75mm to 150mm diameter, set over filter fabric and with a continuous treated timber edge set flush with surrounding areas.

8.4.2.2(23) In addition to other plant quantities listed herein, plant quantities and planting bed quantities will, at a minimum, meet the requirements set out in the table below:

Row	**Component**	**Landscape Element**	**Minimum Quantity**
(i)	Parking Lots	Shade Trees	1 tree for every two parking stalls
	Parking Lots	Shrub Planting	Provide a minimum of two rows of shrubs along: • parking areas in order to screen parking from adjacent residential areas and to screen from any windows or doorways of the Facility.
(ii)	Site Perimeter	Shade Trees	• one tree per 10 linear meters of property line.

Row	Component	Landscape Element	Minimum Quantity
(iii)	Facility Faces	Foundation Planting	• Provide foundation planting in continuous beds along 75% of the available building face that will extend from the building face to a minimum average distance of 1.8 m. Provide plant material in sufficient quantity such that within three years of installation 100% of each planting bed is covered.

8.4.3. General Outdoor Open Space

8.4.3.1 Basic Requirements

8.4.3.1(1) Provide outdoor spaces in the design of the Facility to accommodate activities.

8.4.3.2 Performance Criteria

8.4.3.2(1) Provide outdoor spaces in the design of the Facility to accommodate activities, including:

1. Space and hard landscape elements conducive to healing and recovery that may be used as a component of physical and occupational therapy;

2. Space which acts as the “front garden” of the Facility which will be fully accessible to the public with strong connections to the site and the neighbourhood and does not require visitors to cross any roads or parking lots to access from the Main Entry of the Facility to the front garden.

3. Space to accommodate semi-public/private activities; and

4. Spaces for activities including patient/family visiting, staff breaks/retreats.

8.4.3.2(2) Provide access to the outdoor spaces from the public areas of the Facility without having to cross any roads or parking lots.

8.4.3.2(3) Design and install walkways, gathering areas, and landscape planting to avoid dangers of snow sliding off of roofs.

8.4.4. Courtyards and Gardens

8.4.4.1 Basic Requirements

8.4.4.1(1) In addition to the Outdoor Spaces identified above, provide distinct, separate courtyards and gardens to accommodate programmed and un-programmed activities. Provide a minimum of four gardens and one courtyard.

8.4.4.2 Performance Criteria

8.4.4.2(1) The general specifications in this Section will apply to all of the courtyards and gardens.

8.4.4.2(2) The Design-Builder will design the Gardens & Courtyards:

8.4.4.2(2)(a) to provide a sense of control:

(a).74 provide a variety of spaces from which to choose;

(a).75 provide fixed and moveable furniture (unless otherwise directed); and

(a).76 promote a sense of security and safety.

8.4.4.2(2)(b) to provide for social support:

(a).77 provide areas with seating to encourage conversation;

(a).78 provide areas of refuge;

(a).79 planting design and site furnishings will minimally provide semi-private niches for one or two people to sit as well as an area for a group of eight to sit privately together; and

(a).80 provide areas for meditation, contemplation and reflection.

8.4.4.2(2)(c) to provide for physical movement and exercise:

(a).81 provide a variety of different activities;

(a).82 provide easy wayfinding;

(a).83 provide a variety of longer and shorter pathway loops for strolling and exercise;

(a).84 no pathway is to have dead ends;

(a).85 utilize walkway edging to prevent those using wheelchairs from rolling into planting beds;

(a).86 walkways will be a minimum 1.8m in width and will have a surface to accommodate Residents with intravenous equipment, gurneys, and wheelchairs or walkers;

(a).87 provide a minimum of one handrail between the entrance to any courtyard and garden (from the interior of the Facility) and a seat for Residents experiencing difficulties with strength or balance;

(a).88 pavement expansion joints to be no more than 3 mm in width to prevent the wheels of IV poles getting caught and stuck;

(a).89 provide radius on all pathway intersections no smaller than 1m;

(a).90 provide paved pads for tables and chairs and paved pads under all seating; and

(a).91 Ensure the picnic tables and other fixed furnishings are spaced wide enough to get a 1.5 m snow removal machine between them.

8.4.4.2(2)(d) to provide access to nature and positive distractions:

(a).92 gardens are to be incorporated as an integral extension of the Facility interiors, linking its internal spaces to view vistas of the exterior greenspace;

(a).93 gardens are to be visible from at least one well-used interior area (unless otherwise noted below);

(a).94 incorporate visibility and visual interest both into and out of the garden;

(a).95 provide adequate signage within the building to alert people of the gardens;

(a).96 gardens are to be fully accessible with automatic doors and low entry lips to facilitate wheelchair access;

(a).97 provide ‘found elements’ in the garden that provide visual distraction;

(a).98 provide plant material that attracts birds and provides seasonal interest;

(a).99 design elements that stimulate the senses and create an atmosphere of peace;

(a).100 provide visual relief and interest in vertical and horizontal dimensions;

(a).101 provide bright colours; and

(a).102 provide visual vistas of nature/landscape elements viewable to Residents who are confined to their rooms.

8.4.4.2(2)(e) to minimize intrusive stimuli:

(a).103 courtyards and gardens must be sheltered from the wind;

(a).104 provide some gathering/seating areas that are sheltered from the sun and rain;

(a).105 surfaces must reduce glare (i.e. tinted concrete);

(a).106 seating material to be constructed of warm, comfortable material that does not get excessively hot or cold (i.e. wood) and facilitates the shedding of water. Avoid the use of concrete, aluminum and steel seats;

(a).107 seating must include back rests;

(a).108 take measures to reduce or cover up loud or repetitive man-made sounds;

(a).109 locate courtyards and gardens to avoid unpleasant odours and smoke;

(a).110 design courtyards and gardens to avoid bright lights; and

(a).111 all plant material selection will consider potential allergic reactions and avoid any potential allergic reaction causing species.

8.4.4.2(2)(f) as gardens and not paved courtyards:

(a).112 gardens are to be lush and green with a minimum ratio of planted areas to hard surface areas of 7:3. Higher ratio of plants is acceptable;

(a).113 stimulate the senses of sight, sound, smell and touch;

(a).114 provide natural lighting and sounds;

(a).115 design with an emphasis on natural features such as plants, rocks, and wood and;

(a).116 provide at least one hose bib in each garden.

8.4.4.2(2)(g) to minimize ambiguity:

(a).117 provide a well-defined and inviting garden entrance;

(a).118 provide a design that is easy to interpret by the majority of people;

(a).119 to provide bear proof garbage containers in all outdoor courtyards and gardens; and

8.4.4.2(2)(h) to provide bear proof garbage containers at the Main Entries and by connecting exterior pathways.

8.4.4.2(3) To supplement the general specifications identified above, the following are specific requirements for each of the Gardens:

8.4.4.2(3)(a) Provide at least one outdoor space dedicated to each department;

8.4.4.2(3)(b) Provide at least four (4) gardens and one (1) courtyard as follows; the General Therapeutic Garden, the Main Entry Garden, the Staff Garden, the Seven Sisters Facility Garden, and the Secure Psychiatry Inpatient Unit Courtyard.

8.4.4.2(4) Design a minimum of one **General Therapeutic Garden** / exterior social space that is accessible to the general population of the Facility including patients, staff, and visitors. This General Therapeutic Garden will:

8.4.4.2(4)(a) Be highly visible from well-populated areas of the Facility;

8.4.4.2(4)(b) Be at least 800m2;

8.4.4.2(4)(c) Provides both fixed and moveable seating for at least 20 people;

8.4.4.2(4)(d) Have at least 10 coniferous trees and 30 shrubs;

8.4.4.2(4)(e) Have growing medium and grass in all areas that are not planted or paved;

8.4.4.2(4)(f) Have continuous glazing to provide daylight to all spaces or circulation zones adjacent to the garden;

8.4.4.2(4)(g) Include tables and chairs;

8.4.4.2(4)(h) Intentionally deleted.

(h)..1 Intentionally deleted.
(h)..2 Intentionally deleted.
(h)..3 Intentionally deleted.
(h)..4 Intentionally deleted.
(h)..5 Intentionally deleted.
(h)..6 Intentionally deleted.
(h)..7 Intentionally deleted.
(h)..8 Intentionally deleted.

8.4.4.2(5) Include an integrated interpretive signage system;

8.4.4.2(6) Respect indigenous culture as follows:

8.4.4.2(6)(a) consult with indigenous working group during the design phase and the installation phase of the general therapeutic garden,

8.4.4.2(6)(b) incorporate cultural elements such as wood sculpture and wood poles and indigenous plants used for traditional healing,

8.4.4.2(6)(c) provide indigenous plants as requested by the indigenous working group,

8.4.4.2(6)(d) provide resting places that promote enjoyment and education of Indigenous culture.

8.4.4.2(7) Reference Local History and Heritage by incorporating cultural and historical references to the local history and heritage of the local community.

8.4.4.2(8) Design a minimum of one **Main Entry Garden** that is accessible to the general population of the facility including patients, staff and visitors. This main entry garden will:

8.4.4.2(8)(a) Be adjacent to the front doors of the Facility;

8.4.4.2(8)(b) Be highly visible from well-populated areas of the Facility;

8.4.4.2(8)(c) Is at least 50m2;

8.4.4.2(8)(d) Be fully planted with shrubs at 1m o.c. and perennials at .3m o.c.;

8.4.4.2(9) Design a minimum of one **Outdoor Staff Garden** that:

8.4.4.2(9)(a) Provides staff outdoor resting areas in close proximity to the administrative staff and support area;

8.4.4.2(9)(b) Is at least 50m2;

8.4.4.2(9)(c) Provides seating for at least six people;

8.4.4.2(9)(d) Provide a bear proof garbage can;

8.4.4.2(9)(e) Provides visual privacy from public and client areas so staff do not have to mingle with clients on their breaks;

8.4.4.2(9)(f) Is surrounded by trees and shrubs;

8.4.4.2(9)(g) Includes tables and chairs;

8.4.4.2(9)(h) Includes moveable furniture; and

8.4.4.2(9)(i) Includes a paved pathway, a paved pad for tables and chairs, and an open grass area (with Kentucky Bluegrass Sod).

8.4.4.2(10) Design a minimum of one **Seven Sisters Facility Garden** that:

8.4.4.2(10)(a) Provides the Residents & Family of Seven Sisters Facility outdoor resting and recreation areas in close proximity to the Seven Sisters Facility;

8.4.4.2(10)(b) Is at least 500m2;

8.4.4.2(10)(c) Provides seating for at least fifteen (15) people;

8.4.4.2(10)(d) Provide a bear proof garbage can;

8.4.4.2(10)(e) Provides restricted access to Seven Sisters Facility Residents and Family with access from inside the Seven Sisters Facility or outside the Seven Sisters Facility.

8.4.4.2(10)(f) Is surrounded by trees and shrubs;

8.4.4.2(10)(g) Provides six (6) X 4m2 raised garden beds (min 600mm ht.). These are to be located in a location that will receive full sun in the summer months.

8.4.4.2(10)(h) Provides a 10m2 lockable garden shed. The shed shall be vandal resistant with a weatherproof roof. It is to be tall enough for an adult to walk inside without needing to duck their head, The interior perimeter walls are to have at least three (3) rows of continuous 450mm deep shelving. Provide ten hooks for hoses, tools, and other garden equipment.

8.4.4.2(10)(i) Provides a 40m2 covered patio that is sheltered from the rain, wind and elements. The covered patio shall be attached to the Seven Sisters Facility. Provide at least two exterior electrical outlets to the covered patio space.

8.4.4.2(10)(j) Provides a dedicated space near the patio that would be suitable for an open fire pit with surrounding seating.

8.4.4.2(10)(k) Provides a dedicated 100m2 level, rectangular shaped grass area for recreational/sporting activities.

8.4.4.2(10)(l) Includes tables and chairs;

8.4.4.2(10)(m) Includes moveable furniture; and

8.4.4.2(10)(n) Includes a paved pathway, a paved pad for tables and chairs, and an open grass area (with Kentucky Bluegrass Sod).

8.4.4.2(11)

8.4.4.2(12) Design a minimum of one Secure Mental Health Courtyard so that it:

8.4.4.2(12)(a) Is located adjacent to the mental health department.

8.4.4.2(12)(b) Is a private and secure space enclosed by either fencing or walls. Fence/wall will be sturdy, vandal-proof, non-scalable and will prevent elopement;

8.4.4.2(12)(c) Has a fence (if the space is not fully enclosed by walls) that is to be 3m high Omega double-wire non-scalable fence;

8.4.4.2(12)(d) Has landscape planting to break up the visual appearance of the fence from both inside and outside the Courtyard;

8.4.4.2(12)(e) Is not visible from any well-used areas of the facility;

(a).120 Well-used areas refer to common activity areas like main entry areas;

(a).121 Patient Rooms and “back of house” staffing functions may look down upon the Secure Mental Health Courtyard from an upper floor level;

(a).122 The Secure Mental Health Courtyard is to be designed to not allow Residents in the courtyard to be able to go directly against any window of the Facility, including Resident bedrooms and common activity areas. The intent is to preserve the privacy of Residents and staff in the Facility;

(a).123 It is not acceptable for the privacy intent of items a) to C) above to be achieved through on-way vision glazing in the windows.

8.4.4.2(12)(f) Is observable from a team care station with PA access for staff to call back clients;

8.4.4.2(12)(g) Has direct access from the mental health common space;

8.4.4.2(12)(h) Is at least 300m2;

8.4.4.2(12)(i) Provides fixed/secure seating for at least 12 people;

8.4.4.2(12)(j) Has a built-in Bar-B-Que with locking mechanisms to keep the lid and doors locked;

8.4.4.2(12)(k) Has exterior lighting;

8.4.4.2(12)(l) Allows smoking as per City by-law;

8.4.4.2(12)(m) Locate the smoking area a minimum of 10 meters away from operable windows.

8.4.4.2(12)(n) Includes at least 6 coniferous trees, 20 shrubs;

8.4.4.2(12)(o) Has growing medium and grass in all areas that are not planted or paved (grass to be Kentucky Bluegrass sod);

8.4.4.2(12)(p) Does not have the ability to have items dropped into the space from floors above or have items dropped in from the outside;

8.4.4.2(12)(q) Has all design elements (including walls and furniture) designed to limit the potential of vandalism and injury to the users;

8.4.4.2(12)(r) Allows Residents to have scheduled visits outdoors under supervision from staff;

8.4.4.2(12)(s) Allows space for outdoor therapy;

8.4.4.2(12)(t) Allows basic activities like picnics, outdoor gardening, reading, resting, contemplation and walking; and

8.4.4.2(12)(u) Includes fixed/secure tables and chairs.

8.4.5. Street Furniture:

8.4.5.1 Basic Requirements:

8.4.5.1(1) Unify the exterior ground plane treatment through the use of common paving materials, tree grates, lighting and other landscape furniture items.

8.4.5.1(2) Provide and coordinate design for street furniture, including benches provided at regular intervals for ease of use particularly for the infirm.

8.4.5.1(3) Where possible use exterior steps and landscape features for the enjoyment of staff and visitors.

8.4.5.1(4) Seating in outdoor areas must: be ergonomically designed for a variety of people; be designed to allow a wheelchair to sit alongside fixed seating or, where tables are provided, to allow a wheelchair to pull up to each table; have a minimum of 50% with backrests; and shed rain water.

8.4.5.2 Performance Criteria:

8.4.5.2(1) Unify the ground plane treatment through the use of common paving materials, tree grates, lighting and other landscape furniture items.

8.4.5.2(2) Seating areas with benches will be located throughout the site no more than 65 m apart from each other. Select products on the basis of safety, comfort, design and materials that relate to the Facility architecture and landscape design, durability and required maintenance.

8.4.5.2(3) Select products for their suitability and durability in the climatic conditions found at the Site.

8.4.5.2(4) Utilize a variety of scales, locations and orientations of seating areas and site furnishings to cater to varied outdoor activities and varied experiences of the staff and visitors.

8.4.6. Parking Design Principles:

8.4.6.1 Provide all parking lots with the following landscape requirements:

8.4.6.1(1) Screen surface parking by plant material, and where surface parking is behind buildings, screen such surface parking from adjacent properties with landscape planting or trellis strips;

8.4.6.1(2) Incorporate safety and security measures into the landscape design;

8.4.6.1(3) Surface parking must contribute to the continuity of the street landscape edge without compromising the safety and security of the public inside the lot and on the public street;

8.4.6.1(4) Reduce the visual impacts of large surface parking lot areas by dividing the parking area into smaller (i.e. maximum 0.6 ha) parking lots defined at the boundaries by drive aisles, sidewalks, trees and landscape planting; plant shrubs and small trees to define circulation routes for pedestrians and vehicles; and

8.4.6.1(5) Multiple surface parking lots must provide a direct pedestrian pathway system through the parking area to provide convenient and safe pedestrian access between Building entrances, parked cars, and sidewalks of adjoining streets.

8.4.7. Fences and Gates:

8.4.7.1 Basic Requirements:

8.4.7.1(1) Provide fences and gates for yards and other areas as noted.

8.4.7.1(2) Provide fences with decorative metal “picket”-style, except in loading or utility areas or other areas where screening is required.

8.4.7.1(3) Install fences per manufacturer’s directions and to minimize movement from freeze-thaw cycles.

8.4.7.2 Performance Criteria:

8.4.7.2(1) Provide decorative aluminum or steel fence with powder coat finish. Pickets will not extend over top rail.

8.4.7.2(2) Supply gates with locking hardware that will release with fire alarm and sized to allow access for maintenance equipment.

8.4.7.2(3) Fence and gates components will meet the following minimum criteria:

8.4.7.2(3)(a) ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.

8.4.7.2(3)(b) ASTM B117 - Practice for Operating Salt-Spray (Fog) Apparatus.

8.4.7.2(3)(c) ASTM D523 - Test Method for Specular Gloss.

8.4.7.2(3)(d) ASTM D714 - Test Method for Evaluating Degree of Blistering in Paint.

8.4.7.2(3)(e) ASTM D822 - Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus.

8.4.7.2(3)(f) ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.

8.4.7.2(3)(g) ASTM D2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.

8.4.7.2(3)(h) ASTM D2794 - Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).

8.4.7.2(3)(i) ASTM D3359 - Test Method for Measuring Adhesion by Tape Test.

8.4.7.2(3)(j) ASTM F2408 – Ornamental Fences Employing Galvanized Steel Tubular Pickets.

8.4.8. Landscape Irrigation:

8.4.8.1 Basic Requirements:

8.4.8.1(1) Provide a permanent automated irrigation system for watering of turf and planting areas throughout the Site.

8.4.8.1(2) Design the automated irrigation system to minimize water waste including head spacing and spray pattern, watering times and length, head type, low-flow components and re-use of rainwater.

8.4.8.1(3) Facility will be provided with sufficient numbers of exterior hose bibs to allow for manual washing of all walkways and paved areas of the site using a maximum 30 meter hose.

8.4.8.2 Performance Criteria – Automated irrigation system:

8.4.8.2(1) Provide commercial grade irrigation equipment.

8.4.8.2(2) PVC distribution pipe will not be accepted. Use HDPE or LDPE pipe.

8.4.8.2(3) Provide PVC sleeves where distribution pipe and control wires pass under sidewalks, driveways and other hard surfaces.

8.4.8.2(4) Design system to irrigate turf and shrubs on different zones. Zone division will consider microclimate.

8.4.9. Topsoil & Finish Grading:

8.4.9.1 Basic Requirements:

8.4.9.1(1) Apply topsoil and planting mix to areas of turf and shrub and tree planting.

8.4.9.1(2) Test soil to determine texture, nutrient composition, pH, organic carbon and salinity

8.4.9.2 Performance Criteria:

8.4.9.2(1) Topsoil/Growing Medium to be as per the CLS (Canadian Landscape Standard).

8.4.9.2(2) Topsoil will be black topsoil, a fertile, friable natural loam, neither heavy clay nor very light sand, consisting of not less than 4% organic matter for clay loams and not less than 2% for sandy loams, with an acidity value ranging from pH 6.0 to 8.0.

8.4.9.2(3) Planting mix will be 60% topsoil, 20% peat moss or well-rotted manure, 20% sharp-grained sand.

8.4.9.2(4) Complete testing on topsoil and planting mix to determine particle size, total organic carbon, salinity and NPKS levels. Testing facility will provide fertilizer recommendations.

8.4.9.2(5) Finish grading will spread topsoil and planting mix evenly where required. Eliminate rough and low areas to ensure positive drainage.

8.4.9.2(6) Grass areas are to receive min 150mm thick topsoil. Planting areas are to receive min 300mm thick topsoil.

8.4.10. Seeding:

8.4.10.1 Basic Requirements:

8.4.10.1(1) Seeding mix, seed and fertilizer application may be used in areas of turf.

8.4.10.1(2) Seeded areas will be established and maintained per the landscape maintenance requirements as well as what is noted below.

8.4.10.1(3) Erosion control measures may be used where slopes require stabilization.

8.4.10.1(4) Seed mixes used in areas without permanent irrigation will be drought tolerant.

8.4.10.2 Performance Criteria:

8.4.10.2(1) Ensure that the irrigation system is fully functional prior to installing seed.

8.4.10.2(2) Provide seeds that are certified Canada No. 1 Grade to Government of Canada Seeds Regulations and have a minimum germination of 75% and minimum purity of 97%.

8.4.10.2(3) Provide fertilizer that is a complete commercial synthetic slow release fertilizer with maximum 35% water soluble nitrogen and is uniform in composition and free-flowing.

8.4.10.2(4) Keep seeded areas moist during germination period. Provide seeding that, after two mowings, is free of eroded, bare or dead spots and reasonably free of weeds.

8.4.10.2(5) Provide erosion control blanket of agricultural straw or straw / coconut fibre mix stitched between two woven biodegradable nets where slopes exceed 2:1 slopes and in other areas where erosion is a possibility.

8.4.10.2(6) Provide straw or wood cellulose hydro-mulch with a tackifier of plant derived hydrocolloid polysaccharide (guar), organic psyllium fiber or water dilatable liquid dispersion containing thermoplastic resin. Mix and application rate will be per manufacturer's instruction.

8.4.10.2(7) Use erosion control measures where required and installed per manufacturer's instruction.

8.4.11. Sodding:

8.4.11.1 Basic Requirements:

8.4.11.1(1) Kentucky Bluegrass sod may be used in turf areas with permanent irrigation.

8.4.11.1(2) Kentucky Bluegrass sod to be used in the grass areas of all 'gardens' & 'courtyards'.

8.4.11.1(3) Fescue-based low-watering sod may be used in turf areas without permanent irrigation.

8.4.11.1(3)(a) Alternatively, in areas without permanent irrigation the following seed mix may be used:

(a)..1 15% Quatro Sheeps Fescue
(a)..2 15% Eureka II Hard Fescue
(a)..3 10% Chantilly Creeping Red Fescue
(a)..4 20% Creeping Red Fescue
(a)..5 20% Windward Chewings Fescue
(a)..6 20% Banfield Perennial Ryegrass.

8.4.11.2 Performance Criteria:

8.4.11.2(1) Ensure the irrigation system is fully operational prior to installing sod.

8.4.11.2(2) Grade No. 1 cultured turf in accordance with the current edition of the "Metric Guide Specification for Nursery Stock" of the Canadian Nursery Landscape Association (CNLA), composed of:

8.4.11.2(2)(a) Kentucky Bluegrass sod: a minimum of 60% Kentucky Bluegrass / Poa pratensis.

8.4.11.2(2)(b) Fescue sod – mix of fine fescue and perennial rye grasses with spreading habit.

8.4.11.2(3) Provide sod that, after two mowings, is free of eroded, bare or dead spots and reasonably free of weeds

8.4.12. Mulches:

8.4.12.1 Basic Requirements:

8.4.12.1(1) Provide mulch to planting beds and tree wells to increase moisture retention.

8.4.12.2 Performance Criteria:

8.4.12.2(1) Provide wood mulch that is untreated, shredded wood fibre.

8.4.12.2(2) Mulch will be tapered to base of tree, shrub or perennial as per the CLS.

8.4.12.2(3) Mulch to be 75mm thick in all planting areas.

8.4.13. Outdoor Art

8.4.13.1 Basic Requirements

8.4.13.1(1) The Master Site Plan shall include at least three different areas for outdoor art/sculptures.

8.4.13.2 Performance Criteria

8.4.13.2(1) Provide areas in the landscape design for outdoor art (e.g. concrete pads). The actual art pieces will be provided and installed by others in the future.

8.4.14. Site Perimeter Security

8.4.14.1 Basic Requirements

8.4.14.1(1) Provide security between the Site and the adjacent neighbouring properties.

8.4.14.2 Performance Criteria

8.4.14.2(1) Provide a continuous 6’ tall chain link fence between the hospital property and the adjacent residential properties.

8.4.15. Snow Storage

8.4.15.1 Basic Requirements

8.4.15.1(1) Provide safe, convenient short-term and long-term snow storage areas.

8.4.15.2 Performance Criteria

8.4.15.2(1) Provide paved areas for short-term snow storage located near the main facility entries. These are to be located within 30m of the main facility entries and large enough to accommodate the snow removed from the sidewalks around the entries during a 25mm snowfall.

8.4.15.2(2) Short-term snow storage areas are to be hidden from view while also being easily accessible by snow removal equipment.

8.4.15.2(3) Provide grass areas for long-term snow storage. These are to be located adjacent to parking areas and easily accessible to snow plows & other snow removal equipment without damaging any plants.

Appendix 1A Clinical Specifications
Appendix 1B Furniture and Medical Equipment
Appendix 1C Acoustics and Noise Control Measures
Appendix 1C(I) Control of Vibration and Noise During Construction
Appendix 1D Technology Narrative
Appendix 1D(I) Technology Responsibility Matrix
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4. **Sub – Appendices**

1.1 BACKGROUND AND SCOPE

1.1.1 Appendix 1A is the Clinical Specification. Its purpose is to describe and outline the key needs and building design attributes required to successfully implement clinical operations and achieve the desired model of care. This document describes both general planning concepts and detailed specific clinical needs. It includes data that will directly and indirectly influence design decisions. Appendix 1A includes:

1.1.1(1) This section - Section 1: Introduction;

1.1.1(2) Section 2: General Planning Criteria; and

1.1.1(3) Section 3: The Components of the Clinical Specification.

1.1.2 Appendix 1A Clinical Specification describes the program requirements of the Mills Memorial Hospital (the Facility) and the Seven Sisters Mental Health Rehabilitation & Recovery Program Facility located on the same site in Terrace, BC.

1.1.3 Northern Health Mission, Vision, Guiding Principles

1.1.3(1) The Facility will embed the mission, vision, organizational values, strategic directions, and enabling priorities of the Authority. Quoting:

1.1.3(1)(a) ***Mission Statement – Our Purpose***

1.1.3(1)(a)(i) Through the efforts of our dedicated staff and physicians, in partnership with communities and organizations, we provide exceptional health services for Northerners.

1.1.3(1)(b) ***Vision – A Picture of 2019***

1.1.3(1)(b)(i) The Authority leads the way in promoting health and providing health services for northern and rural populations.

1.1.3(1)(c) ***Organizational Values - The Beliefs that Guide our Work***

1.1.3(1)(c)(i) Empathy: Seeking to understand each individual's experience;

1.1.3(1)(c)(ii) Respect: Accepting each person as a unique individual;

1.1.3(1)(c)(iii) Collaboration: Working together to build partnerships; and

1.1.3(1)(c)(iv) Innovation: Seeking creative and practical solutions.

1.1.3(1)(d) ***Strategic Priorities***

1.1.3(1)(d)(i) Three priorities are outlined for the next five years that together will both contribute to improvements in the health system and in the health of the people we serve. A scorecard of the key performance indicators linked to each of the priorities will guide the Authority in monitoring performance. These three priorities are:

1.1.3(1)(d)(i)A *Healthy People in Healthy Communities* – the Authority will partner with communities to support people to live well and prevent disease and injury;

1.1.3(1)(d)(i)B *Coordinated and Accessible Services* – the Authority will provide health services based in a Primary Care Home and linked to a range of specialized services with support for each person and their family over the course of their lives, from staying healthy, to addressing disease and injury, to end-of-life care;

1.1.3(1)(d)(i)C *Quality* – the Authority will ensure a culture of continuous quality improvement in all areas.

1.1.3(1)(e) ***Enabling Priorities***

1.1.3(1)(e)(i) These two priorities cut across all parts of the health care system and are critical to enabling the Authority to achieve its Strategic Priorities:

1.1.3(1)(e)(i)A *Our people* – the Authority will provide services through its people and will work to have those people in place and to help them flourish in their work; and

1.1.3(1)(e)(i)B *Communications, technology, and infrastructure* – the Authority will implement effective communications systems, and sustain a network of facilities and infrastructure that enables service delivery.

1.2 SUMMARIES

1.2.1 Projected Patient Position Assumptions

1.2.1(1) The following table presents the number of patient positions throughout the Facility by component.

1.2.1(2) Table No. 1: Projected Patient Positions

Component	# of Patient Positions
Ambulatory Care Centre	40
Cancer Care Clinic	10
Emergency Services	19
Inpatient Units:	
Birthing Unit (including Special Care Nursery)	13
Medical/Surgical IPU	43
Psychiatric IPU (incl. Secure/Observation Rooms)	24
Intensive Care Unit	8
Laboratory Services - *Outpatient Specimen Collection*	3
Medical Imaging	
General Radiography/Fluoroscopy/Multipurpose	3
CT	1
MRI	1
US	6
Rehabilitation Services	8
Renal Services	14
Surgical Services	
Surgical Daycare, PACU	20
ORs	4

Note:

Seven Sisters Mental Health Rehabilitation & Recovery Program will accommodate 25 residents in a separate facility on the same site as the Mills Memorial Hospital.

1.2.2 Facility Occupancy

1.2.2(1) The following table summarizes the estimated Facility occupancy during day and night hours by typical occupant type.

1.2.2(2) Table No. 2: Facility Occupancy Table

Occupancy Type	Patients		Care Providers		Staff		Visitors	
Component	Days	Nights	Days	Nights	Days	Nights	Days	Nights
Administration, HIMS	0	0	0	0	19	0	2	0
Allied Health/Interprofessional Health Team	0	0	11	0	0	0	0	0
Ambulatory Care Centre	40	0	20	0	2	1	20	0
Back of House:								
Facilities Management Office	0	0	0	0	9	2	1	0
Housekeeping & Laundry Services	0	0	0	0	7	2	0	0
Materiel Management	0	0	0	0	10	0	2	0
Biomedical Engineering	0	0	0	0	4	0	0	0
Cancer Care Clinic	10	0	3	0	2	0	3	0
Education Hub:								
Education & Meeting Facilities	0	0	0	0	3	0	40	25
Northern Clinical Simulation Centre	0	0	2	0	0	0	2	0
UBC FoM Northern Medical Program	0	0	12	4	1	0	0	0
Emergency Services	25	13	10	8	5	3	25	13
Intensive Care Unit	8	8	6	6	1	0	2	2
Food Services	0	0	1	0	15	2	1	0
IMIT and Telehealth	0	0	0	0	3	0	1	0
Inpatient Units:								
Birthing Unit	13	13	3	3	4	1	8	5
Medical/Surgical IPU	38	38	15	11	10	5	19	30
Psychiatric IPU	20	20	10	5	5	2	4	5
Laboratory Services	3	0	0	0	22	2	2	0
Main Entry Facilities	0	0	0	0	15	9	10	4
Medical Imaging	20	4	0	0	29	5	10	2
Pharmacy	1	0	0	0	19	4	1	0
Rehabilitation Services	7	0	7	0	1	0	2	0
Renal Services	12	0	7	0	3	0	3	0
Staff Facilities & Medical Staff Facilities	0	0	0	0	60	20	0	0

Occupancy Type	Patients		Care Providers		Staff		Visitors	
Component	Days	Nights	Days	Nights	Days	Nights	Days	Nights
Surgical Services:								
Medical Device Reprocessing	0	0	0	0	3	0	1	0
Pre-Surgery Screening Clinic, Surgical Day Care	18	0	5	2	6	0	5	0
Surgical Suite	7	1	31	1	8	1	2	0
Subtotal, Estimated Building Occupancy (MMH)	222	97	143	40	266	59	166	86
Seven Sisters Mental Health Rehabilitation & Recovery Program Facility	25	25	10	3	7	3	10	5
Total, Estimated Building Occupancy (Days)	**797 (Days)** + (52 Seven Sisters)				**282 (Nights)** + (36 Seven Sisters)			

1.2.3 Component Schedule of Accommodation Summary

1.2.3(1) The following table provides a summary of area requirements for the Facility. Exterior areas are also listed in Table No. 4. Note that the exterior areas are not grossed up and do not include site-specific access requirements for pedestrians, vehicles, etc.

1.2.3(2) Table No.3: Interior Space Summary Table

Components, Interior Area	Net Area (NSM)	Grossing Factor(s) Used	Component Gross Area (CGSM)
Administration, HIMS	316.2	1.35	427
Allied Health/Interprofessional Health Team	110.0	1.35	149
Ambulatory Care Centre	781.5	1.40, 1.50	1,172
Back of House:			
Facilities Management Office (interior spaces only)	260.2	1.15	299
Housekeeping & Laundry Services	104.5	1.15	120
Materiel Management	601.2	1.15	691
Biomedical Engineering	81.7	1.30	106
Cancer Care Clinic	305.1	1.50	458
Education Hub:			
Education & Meeting Facilities	197.8	1.25	247
Northern Clinical Simulation Centre	156.7	1.35	212
UBC FoM Northern Medical Program	175.8	1.35	237
Emergency Services	812.8	1.50	1,182
Intensive Care Unit	562.1	1.50, 1.30	832

Components, Interior Area	Net Area (NSM)	Grossing Factor(s) Used	Component Gross Area (CGSM)
Food Services	454.4	1.25	568
IMIT and Telehealth	131.5	1.20	158
Inpatient Units:			
Birthing Unit	616.6	1.50, 1.60	932
Medical/Surgical IPU	2,040.2	1.50, 1.60	3068
Psychiatric IPU	989.5	1.50	1,484
Laboratory Services	659.1	1.25, 1.30, 1.35	876
Main Entry Facilities	494.8	1.10, 1.15, 1.25, 1.30	606
Medical Imaging	996.4	1.50	1,495
Pharmacy	322.0	1.25	403
Rehabilitation Services	286.3	1.30	372
Renal Services	440.4	1.50	661
Staff Facilities & Medical Staff Facilities	398.7	1.50	482
Surgical Services:			
Medical Device Reprocessing	247.1	1.30	321
Pre-Surgery Screening Clinic, Surgical Day Care	387.8	1.35, 1.50	572
Surgical Suite	824.3	1.50, 1.50	1,272
Subtotal: Mills Memorial Hospital Facility	13,754.7		19,402
Seven Sisters Mental Health Rehabilitation & Recovery Program	1,107.3	1.35	1,495
Subtotal Seven Sisters MHR&RP Facility	1,107.3		1,495
Total, Interior Space Summary for both Facilities	**14,862.0**		**20,897**

1.2.3(3) Table 4: Exterior Space Summary Table

Component, Exterior Area	Area (CGSM)
Back of House: Facilities Management Office (Vehicle Garage)	92
Emergency Services (Ambulance Garage)	103
Main Entry Facilities (Drop Off Lanes, Flag Poles, EV parking, Bicycle Parking, Taxi Holding)	0.0
Inpatient Units: Psychiatric Unit (Outdoor Therapy Space, Smoking Area - secured)	0.0
Staff Facilities and Medical Staff Facilities (Covered Bicycle Storage - secured)	39.0
Subtotal: Mills Memorial Hospital Facility:	234
Seven Sisters Mental Health Rehabilitation & Recovery Program – (Outdoor Area, Smoking Area - secured)	0.0
Subtotal: Seven Sisters MHR&RP Facility	0.0
Total, Exterior Space Summary both Facilities	234

Note: Areas shown as 0.0 CGSM are assumed to be uncovered unless otherwise noted.

1.3 Abbreviations and Definition of Terms

1.3.1 Abbreviations

1.3.2(1) The following abbreviations appear in this document.

AGB	Adjustable Gastric Banding
ALC	Alternate Level of Care
BVDH	Bulkley Valley District Hospital
CIS	Clinical Information System
DHCC	Diamond Health Care Centre
ENT	Ear Nose Throat
FP	Family Practice
LOS	Length of Stay
NW	North West
PM	Preventative Maintenance
RTUC	Regional Tertiary Utilization Committee

1.3.2 Definitions of Terms

1.3.2(1) *Case Management/Care Coordination* – For an individual patient, the coordination, facilitation and management of care delivery across the continuum of care. This approach expands the traditional inpatient focus to include patients with chronic conditions in all settings of care.

1.3.2(2) *Affiliated Teaching Hospital* – A hospital with an affiliation agreement with a university, indicating compliance with Royal College (of Physicians and Surgeons) criteria.

1.3.2(3) *Alternate Level of Care (ALC)* – When the most appropriate level of care for an individual can/should be provided in a setting other than the current one.

1.3.2(4) *Buzzer/Intercom* – a system that provides voice communications between two or more different locations. Typically used to give visitors a way to contact someone who is inside a component once they arrive at an entrance to that component.

SECTION 2: GENERAL PLANNING CRITERIA

This section of the document provides an overview of General Planning Criteria that addresses patient, family, volunteer, and staff well-being, as well as criteria and concepts related to unit organization and operation.

These are the General Planning Criteria; more detailed component-specific Design Criteria are included in each Component. The two sections must be read together.

The General Planning Criteria are described in sections, as follows:

2.1 Building Concepts;

2.2 Interior Features;

2.3 Organizational Concepts; and

2.4 Operational Systems.

2.1 BUILDING CONCEPTS

2.1.1 To better understand the preference and needs of the Authority, what follows is a description of general planning concepts and organization.

2.1.1(1) Reflection of Indigenous Culture in this Facility: All areas of the Facility must incorporate visible representation of Indigenous culture into the design and will require respect for Indigenous cultural values represented by Indigenous groups of the surrounding areas throughout the development and design.

2.1.2 Attention must be given to the aesthetics and comfort of the environment to address patients' physical limitations and emotional condition.

2.1.3 The *Inpatient Units: Birthing Unit* component shall not be located on any ground floor.

2.1.4 The following components shall be located on the main floor with convenient access to the main patient drop-off:

2.1.4(1) Ambulatory Care Centre (ACC);

2.1.4(2) Cancer Care Clinic (CCC);

2.1.4(3) Education Hub components;

2.1.4(4) Emergency Services (ES);

2.1.4(5) Laboratory Services;

2.1.4(6) Main Entry Facilities;

2.1.4(7) Medical Imaging (MI); and

2.1.4(8) Renal Services.

2.1.5 The Inpatient Units: Psychiatric IPU shall have direct secure access to the ground level for the secured Outdoor Therapy Area.

2.1.6 The Inpatient Units (Birthing and Medical/Surgical) shall occupy the top clinical floors.

2.1.7 The Surgical Services: Medical Device Reprocessing (MDR) shall be connected horizontally or vertically to Surgical Services: Surgical Suite.

2.1.8 The Back of House components must be clustered in close proximity and have access to the Service Entrance of the Facility.

2.1.9 The Education Hub components must be clustered and have convenient access to the main entrance to the Facility.

2.1.10 The Surgical Services components shall be clustered to facilitate sharing of staff and spaces.

2.1.11 An intuitive circulation system is essential for the effective and secure movement of visitors, patients, staff and materials. Primary elements of the system provided will include:

2.1.11(1) Visitor Circulation: allowing for efficient and clear movement of visitors to areas where it is appropriate and ensuring visitors do not inadvertently enter restricted areas;

2.1.11(2) Service Circulation (Soiled): allowing for efficient, secure, and sufficient width and floor load capacity for the movement of equipment, supplies, food, food carts;

2.1.11(3) Staff Circulation: convenient vertical and horizontal staff access between staff work areas of the inpatient areas and outpatient areas allowing collaboration and timely response in emergencies; and

2.1.11(4) General Circulation (Clean): mixed vertical and horizontal circulation used for the movement of visitors, patients, care providers, and support staff.

2.1.12 Circulation systems shall encourage positive interaction between people, with communal interaction spaces allowing for both formal and informal interaction to encourage on-going communication between staff and patients.

2.1.13 The net square areas and component gross areas shall satisfy the requirements outlined in Appendix A1: Clinical Specification. While it is understood that there may be some deviation in some room sizes to accommodate for building systems or design requirements, it is expected that the deviation is minimal, infrequent, and shall not disrupt, in any way, the functionality of any spaces involved.

2.1.14 The allocated net square metres (NSM) shall not be used for corridors or circulation (unless specifically noted as such).

2.1.15 The circulation space allocated within the component gross square metres (CGSM) shall not be used for general and service corridors and mechanically supported circulation (i.e. BGSM).

2.2 INTERIOR FEATURES

2.2.1 Barrier-Free/Accessibility

2.2.1(1) The entire Facility shall be barrier-free.

2.2.1(2) The design of corridors and patient care areas doorways must accommodate easy movement of a stretcher.

2.2.1(3) Provide automatic/hands-free doors for the following space types:

2.2.1(3)(a) Medical Imaging – all Scanning Rooms, Examination Rooms, Ultrasound Rooms, Diagnostic Screening/Biopsy Room, and Bone Mineral Densitometry Room, and Camera Rooms;

2.2.1(3)(b) Operating Rooms (ORs);

2.2.1(3)(c) Soiled Utility Rooms and Alcoves;

2.2.1(3)(d) All rooms within and to the Surgical Services: MDR; and

2.2.1(3)(e) Pharmacy – Sterile Compounding Area.

2.2.1(4) Provide infrastructure for patient lifts in all patient care areas throughout the Facility.

2.2.1(5) Ensure infrastructure for patient ceiling lifts in all patient care areas can travel into the washroom/shower area where washrooms are accessed from patient care areas.

2.2.1(6) All entryways and doorways shall have smooth thresholds to meet barrier-free requirements as well as for the ease of movement of equipment and supplies on carts in all areas of the Facility.

2.2.2 Elderly Friendly Guidelines

2.2.2(1) Key elements of ensuring Elderly Friendly spaces include furnishings, lighting, signage/wayfinding, and appropriate equipment. Elements to provided also include:

2.2.2(1)(a) elements to reduce noise and disruption;

2.2.2(1)(b) space to accommodate a spouse, caregiver, family member at the bedside;

2.2.2(1)(c) space at the bedside for a wheelchair or walker; and

2.2.2(1)(d) washroom doors that open in both directions and are a minimum of 1200 mm clear.

2.2.3 Finishes

2.2.3(1) Ensure all surfaces shall be smooth, non-porous, seamless, durable, water impermeable, are easy to maintain and repair and are cleanable with approved hospital grade disinfectants.

2.2.4 Lighting

2.2.4(1) All inpatient rooms must have access to natural light.

2.2.4(2) All Labour Delivery Post Recovery (LDPR) Rooms will have access to natural light and views while respecting the privacy of the room occupant.

2.2.4(3) Patient rooms must have blinds.

2.2.4(4) Provide patient-controlled lighting in Patient Rooms (excluding those in the Psychiatric IPU), LDRPs, Antepartum rooms, Postpartum rooms.

2.2.4(5) Provide nighttime lighting to allow patient sleeping yet ensure maintenance of nurse-patient observation.

2.2.4(6) Provide flexibility in controlling lighting intensity to support the various tasks of each respective component.

2.2.4(7) Lighting levels and type shall be designed to meet the clinical activities performed in each respective component.

2.2.5 Patient Privacy and Safety

2.2.5(1) Patient safety must be provided in all locations.

2.2.5(2) Staff will have visual surveillance of all component entrances.

2.2.5(3) To facilitate the preservation of confidentiality and patient dignity, all examination, consult, interview, and procedure rooms must be designed with minimum STC rating of 50.

2.3 ORGANIZATIONAL CONCEPTS

2.3.1 Functional Configuration

2.3.1(1) The layout of the Facility must be such that travel distances for staff and patients are kept to a minimum and circulation routes are simple.

2.3.1(2) Stairwells shall be located to shorten staff travel distance between components.

2.3.1(3) The Design of the Facility will avoid placing stairwells in areas which restrict exterior views.

2.3.1(4) Elevators shall be centrally located for staff and patient movement.

2.3.1(5) Service elevators will be located to allow efficient ease of access for equipment and supplies movement.

2.3.1(6) Public elevators shall be visible and easily accessible from the entrances, parking lots, and main circulation on each floor.

2.3.1(7) The support spaces shall be located centrally to all patient spaces in each component but not impede view from the Team Care Station to the patients where applicable.

2.3.1(8) Staff facilities such as washrooms and change rooms, must be separate from patient areas to reduce the risk of staff being isolated with a patient or visitor.

2.3.1(9) Each patient care area will be configured to ensure patients being transported on stretchers can avoid moving through waiting areas.

2.3.1(10) Corridors will not be used as places for storage.

2.3.1(11) Medications Preparation Rooms:

2.3.1(11)(a) Medications Preparation Rooms shall be centrally located and convenient for quick staff access. All Medications Preparation Rooms are to be fully enclosed unless otherwise directed in the Schedule of Accommodation. All rooms shall have at least one door and shall be automatic opening for authorized staff (i.e. controlled access). All Medications Preparation Room doors shall have a direct line of sight from the Team Care Station.

2.3.2 Flexibility

2.3.2(1) All rooms that have a similar function shall be standardized.

2.3.2(2) All laboratory and pharmacy benches will be mobile, modular, and height adjustable for flexibility.

2.3.2(3) No built-in workstations will be accepted.

2.3.2(4) All furniture/system workstations must include at least one sit/stand type section.

2.3.2(5) All dimensions of reception workstations, triage workstations, registration workstations, patient intake workstations, must act as a barrier and provide adequate protection from violent or threatening behaviour.

2.3.2(6) Provide infrastructure for furniture/system workstations on the assumption that all will accommodate a minimum of two monitors.

2.3.2(7) Provide power and communications connections in Equipment Rooms and Equipment Alcoves, Soiled Utility Rooms, Clean Supplies Rooms, Storage Rooms, all Workrooms, Medications Preparation Rooms, and all Alcoves at a height which promotes ease of access from a standing position.

2.3.2(8) All utilities/services in Laboratory Services and Pharmacy Services must be supplied from the ceiling in a manner to promote maximum flexibility for changes or additions to equipment, and reconfigurations for changes in workflow.

2.4 OPERATIONAL SYSTEMS

2.4.1 Various

2.4.1(1) Housekeeping staff will collect soiled linen and general waste on a regular basis from the various patient and staff areas and transport to a central Soiled Utility Room in each relevant component. Soiled linen and general wastes will be picked up from each Soiled Utility Room on a regular basis and transported to the loading dock by Housekeeping staff.

2.4.1(2) Minimize disruption due to noise and activity through the use of sound absorbing materials and the layout of the space throughout the Facility.

2.4.2 Infection Control

2.4.2(1) Housekeeping staff will perform daily cleaning of on-call rooms and change of linen.

2.4.2(2) All equipment, furnishings and finishes must be easily cleanable with approved hospital grade disinfectants.

2.4.2(3) Provide access to PPE, HHS and stations and staff washrooms throughout the Facility.

2.4.2(4) All doors into Isolation Rooms and Anterooms shall be self-closing

2.4.3 Parking

2.4.3(1) Private vehicle drop-off in the immediate vicinity of the walk-in entrance to ES is mandatory as will be the provision of a limited number of designated short-term parking spaces for ES patient/family use.

2.4.4 Security

2.4.4(1) Provide ‘touch’/electronic security check-in locations to assist in monitoring security rounds.

2.4.4(2) Electronic access will be used to facilitate after-hours access.

2.4.4(3) Security cameras will be used to monitor the corridors of the Facility.

2.4.4(4) Provide cameras at all entries in conjunction with after-hours access points.

2.4.4(5) Access to office areas of this Facility must be secure.

2.4.4(6) Provide panic alarms with cameras in garage, parking lots. Alarms will ring to contracted service. Provide flexible programming to change response location and/or responders.

2.4.4(7) Panic alarms at all Team Care Stations throughout the Facility will ring and be responded to, as per protocol.

2.4.4(8) Medication Rooms will act as Panic Rooms for staff in the event of violence or aggression.

2.4.4(9) Provide Security Alerts – staff assist/nurse call that identify the location of the alarm. This will be in association with the Vocera-type devices carried by all staff.

2.4.4(10) Secured access is assumed to be hands-free in corridor applications to allow staff moving carts, stretchers, etc. to easily move between units.

SECTION 3: THE COMPONENTS OF THE CLINICAL SPECIFICATION

INTRODUCTION

1.1.1 The Components of the Clinical Specification each include:

1.1.1(1) a brief STATEMENT OF PURPOSE of the component;

1.1.1(2) FUNCTIONAL and OPERATIONAL DESCRIPTIONS describing the activities and workflows that the component will support:

1.1.1(2)(a) the STAFFING table for each component with estimated Headcount and Occupancy required to operate each component. Headcount figures are given for the primary shift. Where appropriate, the type of accommodation has been included under the Occupancy column;

1.1.1(3) the DESIGN CRITERIA specific to each component:

1.1.1(3)(a) within the Design Criteria section, each component includes Key Adjacencies identifying the strength of the physical adjacency relationship of each component to other components of the Facility. These are organized by level of priority, and type of connection, as follows:

1.1.1(3)(a)(i) Direct access means a function that is directly adjacent,

1.1.1(3)(a)(ii) Convenient access means a function that is convenient, such as down a short corridor,

1.1.1(3)(a)(iii) General circulation means that the component is accessible using a general circulation corridor or elevator,

1.1.1(3)(a)(iv) Internal circulation means that the component is accessed using an internal corridor or connection, without making use of general building circulation corridors, and

1.1.1(3)(b) a Functional Relationship Diagram identifies the internal relationships within a component;

1.1.1(4) a SCHEDULE OF ACCOMMODATION outlining the minimum space that shall be provided for each component in the Facility:

1.1.1(4)(a) the Schedule of Accommodation presents a room-by-room space list that identifies the area requirements for each space and a brief description of the space, in terms of capacity, intent and specific design features. As appropriate, the Schedule of Accommodation is organized into component zones, i.e., groups of spaces that belong together, with subtotals provided. All areas are in net square metres (NSM). The overall net area is multiplied by a grossing factor to identify the overall area required to accommodate the component, including partitions, corridors and dedicated mechanical spaces. This is expressed as component gross square metres (CGSM).

SECTION 3: THE COMPONENTS OF THE CLINICAL SPECIFICATION

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1A.1 ADMINISTRATION

This specification outlines the functional, operational, and physical requirements for the Administration component including the Union Office and Health Information Management Services (HIM).

1A.1.1 FUNCTIONAL DESCRIPTION

1A.1.1.1 Statement of Purpose

1A.1.1.1(1) The Administration component will accommodate offices and support space for HIM and senior executive staff of the Facility, including the Chief of Staff and the Health Services Administrator (HSA) whose role will encompass the administration of Acute Care, Community Health Services, Long-Term Care, and Assisted Living Services in Terrace and surrounding regions, including up to Stewart. The off-site Director of HIM will be responsible for patient records.

1A.1.1.1(2) The Union office will provide accommodation for the four union stewards on the site to meet with staff as needed.

1A.1.1.2 Scope of Services

1A.1.1.2(1) Functional Content

1A.1.1.2(1)(a) The leadership team will be responsible for the following services:

1A.1.1.2(1)(a)(i) ensuring a high standard of patient care and support services;

1A.1.1.2(1)(a)(ii) establishing and keeping current the philosophy, mission, goals and objectives;

1A.1.1.2(1)(a)(iii) developing and maintaining administrative policies to direct staff in the ongoing operation;

1A.1.1.2(1)(a)(iv) ensuring the appropriate allocation, utilization and control of all resources;

1A.1.1.2(1)(a)(v) ensuring compliance with legislative requirements (e.g., OH&S);

1A.1.1.2(1)(a)(vi) providing support and information to the staff and physician group, Northern Health Executive, and board members as required;

1A.1.1.2(1)(a)(vii) developing and reviewing the Facility's strategic plan and overseeing the development of the annual operating plan; and

1A.1.1.2(1)(a)(viii) ensuring that the Facility meets the current CCHSA standards.

1A.1.1.2(1)(b) HIM will provide patient record storage and management, Requests for Information, data analysis, management of Patient Registration clerks in decentralized locations throughout the Facility.

1A.1.1.2(1)(c) The shared, drop-in Union Office in this component will support the union stewards representing the major unions that staff operate within the Facility.

1A.1.1.2(2) Planning Assumptions

1A.1.1.2(2)(a) Administration will provide drop-in offices for visiting regional program clinical staff. Regional program administrative staff will be based out of the off-site North West Health Services Delivery Area (NWHSDA) Corporate Offices.

1A.1.1.2(2)(b) HIM Active Files Storage area will be directly accessible from Patient Registration in the *Main Entry Facilities* component for access to paper records and cross training of HIM staff.

1A.1.1.2(2)(c) The introduction of the FirstNet module of Cerner will allow care providers, physicians to access medical records from a number of locations reducing the dependence on paper records and eventually eliminating paper records.

1A.1.1.2(2)(d) Paper records will be retained for two years on-site in addition to the current year until all records are electronic.

1A.1.1.2(3) Scope of Education Functions

1A.1.1.2(3)(a) No students will work in Administration.

1A.1.1.2(3)(b) Clerical trainees will be present in HIM.

1A.1.1.2(4) Excluded

1A.1.1.2(4)(a) N/A.

1A.1.2 OPERATIONAL DESCRIPTION

1A.1.2.1 Hours of Operation

1A.1.2.1(1) Hours of operation will be typically weekdays from 0800 to 1600 for HIM and Administration. Administration on-call will be on a rotating basis.

1A.1.2.1(2) The Union Office will be accessible seven days per week by authorized union representatives via electronic means.

1A.1.2.2 Organization & Management

1A.1.2.2(1) The Deputy Chief of Staff, Chief of Surgery, and Chief of Staff will report to Regional Medical Affairs. The Director of Care and all administrative staff will report to the HSA.

1A.1.2.2(2) The HIM Coordinator and HIM Advisors, will function under the Northwest HIM Manager located in Smithers, reporting to the Director of HIM located in Prince George.

1A.1.2.2(3) The Unions will have separate management structures.

1A.1.2.3 Workflow

1A.1.2.3(1) Administration will be involved in internal management initiatives, regional efforts including regional committee activities, and meetings with external organizations and stakeholders, as applicable. Administration will be accessible to patients, families, and other visitors to receive and manage inquiries and complaints. The administrative clerical support staff will refer client service-related matters to the appropriate member of the management team, as required.

1A.1.2.3(2) There will be a transition period for implementation of the electronic medical record. Prior to full implementation, the following HIM processes will occur:

1A.1.2.3(2)(a) Record processing with every patient registered through an electronic system which will interface with coding/chart management and data quality;

1A.1.2.3(2)(b) Monitoring of chart completion to meet Northern Health Authority by-laws;

1A.1.2.3(2)(c) Fulfilment of formal Freedom of Information and Protection of Privacy Act (FOIPPA) requests for information from patients, family and authorities; and

1A.1.2.3(2)(d) Central record storage of paper records. Retention and abstraction guidelines will follow BC legislative requirements.

1A.1.2.3(3) Older records will be barcoded and retrieved through an “Image on Demand” system from the designated storage facility, which will provide electronic copies of paper records as needed.

1A.1.2.4 Support Activities

1A.1.2.4(1) Shredding of confidential documents will be provided by an outside contractor for the Facility.

1A.1.3 STAFFING

1A.1.3.1 Estimated future staffing for this component is summarized below in terms of Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

Classification/Position	Days Headcount	Days Occupancy	Nights Headcount
Total	19		0
Weekdays			0
Health Services Administrator	1	Office	0
Director of Care	1	Office	0
Chief of Staff	1	Office (shared)	0
Deputy Chief of Staff	1	Office (shared)	0
Administrative Assistants	2	Workstation	0
Administrative Assistant to the HSA	1	Workstation	0
Manager, Patient Care Services	1	Office	0
HIM NW Manager (off-site)	0	Office (touchdown)	0
HIM Coordinator, Manager (off-site)	0	Office (touchdown)	0
HIM Advisor	3	Workstation	0
HIM Clerk	2	Workstation	0
HIM Coder	2	Workstation	0
HIM Data Quality Clerk	3	Workstation	0
HIM Analyst	1	Workstation	0

Notes:

1. Other staffing resources are distributed to other components.
2. RPG in consultation with staff.

1A.1.4 DESIGN CRITERIA

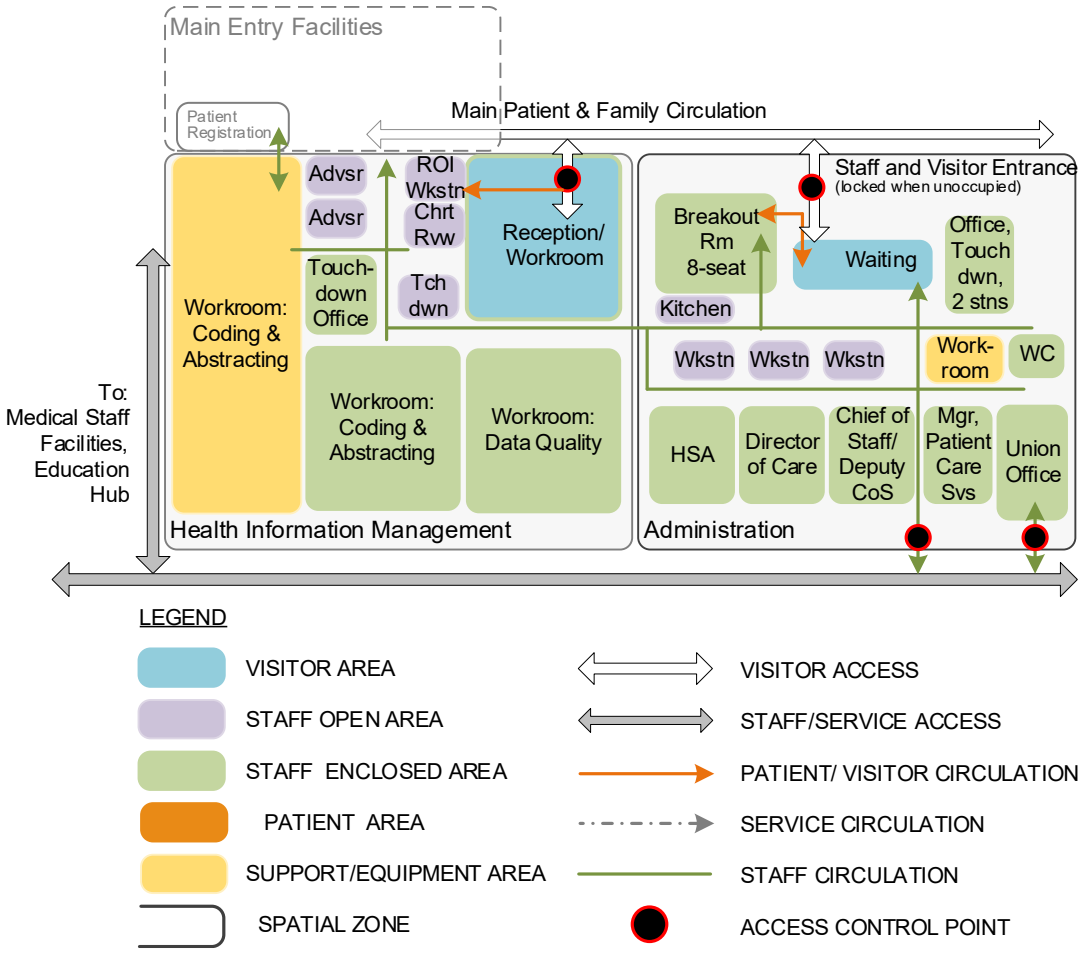
1A.1.4.1 External Relationships

1A.1.4.1(1) The following key external relationships for Administration will be achieved in the priority order as numbered for the purposes stated:

1	**Staff Circulation**	Provide convenient access via general circulation to/ from staff circulation for the movement and collaboration of staff.
2	**Public Circulation**	Provide convenient access via general circulation to/ from public circulation for the movement of visitors.
3	**Main Entry Facilities (Patient Registration)**	Provide direct access via internal circulation from HIM to Patient Registration for the movement of records and staff.

1A.1.4.2 Functional Relationship Diagram

1A.1.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.1.4.3 Internal Design Criteria

1A.1.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.1.4.3(2) Higher-end finishes shall reflect the corporate feel of this area.

1A.1.4.3(3) There shall be two means of egress from this component for staff safety and security.

1A.1.4.3(4) Following is a room-by-room list of spaces for Administration showing:

1A.1.4.3(4)(a) Intent of Space; and

1A.1.4.3(4)(b) Specific Design Features.

1A.1.5 SCHEDULE OF ACCOMMODATION

1A.1.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.1 ADMINISTRATION

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1A.1 ADMINISTRATION

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Entrance ~~& Reception~~					1. The general waiting area will be easily visible from the reception counter 2. The configuration will permit good visual supervision of the entry
1.01.	Reception	1		20.4		
01	*workstation*	*2*	*6.8*		Administrative Assistants	1. Locate directly in front of the office of their direct report 2. The administrative assistants will be able to hear one another and have line of sight to the reception position
02	*workstation*	*1*	*6.8*		Administrative Assistant to HSA	~~1. Locate furthest from the reception counter for visual and acoustic privacy~~
~~*03*~~	~~*reception counter*~~	~~*0*~~	~~*3.8*~~		Intentionally deleted	~~1. Provide barrier-free height counter~~ ~~2. Locate to provide barrier between the Waiting and Administrative/Office Area~~
1.02.	Waiting	1		8.5		
01	*seats*	3	1.9			
02	*Barrier-free seats/space*	1	2.8			
	Subtotal, Entrance ~~& Reception~~			28.9		
	Office Support Area					
1.03	Business Workroom/Supplies/Printer Room	1		11.0		1. Provide 1800 mm of millwork with open storage below

1A.1 ADMINISTRATION

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
1.04	Break-Out Room, 8-seat	1		20.0		1. Provide access to power and communications at 100 mm AFFL 2. The front wall and door of this room shall be transparent or semi-transparent
1.05	Kitchenette	1		4.6		1. Provide 1800 lin mm of lockable lower millwork that includes a single stainless-steel
1.06	Staff Washroom	1		4.6		1. 2 pc
1.07	Storage Cupboard	1		2.8		
	Subtotal, Office Support Area			43.3		
	Administrative Office Area					
1.08	Office: Executive HSA	1		14.0		1. Provide videoconference capability in this office
1.09	Office: Chief of Staff & Deputy Chief of Staff, Shared	1		11.2		
1.10	Office: Director of Care	1		14.0		1. Provide videoconference capability in this office
1.11	Office: Manager, Patient Care Services	1		11.2		
1.12	Office: Touchdown	1		11.2		
1.13	Office: Union	1		9.3		1. Must have direct access from secondary circulation corridor
	Subtotal, Administrative Office Area			70.9		
	HIM Area					1. Must be directly adjacent and connected to Patient Registration (See *Main Entry Facilities* component)
1.14.	Reception/Workroom	1		20.8		
01	*workstations*	*3*	*4.6*			
02	*printer/scanner*	*1*	*2.8*			

1A.1 ADMINISTRATION

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
03	*circulation - 25%*	*1*	*4.2*			
1.15	Workstation, ROI Assembly	1		5.6		
1.16.	Workroom: Data Quality	1		24.8		1. Must be accessible to Active File Storage
01	*workstations*	*4*	*4.6*			
02	*circulation - 25%*	*1*	*6.4*			
1.17.	Workstation, Coding & Abstracting	1		24.8		
01	*workstations*	*4*	*4.6*			
02	*circulation - 25%*	*1*	*6.4*			
1.18	Workstation, Drop-in Chart Review	1		4.6		1. Must be in view of Reception/Workroom workstations
1.19	Workstation, Touch Down	1		4.6		
1.20	Office, Touchdown	1		9.3		
1.21	Workstation, Advisor	2	4.6	9.2		
1.22	Supplies Storage	1		7.4		1. Provide 2400 mm of counter with enclosed/lockable storage below for supplies
1.23	Active File Storage	1		62.0		1. Must be accessible to the Workroom: Data Quality 2. This space will shrink in the future. Configure such that a portion of the space can be repurposed without disruption to daily operation 3. Floor load must exceed mobile file manufacturer's recommended limit (min 150 lb/sq ft)
	Subtotal, HIM Area			173.1		
	Total, Administration			**316.2**	**Component Area = 427 CGSM at 1.35 grossing factor**	

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1A.2 ALLIED HEALTH/INTERPROFESSIONAL HEALTH TEAM

This specification outlines the functional, operational, and physical requirements for the Allied Health/ Interprofessional Team (AH/IT) office component that will include the Indigenous Patient Liaison Workers (IPLW), Clinical Nutrition Services (CNS), Social Work (SW), Infection Prevention & Control (IP&C), and Occupational Health & Safety (OH&S) staff.

1A.2.1 FUNCTIONAL DESCRIPTION

1A.2.1.1 Statement of Purpose

1A.2.1.1(1) This component will be the 'home-base' office for the AH/IT where they will primarily perform their administrative and non-face-to-face patient work.

1A.2.1.1(2) The exception to this will be the IPLW and SW who will occasionally see patients and families in this component as well as other components.

1A.2.1.2 Scope of Services

1A.2.1.2(1) Functional Content

1A.2.1.2(1)(a) ***IPLW***

1A.2.1.2(1)(a)(i) Will provide a link between Indigenous patients, their culture, and the medical system, promoting the exchange of information between the patient, their family, and the medical professionals.

1A.2.1.2(1)(a)(ii) Will providing cultural awareness presentations to students at the NW Community College on request.

1A.2.1.2(1)(b) ***CNS staff will provide the following services outside of this component:***

1A.2.1.2(1)(b)(i) inpatient nutrition services (screening, assessments, planning, and education) as needed, utilizing food and nutrition management/ software tools and maintaining patient profiles;

1A.2.1.2(1)(b)(ii) dietetic services to inpatients – counsel clients on therapeutic diets and provide follow-up as required; and

1A.2.1.2(1)(b)(iii) educating nursing staff and physicians in matters pertaining to nutrition care in consultation with the Manager of Food Services.

1A.2.1.2(1)(c) ***SW***

1A.2.1.2(1)(c)(i) Will meet with patients and families to connect them with necessary resources and supports in the community and to expand and strengthen their network of social supports.

1A.2.1.2(1)(c)(ii) Participate in discharge planning.

1A.2.1.2(1)(c)(iii) Provide a variety of counselling e.g. grief and loss, crisis intervention, and wellness.

1A.2.1.2(1)(d) ***IP&C staff will:***

1A.2.1.2(1)(d)(i) ensure surveillance and control of infections and infected sources for patients, staff, and visitors; and the protection of patients, staff, and visitors from health care acquired infections and community acquired infections;

1A.2.1.2(1)(d)(ii) service will be provided to the Facility, Kitimat General Hospital, and Mountainview Lodge, with consultation to Terraceview Lodge;

1A.2.1.2(1)(d)(iii) in consultation with the IP&C Committee – educate Facilities Management staff of infection control needs for planning, developing, or assessment of structural plant and collaborating on risk reduction measures and providing infection control monitoring during construction for compliance; and

1A.2.1.2(1)(d)(iv) the increase of orthopaedics surgeries will increase the workload for IP&C.

1A.2.1.2(2) Exclusions

1A.2.1.2(2)(a) CNS will not provide services to outpatients at the Facility.

1A.2.2 OPERATIONAL DESCRIPTION

1A.2.2.1 Hours of Operation

1A.2.2.1(1) Hours of operation will be weekdays from 0800 to 1600 for CNS, and SW.

1A.2.2.1(2) The IPLW will be available 0730 to 1530 weekdays.

1A.2.2.1(3) IP&C will offer service weekdays from 0700 to 1500 with some on-call coverage.

1A.2.2.1(4) It is assumed that weekend coverage will be shared by the dietitians on an on-call basis.

1A.2.2.2 Organization & Management

1A.2.2.2(1) The IPLW and Social Workers will report to the Director of Care.

1A.2.2.2(2) CNS staff will report to the Manager, Support Services.

1A.2.2.2(3) IP&C practitioners will report to the Regional Manager for Infection Prevention.

1A.2.2.2(4) The OH&S nurse will report under WH&S.

1A.2.2.3 Workflow

1A.2.2.3(1) *Patients*

1A.2.2.3(1)(a) IPLW visits will vary in length from ½ hour to all day depending on the nature of the patient's circumstance.

1A.2.2.3(1)(b) Patients will be seen informally when they seek out the IPLW while visiting the Facility, or they may be referred by physicians, nursing staff, family members or other community members. The IPLW will work collaboratively with these groups, SW, and others to effect coordinated discharge plans.

1A.2.2.3(1)(c) An SW consult will vary from 15 minutes to all day depending on the circumstance. Consults will typically take place in patient care areas outside of this component.

1A.2.2.3(1)(d) In the Waiting Area there will be a patient-accessed computer with restricted program access to educational programs specific to the patient's care and to site's where patients can apply for assistance (e.g., check EI claims, housing websites, etc.). In many cases, patients have limited computer skills and will require some assistance for applying to programs; the proximity to the SW and IPLW office will facilitate this process.

1A.2.2.3(2) *Visitors*

1A.2.2.3(2)(a) Space will be available elsewhere in the Facility for meetings with Indigenous families to support cultural practices surrounding birth, illness, and death. *(See Main Entrance Facilities - Spiritual Care & Family Gathering).*

1A.2.2.3(3) *Staff*

1A.2.2.3(3)(a) Staff based in this component will have entry through electronic means.

1A.2.2.3(3)(b) Staff will utilize inpatient areas to meet with patients/families either at the bedside or in Quiet Room space in the respective components.

1A.2.2.3(3)(c) Dietitian activities will include census review/CBORD, rounds, prioritized patients/CBORD, patient assessments, case conferences, discharge planning, charting/CBORD.

1A.2.2.3(3)(d) Dietitians will order therapeutic diets and nourishments through the CBORD database.

1A.2.2.3(3)(e) SW – meeting with inpatients and their families in patient rooms, when possible, or in available private space in various components.

1A.2.2.3(3)(f) Bookings will be made with the computerized booking software. Any outpatients (limited) scheduled to meet with the SW in the SW office, will first report to Patient Registration in the *Main Entry Facilities* and will be directed to the waiting area associated with SW.

1A.2.2.3(3)(g) The IP&C Practitioner will meet with staff in the office, or in other areas of Facility.

1A.2.2.3(3)(h) WH&S staff Immunization clinics will be run out of booked space within the Facility.

1A.2.2.3(3)(i) Any immunization medications/vaccines will be kept in the Pharmacy coolers until time of use.

1A.2.2.3(3)(j) Education programs will utilize booked space in the *Education & Meeting Facilities* component.

1A.2.2.3(3)(k) Space equipped with telehealth technology will be booked as needed elsewhere in the building.

1A.2.2.4 Support Activities

1A.2.2.4(1) *Nourishments & Meals*

1A.2.2.4(1)(a) Food and beverages for swallowing assessments will be picked up by the dietitians from Food Services as needed.

1A.2.3 STAFFING

1A.2.3.1 Estimated future staffing for this component is summarized below in terms of Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

Classification/Position	Days Headcount	Days Occupancy	Nights Headcount
Total	11		0
Weekdays	0		0
Indigenous Patient Liaison	2	Office	0
Clinical Dietitians	3	Shared Office	0
Student/Allied Health/Clinical Lead drop-down	1	Shared Workstation	0
Social Worker	2	Office	0
Infection Prevention Practitioner	1	Shared Office	0
WH&S Nurse	1	Shared Office	0
Administrative Assistant	1	Workstation	0

Notes:

- N/A.

1A.2.4 DESIGN CRITERIA

1A.2.4.1 External Relationships

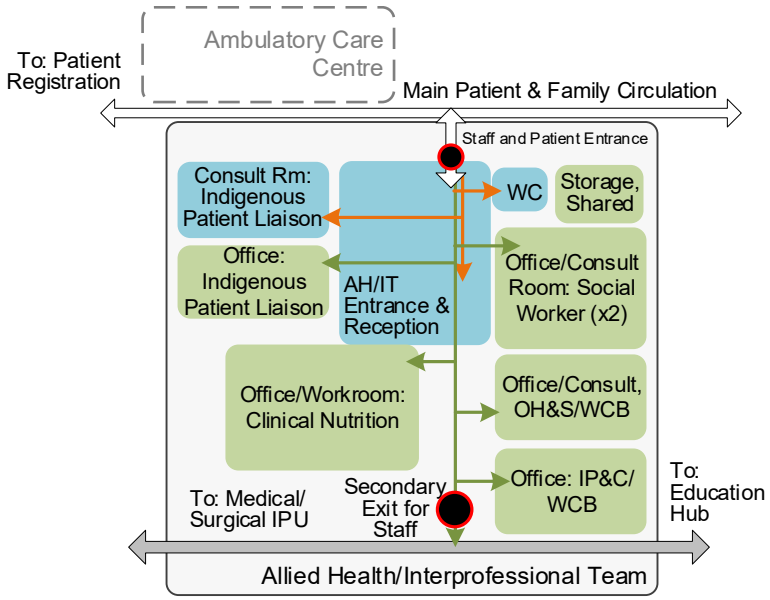
1A.2.4.1 The following key external relationships for AH/IT will be achieved in the priority order as numbered for the purposes stated:

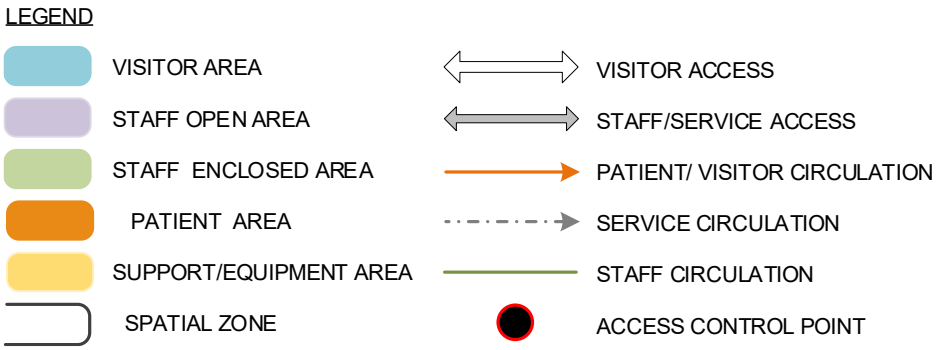
1	**Main Entry Facilities**	Provide convenient access via general circulation to/from the Patient Registration and the Spiritual Care & Family Gathering elements of the Main Entry Facilities component for the movement of visitors and staff.
2	**Inpatient Units**	Provide convenient access via general circulation to the Inpatient Units for the movement of staff.
3	**Ambulatory Care Centre**	Provide convenient access via general circulation to Ambulatory Care Centre for the movement of staff to consult space in that component.
4	**Rehabilitation Services**	Provide convenient access via general circulation to Rehabilitation Services for the collaboration of staff.

1A.2 ALLIED HEALTH/INTERPROFESSIONAL HEALTH TEAM

1A.2.4.2 Functional Relationship Diagram

1A.2.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.





1A.2.4.3 Internal Design Criteria

1A.2.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.2.4.3(1)(a) Following is a room-by -room list of spaces for Allied Health/ Interprofessional Team showing:

1A.2.4.3(1)(a)(i) Intent of Space; and

1A.2.4.3(1)(a)(ii) Specific Design Features.

1A.2.5 SCHEDULE OF ACCOMMODATION

1A.2.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.2 ALLIED HEALTH/INTERPROFESSIONAL HEALTH TEAM

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1A.2 Interprofessional Team

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	AH/IT Entrance & Reception					1. The configuration of this area will permit good visual supervision of the entry 3. Provide non-clinical, office type finishes in this component
2.01	Waiting	2	1.9	3.8	Shared waiting for visiting professionals/ colleagues	1. Directly visible from main circulation corridor ~~2. The Waiting area will be easily visible from the Reception Station~~
~~2.02~~	~~Workstation, Public Use~~	~~1~~		~~0.0~~	~~For SW & IPLW client use~~	1. Intentionally deleted
~~2.03~~	~~Reception Station~~	~~1~~		~~0.0~~	~~Shared reception for all Allied Health /Interprofessional Team. The Reception Station will serve as a barrier between the Waiting, and Office Areas~~	~~1. Directly visible from main circulation corridor~~ ~~2. Must have direct access to shared Business Work Area~~
2.04	Workstation, Student, Drop-in	1		3.6		1. Intentionally deleted 1. Shared
2.05	Business Work Area, Shared	1	*8.0*	8.0	Shared among all Allied Health/ Interprofessional Team members	~~1. Directly accessible from the Reception Station~~
2.06	Storage, Shared	1	*6.0*	6.0	Shared among all Allied Health/ Interprofessional Team members	1. Provide a minimum of 22.0 lin m of open, adjustable shelving on two walls with open space for assembling materials near entryway
	Subtotal, Entrance and Reception			21.4		
	Office Areas					1. Ensure layout and workstation configuration provide confidentiality and visual privacy of activities in the Office Areas
2.07	Office, Shared, Indigenous Patient Liaison	1		13.8	Shared space for focused work	1. Provide power, communications for 2 workstations

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
2.08	Consult Room, Indigenous Patient Liaison	1		12.0	Limited patient access - assumes majority of patients will be seen in their patient rooms, Ambulatory Care, ES, Inpatient Units	1. Provide lighting control within this room
2.09	Office/Workroom, Clinical Nutrition	1		13.0		
01	*workstation*	*2*	*3.6*			
02	*storage unit*	*2*	*0.9*			
03	*visitor chair*	*1*	*1.4*			
04	*internal circulation - 25%*	*1*	*2.6*			
2.10	Office, IP&C, WCB	1		13.8	Shared	1. Provide power, communications for 2 workstations
2.11	Office/Consult Room, OH&C/WCB	1	*10.0*	10.0	Must accommodate storage of clean supplies, waste and sharps management, specimen holding	1. Locate in close proximity to the Shared Business Workroom
2.12	Office/Consult Room, Social Work	2	9.3	18.6		1. These rooms must have a second exit to staff-only circulation. This exit must be on the staff side of the workstation
2.13	Office, Drop-in	1	7.4	7.4		
	Subtotal, Office Areas			88.6		
	Total, Allied Health/ Interprofessional Team			**110.0**	**Component Area = 149 CGSM at 1.35 grossing factor**	

1A.3 AMBULATORY CARE CENTRE

This specification outlines the functional, operational, and physical requirements for the Ambulatory Care Centre (ACC) component including Cardiopulmonary Services (CPS).

1A.3.1 FUNCTIONAL DESCRIPTION

1A.3.1.1 Statement of Purpose

1A.3.1.1(1) Outpatient services will be centralized in this component.

1A.3.1.2 Scope of Services

1A.3.1.2(1) Functional Content

1A.3.1.2(1)(a) The types of services to be provided in the ACC can be grouped as consultations, treatment and therapies, education, and procedures.[1]

1A.3.1.2(1)(b) Clinical activities will vary over time, with services being added or deleted according to need and focus. Service types will include:

1A.3.1.2.(1)(b)(i) (CPS including) Respiratory Therapy services as follows:

- 1A.3.1.2(1)(b)(i)A Code Team support,
- 1A.3.1.2(1)(b)(i)B critical care support to Emergency Services (ES), Inpatient Units: Birthing Unit (LDRPs and neonatal support), Medical Surgical IPU, Psychiatric IPU, and Surgical Services: Surgical Suite,
- 1A.3.1.2(1)(b)(i)C Intubation/airway management/tracheostomy care,
- 1A.3.1.2(1)(b)(i)D Mechanical ventilation,
- 1A.3.1.2(1)(b)(i)E Assisting with bronchoscopies,
- 1A.3.1.2(1)(b)(i)F arterial blood gases,
- 1A.3.1.2(1)(b)(i)G Oxygen therapy,
- 1A.3.1.2(1)(b)(i)H Respiratory assessment,
- 1A.3.1.2(1)(b)(i)I Bedside spirometry,
- 1A.3.1.2(1)(b)(i)J Education and support for patients and caregivers, and
- 1A.3.1.2(1)(b)(i)K Education of staff and students in all clinical areas;

1A.3.1.2.(1)(b)(ii) Endoscopy Service;

[1] Some procedures will require sedation and/or local anaesthesia but no general anaesthesia will be administered in the ACC. Conscious sedation may be administered to some ophthalmology patients.

1A.3.1.2.(1)(b)(iii) Ophthalmology Service;

1A.3.1.2.(1)(b)(iv) Orthopaedic Clinic;

1A.3.1.2.(1)(b)(v) Pain Clinic;

1A.3.1.2.(1)(b)(vi) Electroencephalograms (EEGs);

1A.3.1.2.(1)(b)(vii) Visiting Specialists Clinics;

1A.3.1.2.(1)(b)(viii) Medical Day Services; and

1A.3.1.2.(1)(b)(ix) Stroke/Transient Ischemic Attack (TIA) Clinic for coordination of testing and ongoing follow-up, with internist on-site and neurologist participating via telehealth.

1A.3.1.2(1)(c) Potential new services to be offered in the ACC will be screened for inclusion and assessed against set criteria.

1A.3.1.2(2) Planning Assumptions

1A.3.1.2(2)(a) Clinical space within the ACC will be generic and multi-functional – shared by several caregivers (booked on a scheduled basis); however, services requiring specially designed rooms or services occupying space at all times will be accommodated in specifically identified spaces.

1A.3.1.2(2)(b) UBC Faculty of Medicine Northern Medical Program will have access to three exam/consult rooms within the ACC.

1A.3.1.2(2)(c) The ACC will be used as a space for accommodating patients as part of disaster management.

1A.3.1.2(3) Scope of Education Functions

1A.3.1.2(3)(a) The ACC will be a clinical learning environment for nursing students, medical students, residents, pharmacy students and students in the various allied health professions.

1A.3.1.2(4) Excluded

1A.3.1.2(4)(a) Surgical Day Care (see *Surgical Services: Pre-Surgery Screening Clinic, Surgical Day Care (PSSC/SDC)* component).

1A.3.1.2(4)(b) Ophthalmology procedures requiring general anaesthetic will be performed in the *Surgical Services: Surgical Suite* component.

1A.3.1.2(4)(c) Cardioversions will occur in ES where critical care nurses will attend the patients.

1A.3.1.2(4)(d) MI staff will provide nuclear medicine services for specialized stress tests and MI staff will be responsible for performing echocardiograms.

1A.3.1.2(4)(e) Social Work will be performed within the inpatient environment.

1A.3.1.2(4)(f) Chronic Disease Management will be a community-based service.

1A.3.1.2(4)(g) Primary care examinations and consultations by medical learners will occur within the private practice offices outside of the Facility.

1A.3.1.2(4)(h) Intravenous access device (IVAD) insertions will be booked into Surgical Services.

1A.3.1.2(4)(i) Paediatric Clinics will be accommodated in the physicians' building outside of the Facility.

1A.3.1.2(4)(j) Integrated Primary & Community Care drop-in space will be provided within the Clinic Modules of the ACC for consultation and for procedures such as dressing changes, wound care, catheter changes, etc.

1A.3.2 OPERATIONAL DESCRIPTION

1A.3.2.1 Hours of Operation

1A.3.2.1(1) The ACC will function 243 days of the year with different services operating at different times, on different days. Hours of operation are anticipated to be weekdays from 0700 to 1900, excluding stat holidays. Staff may access this component outside of these hours.

1A.3.2.1(2) Hours of operation of the Ophthalmology Service will be Monday, Wednesday, and Friday from 0800 to 1400.

1A.3.2.1(3) Hours of operation of the Endoscopy Service will be weekdays from 0700 to 1500, with procedures occurring between 0800 and 1500.

1A.3.2.1(4) Hours of operation for on-site respiratory therapy coverage will be 24/7 for the management of mechanical ventilators, etc.

1A.3.2.2 Organization & Management

1A.3.2.2(1) There will be one Nurse Manager responsible for the ACC and the Cancer Care Clinic.

1A.3.2.3 Workflow

1A.3.2.3(1) ***Patient Flow***

1A.3.2.3(1)(a) Referral pathways into the various services provided within the ACC will depend upon the specific service being accessed. Generally, a health care provider's referral will be required; however, clients will be able to self-refer to certain services.

1A.3.2.3(1)(b) Patients will be asked to present 10 minutes ahead of their appointment at the ACC registration desk. A volunteer at the Reception/Registration desk in the Waiting Area may assist in directing patients within the ACC.

1A.3.2.3(1)(c) Family members/friends may be instructed to remain in the Waiting Area during appointments.

1A.3.2.3(1)(d) Patients will have appointments booked by ACC clerical staff who will provide any required instructions. ACC appointments will be coordinated with those to other services by the computerized booking system.

1A.3.2.3(1)(e) If an urgent consultation is required, the physician will call the ACC Reception/Registration desk to request access to an "urgent timeslot" scheduled into the day's activities.

1A.3.2.3(1)(f) Duration of a visit will depend upon the purpose of the visit and will vary.

1A.3.2.3(1)(g) Specialists will be allocated half-day blocks of time to book their own patients independently though those patients will be registered.

1A.3.2.3(1)(h) If a patient requires an x-ray while attending the ACC, they will be directed to Medical Imaging (MI).

1A.3.2.3(1)(i) All endoscopy and ophthalmology patients will be transported on a stretcher to their respective procedure rooms as the patient will stay on that stretcher during the procedure and is returned to Medical Day Care on the same stretcher.

1A.3.2.3(1)(j) Following the procedure, the patient will leave immediately or, occasionally, arrange for a follow-up appointment with either clinical or clerical staff or be admitted.

1A.3.2.3(1)(k) It is noted that, if possible, patients with serious infectious diseases will not be seen in the ACC and their appointments will be rescheduled. When appointments cannot be rescheduled, an Isolation Treatment Room will be utilized.

1A.3.2.3(2) ***Staff Flow***

1A.3.2.3(2)(a) The ACC clerk will register patients, book appointments, receive patients, follow-up with appointments, etc.

1A.3.2.3(2)(b) If a blood gas test is ordered by a physician, a respiratory therapist will come to the ACC, draw the specimen, and transport it to the Laboratory for analysis. At other times, an AGB certified nurse or physician will draw blood.

1A.3.2.3(2)(c) A clinical pharmacist will offer medication teaching and therapeutic management in this component.

1A.3.2.3(2)(d) Hazardous drugs disposal will be managed by Housekeeping Services.

1A.3.2.3(2)(e) Linen will be delivered via exchange cart to Clean Supply Rooms within the ACC. Where required, linen will be distributed to patient spaces by ACC staff.

1A.3.2.3(2)(f) ACC staff will clean the procedure rooms between procedures. Housekeeping or ACC staff will strip and prepare the stretchers. Housekeeping staff will perform a final cleaning at the end of the day.

1A.3.2.3(2)(g) ACC staff will perform simple clean-up of dirty reusable medical/ surgical supplies, including the removal of sharps, prior to pick up by Materiel Management Portering staff for re-processing in MDR. Reprocessed sterile supplies will be delivered to the ACC by MDR staff.

1A.3.2.3(3) ***Equipment***

1A.3.2.3(3)(a) RT equipment will be picked up by MDR staff to be processed in the centralized MDR.

1A.3.2.4 Support Activities

1A.3.2.4(1) N/A.

1A.3.3 STAFFING

1A.3.3.1 Estimated future staffing for this component is summarized below in terms of Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

Position	Days Head Count	Days Occupancy	Nights Head Count
Total	20		0
Weekdays			
Manager (shared with Cancer Care Clinic)	1	Office	0
Clerical: Booking & Registration	3	Workstation	0
RNs Endoscopy & Ophthalmology Services	4	Shared Workstation	0
RNs Medical Day Care et alia	3	Shared Workstation	0
OR Technician	1	-	0
LPNs	2	Shared Office	0
Clinical Pharmacist	1	Shared Workstation	0
Respiratory Therapy Lead	1	Shared Workstation	0
Respiratory Therapist	2	Shared Workstation	0
ECG Technician	2	Shared Workstation	0

Notes:

- Source: NHA Decision Support/Finance Department.
- RPG in consultation with Facility staff.

1A.3.4 DESIGN CRITERIA

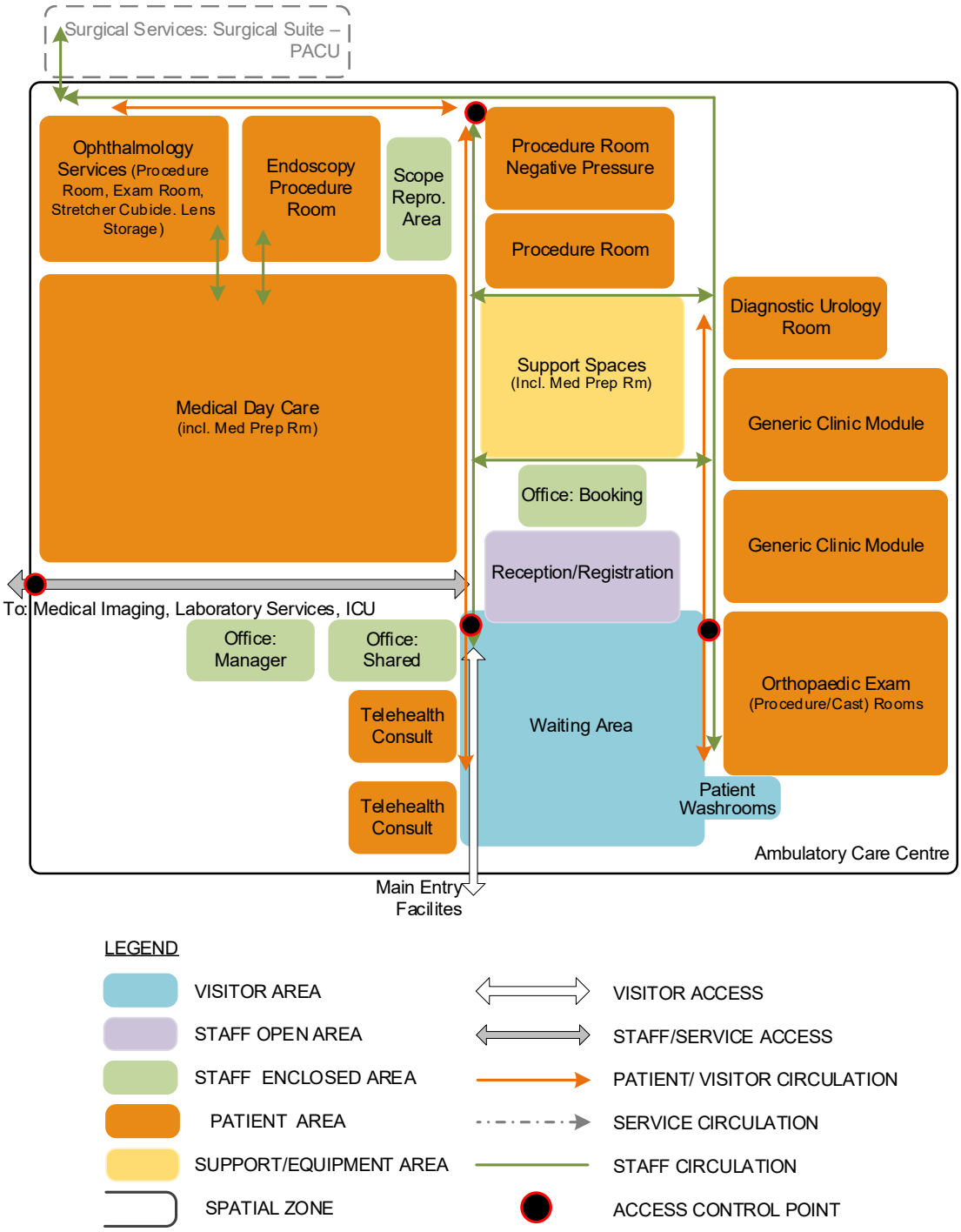
1A.3.4.1 External Relationships

1A.3.4.1(1) The following key external relationships for the ACC will be achieved in the priority order as numbered for the purposes stated:

1	**Main Entry**	Provide convenient access via general circulation to/from the Main Entry for the movement of patients and visitors.
2	**Surgical Services: Surgical Suite (PACU)**	Provide convenient access via patient/service circulation to PACU in Surgical Services: Surgical Suite for the movement of patients and staff.
3	**Medical Imaging**	Provide convenient access via patient/service circulation to Medical Imaging for the movement of staff and pre/post procedure patients and CPS patients to the Nuclear Medicine Cluster.

1A.3.4.2 Functional Relationship Diagram

1A.3.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.3.4.3 Internal Design Criteria

1A.3.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this document. These two sections must be read together.

1A.3.4.3(2) There will be a separate service entrance to Medical Imaging and Laboratory Services.

1A.3.4.3(3) Following is a room-by-room list of spaces for the ACC showing:

1A.3.4.3(3)(a) Intent of Space; and

1A.3.4.3(3)(b) Specific Design Features.

1A.3.5 SCHEDULE OF ACCOMMODATION

1A.3.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

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1A.3 Ambulatory Care Centre

Ref	Space	Proposed Area Units	nsm/ unit	nsm	i. Intent of Space	ii. Specific Design Features
	Shared Spaces					
A3.01.	Reception/Registration	1		12.4	Split Reception/ Registration into A3.01 and B3.01	1. Hub for the internal intercom systems and all relevant emergency systems within the ACC
01	*workstation*	*2*	*4.6*		Clerical	
02	*associated office equipment*	*1*	*0.9*			
03	*patient files & documents*	*1*	*2.3*			
3.02	Office	1	9.3	9.3	For Booking Clerk	1. Locate adjacent to the Reception/Registration Desk
A3.03.	Waiting Area	1		32.1	Split Waiting Area into A3.03 and B3.03	1. Provide backing board for monitor and power and communications connections
01	*seats, regular*	*11*	*1.9*			
02	*seats, barrier free*	*2*	*2.8*			
~~*03*~~	~~*washroom, public*~~	~~*0*~~	~~*4.6*~~		Moved to B3.03	~~1. 2 pc~~ ~~2. Non-gendered~~
04	*washroom, public, barrier free*	*1*	*5.6*			1. 2 pc 2. Non-gendered
3.04.	Generic Clinic Module	2	39.0	*78.0*		1 Group together with the various support spaces in close proximity, along with the Procedure Rooms
01	*exam/consult room*	*2*	*13.0*		Will accommodate patients as part of disaster management.	1. Provide HHS 2. Provide medical gases (oxygen, air and suction)
02	*exam/consult room, learner oriented*	*1*	*13.0*		For Northern Medical Program & Residency Program	1. Provide HHS 2.Provide medical gases (oxygen, air and suction)
~~*03*~~	~~*office, shared*~~	~~0~~	~~9.3~~		~~For Administration~~	1. Intentionally deleted
~~*04*~~	~~*workstation*~~	~~0~~	~~4.6~~		~~Shared, nursing workstation~~	1. Intentionally deleted

Ref	Space	Proposed Area Units	nsm/ unit	nsm	i. Intent of Space	ii. Specific Design Features
3.27. 01	*exam/testing room*	*1*	*14.0*		Moved to clinic side as per Nov 2 STM For Ophthalmology Services	1. Provide HHS 2. Provide emergency call
3.06	Telehealth Consult Room	2	12.0	24.0		
3.07	Procedure Room	1		23.0		1. Provide HHS 2. Provide patient monitoring
3.34	Procedure Room, Negative Pressure	1		38.0	For visiting Radiologist, Bronchoscopies , Colposcopies	1. Provide HHS 2. Provide patient monitoring
3.08	Washroom, Patient	1		4.6		1. Locate near Exam/Consult Rooms and Procedure Rooms 2. 2 pc 3. Non-gendered
3.09	Patient Weigh Scale, Barrier-Free	1		2.3		1.. Provide nurse call 2. Flush mount to the floor 3. Provide built-in floor scale
3.10	Washroom, Staff	2	4.6	9.2		1. 2 pc 2. Provide enclosed shelf @1.0 lin. mm above/behind toilet 3. Non-gendered
3.11	Clean Supplies Room	1		11.0		
3.12	Soiled Utility Room	1		12.0		1. Provide separate storage of hazardous and non hazardous drug waste
3.13	Storage Room, Equipment	1		11.1		
3.14	Housekeeping Closet, Distributed	2	7.0	14.0		1. See *Housekeeping and Laundry Services* component
3.15	Medications Preparation Room	1		5.0	Reduced - for Clinic Side as per Nov 2 STM	1. Provide HHS ~~(deep enough to pour IV solution with medication), millowrk counter for med preparation~~ 2. Provide space for 1 med cart with charging station 3. Provide eyewash station

Ref	Space	Proposed Area Units	nsm/ unit	nsm	i. Intent of Space	ii. Specific Design Features
						4. Provide secured door with glazing, doors open into the room 5. Provide utility sink in millwork counter w/ enclosed lockable storage above
3.16	Kitchenette	1		3.7	For Staff	1. Locate in staff only area 2. Provide HHS, lockable millwork storage and counter worksurface
3.17	Alcove, Purse Locker	1		3.8		
3.18	Alcove, Crash Cart, Adult	1		1.4		1. Locate centrally
3.19	Alcove, Crash Cart, Peds	1		1.4		1. Locate centrally
	Subtotal, Shared Spaces			296.3		**CGSM at 1.5 Grossing Factor = 444**
	Non-Shared Spaces					1. Offices shall be located so as to not interfere with patient movement and to give the occupants privacy from patients
B3.01.	Reception/Registration	1		7.8		1. Hub for the internal intercom systems and all relevant emergency systems within the ACC
01	*workstation*	*1*	*4.6*		Clerical	
02	*associated office equipment*	*1*	*0.9*			
03	*patient files & documents*	*1*	*2.3*			
B3.03.	Waiting Area	1		31.1	Split Waiting Area into A3.03 and B3.03	1. Provide backing board for monitor and power and communications connections
01	*seats, regular*	*11*	*1.9*			
02	*seats, barrier free*	*2*	*2.8*			
03	*washroom, public*	*1*	*4.6*			1. 2 pc 2. Non-gendered
3.20	Office, Manager	1		9.3		
3.21	Office, Shared	1		9.3	Multiuse	
3.22	Diagnostic Urology (Cystoscopy) Room	1		23.0		1. Provide HHS

Ref	Space	Proposed Area Units	nsm/ unit	nsm	i. Intent of Space	ii. Specific Design Features
3.23	Washroom, Patient	1		4.6		1. 2 pc 2. Non-gendered
3.24	Orthopaedic Exam/Consult/ Procedure Room	1		13.9		1. Locate near the Waiting Area 2. Provide HHS 3. Provide emergency call
3.25.	Orthopaedic Exam/Consult/ Cast Room	1		19.5		1. Locate near the Waiting Area 2. Provide HHS 3. Provide emergency call
01	*patient area*	*1*	*16.5*			
02	*storage*	*1*	*3.0*			
3.26.	Medical Day Care	1		280.6		1. Cytotoxic drugs for non-oncology indications will be administered here, requiring an emergency shower
01	*workstation*	*2*	*2.8*			1. Provide backing board for monitor and power and communications connections
02	*treatment chairs*	*8*	*5.6*			1. Provide data 2. Provide emergency call 3. Provide medical gases (oxygen, air and suction)
03	*stretcher bays, regular*	*6*	*7.4*		Added 1 as per Nov 2 STM. 7.4 NSM reallocated from Ref No 3.04.02	1. Provide 1 HHS for 2 patient positions 2. Provide emergency call 3. Provide medical gases (oxygen, air and suction)
04	*stretcher bays, cubicles*	*7*	*9.3*		Added 2 as per Nov 2 STM. 18.6 nsm reallocated from Ref No 3.04.02	1. Provide 1 HHS for 2 patient positions 2. Provide infrastructure for ceiling mounted patient lift
05	*isolation room*	*1*	*11.2*			1. The isolation room shall be located near the entrance to Medical Day Care
17	*anteroom for isolation room*	*1*	*5.0*			
06	*WC for isolation room*	*1*	*4.6*			

Ref	Space	Proposed Area Units	nsm/ unit	nsm	i. Intent of Space	ii. Specific Design Features
07	*stretcher bays for transfer patients*	*2*	*5.0*			
08	*alcove, nourishment station*	*1*	*3.7*		For patient nourishment	1. Provide HHS, lockable storage and 1200 mm millwork counter worksurface 2. Provide staff only access
09	*washroom, patient*	*2*	*4.6*			1. 2 pc 2. Non-gendered
10	*patient change cubicle*	*2*	*1.4*			
11	*patient change cubicle, barrier free*	*1*	*4.7*			
12	*patient purse lockers*	*1*	*0.9*		For patient belongings	
13	*alcove, clean supplies*	*1*	*3.7*			
14	*alcove, soiled utility*	*1*	*3.7*			
15	*medications preparation room*	*1*	*9.5*			1. Provide HHS ~~(deep enough to pour IV solution with medication), millowrk counter for med preparation~~ 2. Provide space for 1 med cart with charging station 3. Provide eyewash station 4. Provide secured door with glazing, doors open into the room 5. Provide utility sink in millwork counter w/ enclosed lockable storage above
16	*internal circulation - 20%*	*1*	*45.8*			
18	*alcove, pacemaker interrogation*	*1*	*1.7*			1. Locate in vicinity of Ref No 3.26.02 Treatment Chairs 2. Provide access to pwr/comm
19	*workstation, physician dictation*	*2*	*2.1*		NSM reallocated from Ref No 3.04.03	1. Locate in vicinity of Ref No 3.26.02 Treatment Chairs 2. Provide access to pwr/comm

Ref	Space	Proposed Area Units	nsm/ unit	nsm	i. Intent of Space	ii. Specific Design Features
3.27.	Ophthalmology Services	1		73.5		1. Must have direct access to patient care area of Medical Day Services for the transport of patients on stretchers pre- and post- procedure 2. Must have close access via internal circulation to a Procedure Room in Surgical Services
02	*~~preparation room~~ - 'stretcher cubicle'*	*2*	*9.5*		Changed to provide more stretcher bays on 'Procedure side'	1. Reallocate 5.1 nsm from deleted Ref No 3.04.03 to create 2 stretcher cubicles 2. Locate adjacent to Stretcher Bay (Ref No 3.26.04)
03	*procedure room*	*1*	*38.0*			1. Provide medical gases (oxygen, air, 2 suction and carbon dioxide) 2. Provide lockable millwork for medication storage 3. Provide millwork counter for med prep and HHS 4. Provide access to 220V power for portable imaging equipment 5. Provide infrastructure for ceiling mounted microscope
04	*scrub stations*	2	0.8			1. Locate directly adjacent to entry of Procedure Room (Ref No 3.27.03) 2. Accessed from outside the Procedure Room
05	*storage room, intraocular lens (IOL)*	1	*9.3*			1. Cluster with Procedure Room (Ref No 3.27.03) and Storage Room, Storage Room (Ref No 3.27.06) 2. Accessed from outside the Procedure Room
06	*storage room*	*1*	*5.6*		Storage of surgical instruments and anesthesia supplies	1. Cluster with Procedure Room (Ref No 3.27.03) , Intraocular Lens (IOL) (Ref No 3.27.05) 2. Accessed from outside the Procedure Room
3.28	Endoscopy Procedure Room	1		38.0		1. Negative pressure 2. Provide medical gases (oxygen, air, 2 suction, and carbon dioxide) 3. Provide lockable millwork for medication storage 4. Provide millwork counter for med prep and HHS 5. Provide emergency call

Ref	Space	Proposed Area Units	nsm/ unit	nsm	i. Intent of Space	ii. Specific Design Features
						6. Locate with close access to the Surgical Suite for the management of emergency endoscopy procedures 7. Must have direct access to patient care area of Medical Day Services for the transport of patients on stretchers pre- and post- procedure
3.29.	Scope Reprocessing	1		11.6		1. Provide data
01	*medivator units & cart*	*2*	*1.9*			
02	*utility sink*	*1*	*4.6*			1. Must have compressed air 2. Provide 1800 mm counter
03	*HHS*	*1*	*0.9*			
04	*internal circulation - 25%*	*1*	*2.3*			
3.3	Storage, Clean Scope Cupboard	1		1.9		1. Locate adjacent to Endoscopy Procedure Room
	Subtotal, Non-Shared Spaces			485.2		**CGSM at 1.5 Grossing Factor = 728**
	Total, Ambulatory Care Centre			781.5	Component Area = 1,172 CGSM	

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1A.4.1 BACK OF HOUSE: FACILITIES MANAGEMENT OFFICE

This specification outlines the functional, operational, and physical requirements for the Facilities Management Office (FMO) component.

1A.4.1.1 FUNCTIONAL DESCRIPTION

1A.4.1.1.1 Statement of Purpose

1A.4.1.1.1(1) The FMO office will be responsible for access control and the daily and long-term maintenance and repair of the base building mechanical, electrical, plumbing and refrigeration equipment including medical gases systems. The team will also be responsible for maintenance and repair of all non-patient related equipment in the Facility.

1A.4.1.1.2 Scope of Services

1A.4.1.1.2(1) Functional Content

1A.4.1.1.2(1)(a) FMO responsibilities will include:

- 1A.4.1.1.2(1)(a)(i) maintenance of the base building mechanical, electrical, plumbing and refrigeration equipment including medical gases system;
- 1A.4.1.1.2(1)(a)(ii) management of building preventative maintenance and repairs including carpentry projects, general painting, repairs of beds;
- 1A.4.1.1.2(1)(a)(iii) management of the security contract;
- 1A.4.1.1.2(1)(a)(iv) responsibility for procuring, monitoring and maintaining of contracted services related to facilities maintenance;
- 1A.4.1.1.2(1)(a)(v) oversight of electrical power distribution and standby power generation for the Facility;
- 1A.4.1.1.2(1)(a)(vi) execution of renovation and minor capital projects in-house;
- 1A.4.1.1.2(1)(a)(vii) development and assistance with equipment asset database;
- 1A.4.1.1.2(1)(a)(viii) monitoring of pickup/delivery of building supplies;
- 1A.4.1.1.2(1)(a)(ix) management of the disposal of flammable and hazardous waste (a joint responsibility with Laboratory Services [LS]);
- 1A.4.1.1.2(1)(a)(x) response to Codes, as required; and
- 1A.4.1.1.2(1)(a)(xi) access control systems including video surveillance.

1A.4.1.1.2(2) Planning Assumptions

1A.4.1.1.2(2)(a) 24/7 on-site coverage will be required.

1A.4.1.1.2(2)(b) The use of trade staff in-house vs. contracting out will continue to be assessed on an ongoing basis.

1A.4.1.1.2(3) Scope of Education Functions

1A.4.1.1.2(3)(a) Staff will have access to online training in this component.

1A.4.1.1.2(4) Excluded

1A.4.1.1.2(4)(a) Contracted services will include the testing of building automation systems and fire alarm system, as well as contracted landscaping services.

1A.4.1.2 OPERATIONAL DESCRIPTION

1A.4.1.2.1 Hours of Operation

1A.4.1.2.1(1) Hours of operation will be 24/7.

1A.4.1.2.2 Organization & Management

1A.4.1.2.2(1) The assumption is that FMO will continue to be managed by an Engineering Supervisor reporting to the Regional Director of Facilities Management.

1A.4.1.2.3 Workflow

1A.4.1.2.3(1) *Staff*

1A.4.1.2.3(1)(a) Maintenance of the building envelope, fixtures and systems will be based from a centrally located workshop with routine and emergency requests communicated electronically.

1A.4.1.2.3(1)(b) FMO staff will utilize radios for communication throughout the Facility.

1A.4.1.2.3(1)(c) Through electronic workorders, staff will undertake planned preventative and ‘response’ maintenance on-site using mobile work carts.

1A.4.1.2.3(1)(d) Repair of large bulky items (e.g., beds) will be performed in the General Maintenance Shop.

1A.4.1.2.3(1)(e) Sourcing and ordering of materials/parts will be a shared responsibility with Materials Management with FMO using the e-requisition system. FMO will check the equipment as it is delivered and assist with assigning asset tags.

1A.4.1.2.3(1)(f) FMO personnel will order parts and supplies, which will be received at the Loading Dock.

1A.4.1.2.3(1)(g) FMO staff will be responsible for cleaning their own shop areas for safety reasons.

1A.4.1.2.4 Support Activities

1A.4.1.2.4(1) ***N/A***

1A.4.1.3 STAFFING

1A.4.1.3.1 Estimated future staffing for this component is summarized below in terms of Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

	Days		Nights
Classification/Position	Headcount	Occupancy	Headcount
Total	9		2
Weekdays	0		0
Supervisor	1	Office	0
Assistant Chief	1		0
Power Engineers	3		1
Maintenance Workers	2		0
Electrician	1		0
Casuals	1		1

Notes:

- Other staffing resources are distributed to other components.
- RPG in consultation with Facility staff.
- Staff complement assumes contracted landscaping services.

1A.4.1.4 DESIGN CRITERIA

1A.4.1.4.1 External Relationships

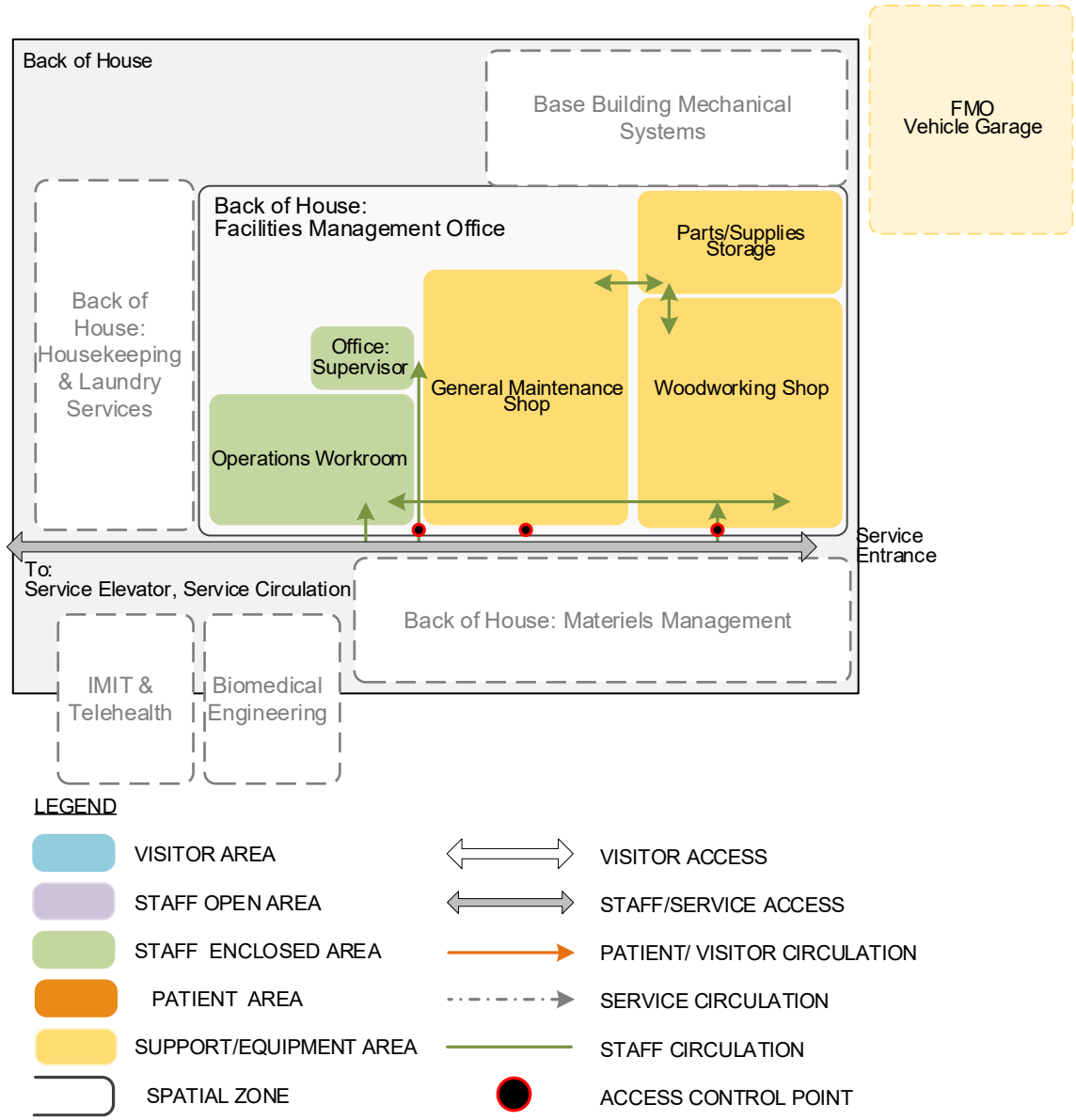
1A.4.1.4.1(1) The following key external relationships for FMO will be achieved in the priority order as numbered for the purposes stated:

1A.4.1 BACK OF HOUSE: FACILITIES MANAGEMENT OFFICE

1	**Biomedical Engineering**	Provide convenient access via service circulation to/ from Biomedical Engineering for the sharing equipment and facilities.
2	**Service Elevator/ Service Circulation**	Provide convenient access via service circulation to/ from service elevator for the movement of equipment to/from all patient care areas.
3	**Back of House: Materiels Management**	Provide convenient access via service circulation to/ from Back of House: Materiel Management for the movement of equipment to/from the Service Entrance and to create a Back of House area.
4	**Back of House: Housekeeping & Laundry Services**	Provide convenient access via service circulation to/ from Back of House: Housekeeping & Laundry Services to create a Back of House area.

1A.4.1.4.2 Functional Relationship Diagram

1A.4.1.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.4.1.4.3 Internal Design Criteria

1A.4.1.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.4.1.4.3(2) The Back of House: Facilities Management Office, Back of House: Materiel Management, and Back of House: Housekeeping and Laundry Services components must be clustered to form a Back of House area for the Facility.

1A.4.1.4.3(3) Following is a room-by-room list of spaces for FMO showing:

1A.4.1.4.3(3)(a) Intent of Space; and

1A.4.1.4.3(3)(b) Specific Design Features.

1A.4.1.5 SCHEDULE OF ACCOMMODATION

1A.4.1.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.4.1 BACK OF HOUSE: FACILITIES MANAGEMENT OFFICE

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Interior Space					
4.1.01	Office: Supervisor	1		9.3		1. Provide power & communications connections for back-up security monitors 2. Security monitor screens must not be visible from the corridor into this room
4.1.02.	Operations Workroom	1		37.0		
01	*DDC computer workstation*	*1*	*4.6*			
02	*fire alarm systems computer*	*1*	*4.6*			
03	*general computer workstations*	*2*	*4.6*			
04	*files/manuals/drawings*	*1*	*18.6*			
4.1.03.	General Maintenance Shop	1		89.1		1. Provide 1 HHS with emergency eyewash 2. Must accommodate a 'dirty to clean' workflow 3. Provide a chain hoist to move large equipment throughout the shop 4. Entrance to this room must be a minimum of 2400 mm wide clear x 2400 mm high clear
01	*equipment receiving/holding*	*1*	*13.9*			
02	*circulation/bed repair area*	*1*	*38.0*			1. Provide a central assembly area with direct route to the entrance of the General Maintenance Shop
03	*painting/welding station*	*1*	*7.4*			1. Provide exhaust system
04	*general storage*	*1*	*18.6*			
05	*tool storage*	*1*	*11.2*			
4.1.04	Woodworking Shop	1		80.0		1. Provide 1 HHS

1A.4.1 BACK OF HOUSE: FACILITIES MANAGEMENT OFFICE

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
						2. Provide a mobile dust collection system
4.1.05.	Parts/Supplies Storage	1		44.8		
01	*plumbing supplies*	*1*	*11.2*			
02	*electrical supplies*	*1*	*11.2*			
03	*air filters/chemical treatment supplies*	*1*	*11.2*			
04	*painting supplies*	*1*	*11.2*			
	Subtotal, Interior Space			260.2		
	Exterior Space					
4.1.06.	Vehicle Garage	1		83.4	Storage of gas-powered maintenance equipment, transport vehicles and supplies such as sand and salt	1. May be connected to main Facility 2. Requires outdoor access 3. Must be heated 4. Provide water line to support a portable pressure washer 5. Provide sloped floor to drain - e.g. either a physical drain or a gravity slope to the exterior
01	*bays*	*2*	*36.1*			1. Must be able to accommodate a quad-cab pickup truck with working space on both sides (6.0 m x 6.0 m) and one end (3.0 m) 2. Provide utility sink 3. Provide overhead door at a minimum of 3.6 m high for each bay x 3.0 m wide clear 4. One bay will accommodate gas powered maintenance equipment 5. Provide a tool bench, task lighting, access to 6 x 110V and 2 x 220V power and 4

1A.4.1 BACK OF HOUSE: FACILITIES MANAGEMENT OFFICE

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
						communications connections in bay with yard equipment
02	*storage*	*1*	*11.2*			1. Provide open wall mounted storage for hand-held yard equip., storage of fuel
	Subtotal, Exterior Space			83.4		
	Total, Facilities Management Office			343.6	Component Area = 395 CGSM at 1.15 grossing factor Interior Space Component Area = 92.0 CGSM at 1.10 grossing factor Exterior Space	

Notes:

- Non-Programmed Space – Base Building Systems:
  - Assumed to be in base building gross up.
  - Includes 'boiler room', electrical and communications 'demark' rooms, mechanical spaces throughout Facility, chiller/HVAC rooms, fire suppression room, back-up generator(s), UPS system room(s), etc.

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1A.4.2 BACK OF HOUSE: HOUSEKEEPING & LAUNDRY SERVICES

This specification outlines the functional, operational, and physical requirements for the Housekeeping and Laundry Services component.

1A.4.2.1 FUNCTIONAL DESCRIPTION

1A.4.2.1.1 Statement of Purpose

1A.4.2.1.1(1) Housekeeping staff will perform cleaning duties throughout the Facility and maintain clean and sanitary conditions as established in the Authority Policies Procedures and Processes.

1A.4.2.1.1(2) Clean linen will be delivered from Kitimat weekdays to the Facility via cart exchange.

1A.4.2.1.2 Scope of Services

1A.4.2.1.2(1) Functional Content

1A.4.2.1.2(1)(a) Housekeeping cleaners will perform the following functions:

1A.4.2.1.2(1)(a)(i) clean items and areas;

1A.4.2.1.2(1)(a)(ii) empty, clean, and disinfect waste/recycling containers; and remove garbage/recycling according to departmental procedures;

1A.4.2.1.2(1)(a)(iii) dust air vents and ducts, radiators, and light fixtures; remove and rehang drapes and bed curtains as required;

1A.4.2.1.2(1)(a)(iv) provide outbreak cleaning and prevention;

1A.4.2.1.2(1)(a)(v) maintain Housekeeping Rooms, housekeeping machines and equipment;

1A.4.2.1.2(1)(a)(vi) order, receive, and stock housekeeping supplies throughout the Facility. Housekeeping will set standards for cleaning products/supplies to be ordered; and

1A.4.2.1.2(1)(a)(vii) quarterly internal audits, quality assurance reviews, audits, observational audits, and UV audits.

1A.4.2.1.2(2) Planning Assumptions

1A.4.2.1.2(2)(a) There will be an Equipment Cleaning Room for Housekeeping within the Medical/Surgical IPU component for cleaning equipment to be used in Patient Rooms.

1A.4.2.1.2(3) Excluded

1A.4.2.1.2(3)(a) Full Laundry service will be provided from Kitimat.

1A.4.2.1.2(3)(b) All soiled instruments will be stored in containers for safe transport. Soiled instruments and reusable material will be picked up by MDR staff and delivered to MDR for reprocessing.

1A.4.2.2 OPERATIONAL DESCRIPTION

1A.4.2.2.1 Hours of Operation

1A.4.2.2.1(1) Hours of operation will be 24/7.

1A.4.2.2.2 Organization & Management

1A.4.2.2.2(1) A Manager will be shared between Housekeeping Services and Food Services, supported by a Coordinator, also shared. Day-to-day responsibilities will be those of the Supervisor.

1A.4.2.2.2(2) There will be dedicated Housekeeping staff in the Emergency Services, Surgical Services, and the Inpatient Units: Birthing Unit components.

1A.4.2.2.3 Workflow

1A.4.2.2.3(1) ***Staff***

1A.4.2.2.3(1)(a) Staff will check in at the beginning of their shift to receive daily assignments and to pick up any necessary supplies and equipment.

1A.4.2.2.3(1)(b) Cleaners will put all waste materials and recyclables into receptacles in Soiled Utility Rooms.

1A.4.2.2.3(1)(c) The following procedures will be used to dispose of the different forms of waste:

1A.4.2.2.3(1)(c)(i) *General waste* will be disposed of in a compactor; pick up will be based on a contractual basis;

1A.4.2.2.3(1)(c)(ii) *Confidential waste services* – a contractor will pick up confidential paper containers[1] as per pre-arranged schedule. During a 'Floor Walk' service, the contractor will remove containers from their identified location within the Facility for on-site shredding;

1A.4.2.2.3(1)(c)(iii) *Biological and hazardous waste* will be stored in a dedicated secure refrigerated room and picked up on a scheduled basis for removal to Vancouver. Biohazardous waste for Hazelton and Stewart will continue to be stored at the Facility;

1A.4.2.2.3(1)(c)(iv) *Radioactive waste* will be sealed in containers, recorded and held until safe for transport by certified personnel from Nuclear Medicine; and

1A.4.2.2.3(1)(c)(v) *Recyclable waste* will be separated at point-of-use and moved to the loading dock compactor for pick up.

[1] Provided by the contractor.

1A.4.2.2.3(2) *Equipment*

1A.4.2.2.3(2)(a) Mobile patient equipment will be cleaned and disinfected by Housekeeping staff on the Units, tagged and stored in clean Equipment Storage rooms.

1A.4.2.2.3(2)(b) Housekeeping will remove soiled linens from patient areas to Soiled Utility Rooms located throughout the Facility. Porters will move the soiled laundry from the Soiled Utility Rooms to the Soiled Linen Room in the *Back of House: Materiel Management* (MM) component on a regular basis.

1A.4.2.2.3(2)(c) Supplies will be direct ordered through contracts established by PHSA, or by MM through a vendor contract. An inventory of cleaning supplies will be kept in Housekeeping.

1A.4.2.2.3(2)(d) Orders received at the loading dock and delivered to Housekeeping by MM porters.

1A.4.2.2.3(3) *Communications*

1A.4.2.2.3(3)(a) A centralized paging system to advise Housekeeping staff of tasks such as discharge cleans will be investigated.

1A.4.2.3 STAFFING

1A.4.2.3.1 Estimated future staffing for this component is summarized below in terms of Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

	Days		Nights
Classification/Position	Headcount	Occupancy	Headcount
Total	19		8
Weekdays	0		0
Manager: FS & Housekeeping (shared)	0	See *Food Services*	0
Coordinator: FS & Housekeeping (shared)	1	Office	0
Housekeeping Supervisor	1	Workstation	0
Housekeepers	16		8
Clerical Support/Administrative Assistant (shared)	1	Workstation	0

Notes:

- It is assumed that the 2036/37 Projected Staffing will be in place at opening of the Facility.
- Number of staff on evenings/nights gradually drops from a peak of eight around 1630 to one or two from midnight to 0600.

1A.4.2.4 DESIGN CRITERIA

1A.4.2.4.1 External Relationships

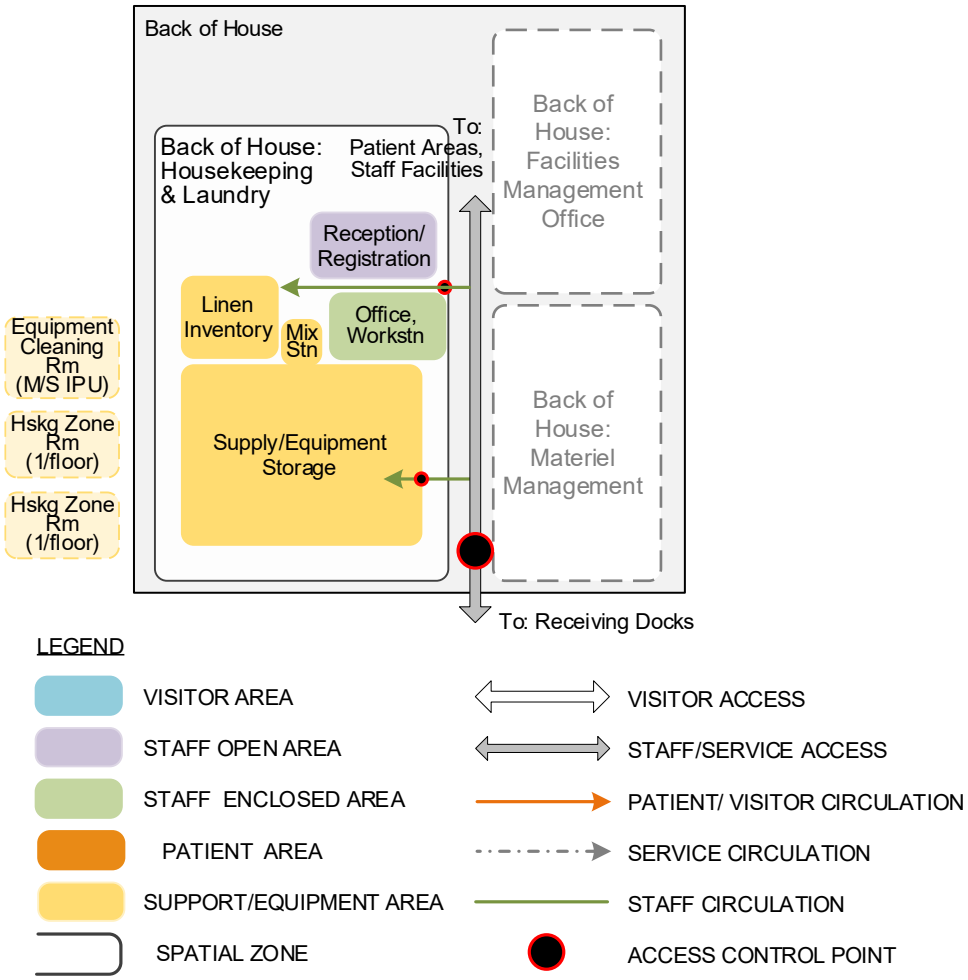
1A.4.2.4.1(1) The following key external relationships for Housekeeping and Laundry will be achieved in the priority order as numbered for the purposes stated:

1	**Back of House: Materiels Management (Receiving Dock)**	Provide convenient access via service circulation to/ from Back of House: Materiel Management for access to the Receiving Docks for the ease of movement of equipment and supplies.
2	**Staff Facilities & Medical Staff Facilities**	Provide convenient access via service circulation to/ from Staff Facilities & Medical Staff Facilities for ease of access to staff amenities located there.
3	**Food Services**	Provide convenient access via service circulation to/ from Food Services for ease of access for staff.
4	**Back of House: Facilities Management Office**	Provide convenient access via service circulation to/ from Back of House: Facilities Management Office, for the creation of a Back of House area.

1A.4.2 BACK OF HOUSE: HOUSEKEEPING & LAUNDRY SERVICES

1A.4.2.4.2 Functional Relationship Diagram

1A.4.2.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.4.2.4.3 Internal Design Criteria

1A.4.2.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.4.2.4.3(2) The Back of House: Facilities Management Office, Back of House: Materiel Management, and Back of House: Housekeeping and Laundry Services components must be clustered to form a Back of House area for the Facility.

1A.4.2.4.3(3) Following is a room-by-room list of spaces for Housekeeping & Laundry showing:

1A.4.2.4.3(3)(a) Intent of Space; and

1A.4.2.4.3(3)(b) Specific Design Features.

1A.4.2.5 SCHEDULE OF ACCOMMODATION

1A.4.2.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.4.2 BACK OF HOUSE: HOUSEKEEPING AND LAUNDRY SERVICES

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Main Department					
4.2.01.	Reception/Registration	1		9.5		
01	*workstation, standing*	*1*	*1.8*			
02	*workstation*	*2*	*2.8*			
03	*storage, supplies*	*1*	*0.9*			
04	*printer stand*	*1*	*1.2*			
4.2.02.	Storage, Supply/Equipment	1		47.2		1. Provide double doors to the service corridor from this room at a minimum of 1800 mm wide clear x 2400 mm high clear 2. Provide HHS w/ emergency eyewash
01	*autoscrubber*	*3*	*2.8*			1. Designated for OR
02	*floor polisher*	*2*	*1.9*			
03	*vacuum*	*2*	*1.9*			
04	*other mobile equipment*	*2*	*2.3*			
05	*floor sink*	*1*	*1.9*			
06	*storage room, clean supply*	*1*	*7.4*		For toilet paper, etc.	
07	*storage, chemical*	*1*	*2.8*			
08	*storage, spill kit*	*1*	*0.9*			
09	*storage, cart*	*10*	*0.9*			
10	*circulation*	*1*	*4.6*			
4.2.03	Chemical Mixing Station	1		2.5		

1A.4.2 BACK OF HOUSE: HOUSEKEEPING AND LAUNDRY SERVICES

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
4.2.04	Workstation, Supervisor, Housekeeping & Laundry	1		4.6		
4.2.05	Office, Coordinator, Housekeeping & Laundry	1		9.3	HR duties	
4.2.07	Linen Inventory Holding	1		9.3	Clean linen holding	
	Subtotal, Main Department			82.4		
	Distributed					
4.2.08	Housekeeping Zone Rooms (distributed)	2	*11.0*	22.0	Will accommodate PPE, waste receptacle, housekeeping cart (lockable), ladder, open storage for supplies and oversize equipment (e.g. vacuum, floor buffer/ burnisher, floor scrubber, ride-on auto scrubbers), isolation cleaning cart	1. Provide utility sink with integral eyewash, floor sink, and 1000 lin mm counter 2. Provide access to power for charging battery packs and equipment on open storage shelves 3. Provide 20 lin m of open millwork storage for supplies
	Housekeeping Room, Distributed	0	*7.0*	0.0	*Rooms are distributed throughout the Facility as indicated in individual components. Size varies.* Will accommodate PPE, waste receptacle, housekeeping cart (lockable)	1. Provide utility sink with integral eyewash, floor sink 2. Provide access to power for charging battery packs and equipment on open storage shelves 3. Provide 3 lin m of open millwork storage for supplies 4. Locate one Housekeeping Zone Room on 3rd floor 5. Locate one Housekeeping Zone Room on 1st floor

1A.4.2 BACK OF HOUSE: HOUSEKEEPING AND LAUNDRY SERVICES

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Equipment Cleaning Room, Housekeeping	1	*12.0*	0.0		*(See Med/Surg IPU - Shared Spaces)*
	Subtotal, Distributed			22.0		
	Total, Housekeeping & Laundry			**104.4**	**Component Area = 120.0 CGSM at 1.15 grossing factor**	

1A.4.3 BACK OF HOUSE: MATERIEL MANAGMENT

This specification outlines the functional, operational, and physical requirements for the Materiel Management (MM) component.

1A.4.3.1 FUNCTIONAL DESCRIPTION

1A.4.3.1.1 Statement of Purpose

1A.4.3.1.1(1) MM will be responsible for the procurement and distribution of supplies, equipment, and services in the Facility as well as delivery of supplies to several long-term care and clinic facilities in Terrace including the LPN, RN, and Care Aide Programs at Coast Mountain College, Healthy Terrace at Summit Medical Clinic, Seven Sisters Facility, Sleeping Beauty Lodge Paediatric Clinic, and Terraceview Lodge.

1A.4.3.1.2 Scope of Services

1A.4.3.1.2(1) Functional Content

1A.4.3.1.2(1)(a) **Procurement** – MM will be responsible for procurement of all supplies required for operations and patient care, including inventory and non-stock items. The Provincial Health Services Authority (PHSA) will be responsible for managing capital purchases, inventory management and non-stock procurement.

1A.4.3.1.2(1)(b) **Warehousing** – MM will provide secure central storage of supplies and distribution of inventory and non-stock items. The inventory located in this Facility will support the Facility. Inventory items will be available to the user through requisition from local inventory, requisition from UHNBC inventory, or be a stock item direct from vendor.

1A.4.3.1.2(1)(c) Deliveries will be through a combination of supply logistics systems including, par top-up and on-demand requisition.

1A.4.3.1.2(1)(d) Department inventory will be managed by radio-frequency identification tags (RFID). MM will manage the delivery of supplies in response to consumption patterns identified electronically by the user departments. User requisitions for non-stock supplies will be sent to procurement by electronic form for sourcing and procurement from third party vendors.

1A.4.3.1.2(1)(e) **Shipping & Receiving** – MM will provide receiving and documentation of incoming supplies, outbound shipping as required, and assist with distribution of non-stock items.

1A.4.3.1.2(1)(f) **Materiel Portering** – will provide material distribution and collection. Tasks will include linen distribution (clean and soiled), items for MDR reprocessing, delivery and pick up of prepared lab specimens, bulk housekeeping supplies replenishment, non-stock deliveries, and oxygen tank delivery.

1A.4.3.1.2(1)(g) Mail will be delivered by Canada Post to MM. MM portering staff will deliver mail to the Patient Registration in the *Main Entry Facilities* component area daily. Processing outgoing mail will continue to be the responsibility of Patient Registration.

1A.4.3.1.2(2) Excluded

1A.4.3.1.2(2)(a) Waste will be collected and delivered to the Waste Bin Storage/ Recycling Bin area at the dock by Housekeeping staff.

1A.4.3.1.2(2)(b) Housekeeping will be responsible for moving biohazard waste to the dock.

1A.4.3.2 OPERATIONAL DESCRIPTION

1A.4.3.2.1 Hours of Operation

1A.4.3.2.1(1) 0700 to 2300 seven days per week or as per the requirements of the Facility.

1A.4.3.2.2 Organization & Management

1A.4.3.2.2(1) Day-to-day supervision will be the responsibility of Support Services Manager who will oversee the Back of House: Materiel Management program, Housekeeping & Laundry Services, and Food Services programs. A Coordinator will be shared with Housekeeping & Laundry Services

1A.4.3.2.3 Workflow

1A.4.3.2.3(1) ***Procurement***

1A.4.3.2.3(1)(a) User departments will be responsible for specifying and quantifying supply requests. Staff will be responsible for sourcing and ordering supplies, equipment, and services. Asset Tagging of new equipment will be completed in the Equipment Receiving/Holding area of the *Back of House: Facilities Management Office* (FMO) component. Electronic commerce will support a total electronic data interchange (EDI) system for purchase orders, invoices, and funds transfer of all stock items.

1A.4.3.2.3(1)(b) All non-stock items will be ordered following the prescribed requisitioning process.

1A.4.3.2.3(2) ***Warehousing, Distribution and Inventory Control***

1A.4.3.2.3(2)(a) The RFID-enabled two-bin replenishment system will be used to maintain inventories on the units.

1A.4.3.2.3(2)(b) During their delivery rounds, MM staff will replenish supplies according to notifications from the system to ensure stock rotation and help prevent stock wastage.

1A.4.3.2.3(3) ***Shipping & Receiving***

1A.4.3.2.3(3)(a) Direct orders will be distributed by MM when they have been received at the dock. Items to be shipped out will be packaged by the user and delivered to the Receiving Dock for transport. MM will issue a waybill and contact the transport company.

1A.4.3.2.3(3)(b) New equipment (small items) will be received by MM and stored in a Caged Holding area until the appropriate requestor can process/inspect the item(s). New equipment (post-inspection), equipment being trialed, and equipment being returned will also be held in the Post Receiving Area.

1A.4.3.2.3(3)(c) Medical/surgical supplies required by the components will be topped up on a regularly scheduled basis by Materiel Management (MM) staff according to an agreed-upon quota. Stock will be stored in Clean Supplies Rooms from which respective component staff will pull or distribute to various patient care areas, as required. All other non-stock items (also referred to as “direct”), including office supplies, etc., will be requisitioned from MM on an as-needed basis.

1A.4.3.2.3(3)(d) Medical gasses (‘grab and go’ products) including volatile substance will be stored in designated areas near the Receiving Dock. Incompatible substances will be separated and stored in different rooms. The delivery of medical gas portable cylinders will be the responsibility of the MM porters.

1A.4.3.2.3(3)(e) The hazardous waste disposal provider manifest will be signed by the MM Attendant and all documentation will be sent to a supervisor for records and Ministry of Transportation and Infrastructure enquiries. MM staff will be required to maintain current Transportation of Dangerous Goods Certification.

1A.4.3.2.3(3)(f) A container for confidential waste will be located in the Soiled Utility Room of each component. This will be replaced by the confidential waste contractor as per the contract.

1A.4.3.2.3(4) ***Materiel Portering***

1A.4.3.2.3(4)(a) A regular delivery schedule will be established for portering services. In-scope services will include:

1A.4.3.2.3(4)(a)(i) General Linen – delivery of clean and pick up of soiled sheets, towels, etc. within the Facility;

1A.4.3.2.3(4)(a)(ii) OR Linens – delivery of disposable OR Linen products within the Facility;

1A.4.3.2.3(4)(a)(iii) Residential and General Linens – transport of off-site clean and soiled residential clothing and general linen from loading dock to the off-site Regional Laundry Operation;

1A.4.3.2.3(4)(a)(iv) Sterile Processing – hard goods, soiled and clean;

1A.4.3.2.3(4)(a)(v) Laboratory Services – pick up of lab coolers for shipments, prepared specimen pick up;

1A.4.3.2.3(4)(a)(vi) Non-Stock Delivery – complete process of delivery, signature, and filing documentation;

1A.4.3.2.3(4)(a)(vii) Stat Call Service – deal with immediate stat calls and service requests;

1A.4.3.2.3(4)(a)(viii) replenishment of oxygen tanks at the Inpatient Units level; and

1A.4.3.2.3(4)(a)(ix) pick and deliver bulk department orders.

1A.4.3.2.3(4)(b) A rotation of responsibilities/duties will be a key aspect of the schedule to ensure cross coverage as needed during sick/vacation time

1A.4.3.2.3(5) ***Bulk Program***

1A.4.3.2.3(5)(a) The Authority may request that the contractor pick up, transport and securely destroy bulk quantities of documents on an “as, if and when” requested basis.

1A.4.3.2.3(5)(b) The bulk program applies only to documents packaged in the Authority supplied file boxes.

1A.4.3.2.3(5)(c) Recycle cardboard where possible.

1A.4.3.2.3(5)(d) Recycle refundable bottles and cans where possible.

1A.4.3.2.3(5)(e) Recycle photocopy supplies such as toner and drums as per the supplier process.

1A.4.3.2.3(5)(f) The Facility’s Recycling program will include confidential shredding, cardboard, and plastics.

1A.4.3.3 STAFFING

1A.4.3.3.1 Estimate future staffing for this component is summarized below in terms of Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

Classification/Position	Days Headcount	Days Occupancy	Nights Headcount
Total	10		0
Weekdays	0		0
Senior Buyer/Supervisor	2		0
Stores and Distribution Attendant	4		0
Transportation Aide	4		0

Notes:

- Source: Authority Decision Support/Finance Department.
- RPG in consultation with Facility staff.
- Projected staff complement is contingent on Warehousing and Logistics Business Model, and in Facility Replenishment Service Requirements.

1A.4.3.4 DESIGN CRITERIA

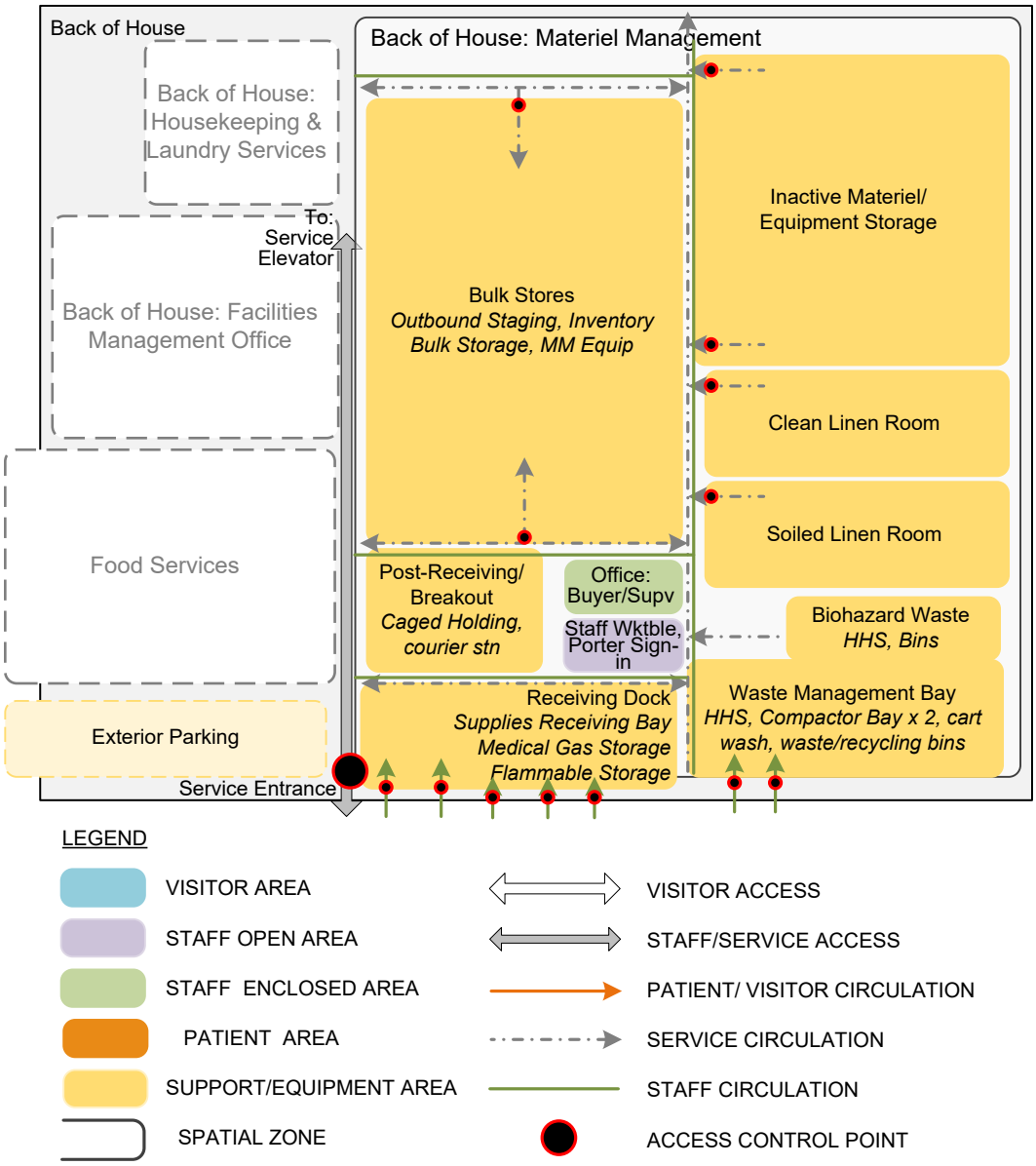
1A.4.3.4.1 External Relationships

1A.4.3.4.1(1) The following key external relationships for MM will be achieved in the priority order as numbered for the purposes stated:

1	**Service Entrance and Service Elevator**	Provide convenient access via service circulation to/ from the service entrance and service elevator of the Facility to efficiently move supplies.
2	**Back of House: Housekeeping & Laundry Services**	Provide convenient access via service circulation to/ from Back of House: Housekeeping & Laundry Services to create a Back of House area.
3	**Back of House: Facilities Management Office**	Provide convenient access via service circulation to/ from the Back of House: Facilities Management Office to create a Back of House area.

1A.4.3.4.2 Functional Relationship Diagram

1A.4.3.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.4.3.4.3 Internal Design Criteria

1A.4.3.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.4.3.4.3(2) The design shall incorporate the following principles:

1A.4.3.4.3(2)(a) The Back of House: Facilities Management Office, Back of House: Materiel Management, and Back of House: Housekeeping and Laundry Services components must be clustered to form a Back of House area for the Facility;

1A.4.3.4.3(2)(b) There must be clear separation of clean from soiled activities and workflow within the component;

1A.4.3.4.3(2)(c) The route from the Receiving Dock to key users (e.g. Food Services, Back of House: Housekeeping & Laundry Services, Back of House: Facilities Management Office, Back of House: Materiel Management, Pharmacy, Laboratory, etc.) shall be easily navigated by staff pushing heavy carts, and be level with no stairs or slopes;

1A.4.3.4.3(2)(d) Ensure doorways/entryways throughout Back of House components are wide enough and high enough to move pallets loaded on pallet trucks (minimum 1800 mm clear wide x 2400 mm clear high); and

1A.4.3.4.3(2)(e) Ensure staff access to compactors can be made safely with no lifting of waste required.

1A.4.3.4.3(3) Following is a room-by-room list of spaces for MM showing:

1A.4.3.4.3(3)(a) Intent of Space; and

1A.4.3.4.3(3)(b) Specific Design Features.

1A.4.3.5 SCHEDULE OF ACCOMMODATION

1A.4.3.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.4.3 BACK OF HOUSE: MATERIEL MANAGMENT

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1A.4.3 BACK OF HOUSE: MATERIEL MANAGEMENT

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Exterior Parking					
	Service Vehicles	3		0.0	For Stores vehicle, couriers, service vehicles	1. Exterior parking spaces near the Receiving Dock entrance
	NWHSDA Vehicles	3		0.0	For vans used as transport between sites	1. Exterior parking for diesel vans 2. Provide block heater plug-ins for each vehicle
	Laundry Vehicle	1		0.0	For cube van used to transport laundry between sites	1. Ensure convenient access to Receiving Dock
	Shipping & Receiving					1. This component must reside together on the Main Floor Level w/the exception of Ref No 4.3.09 Inactive Material/Equipment Storage Room
4.3.01.	Receiving Dock	1		44.4		1. Provide video cameras to monitor movement outside the bay doors 2. Provide ability to provide remote access 3. Locate close to the Post-Receiving/Breakout area for the receiving, sign-in, and delivery to MM 4. Must be separate from the Waste Management Bay 5. Provide non-slip surfaces in this area 6. Ensure interior and exterior areas of receiving dock do not freeze/create hazardous working conditions 7. Provide minimum 3.0 m overhang on the exterior of the dock entrances 8. Provide 'man door' adjacent to roll up receiving bay doors
01	*supplies receiving bays*	*2*	*13.4*		Interior portion	1. Face away from the north 2. Provide dock-levelers 3. Space to be minimum 3.6 m wide x 6.0 m deep for off-loading inside the building and breakout of goods

1A.4.3 BACK OF HOUSE: MATERIEL MANAGEMENT

Ref		Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	02	*exit stair*	*1*	*0.0*			1. Exterior to Facility
	03	*medical gas storage*	*1*	*10.2*			1. Must be accessible from the exterior of the Receiving Dock 2. Ensure contents are protected from freezing 3. To be configured to separate full and empty cylinders
	04	*flammable storage*	*1*	*7.4*			1. Must be accessible from the exterior of the Receiving Dock 2. Contents must be kept from freezing
4.3.02.		Waste Management Bay	1		48.3		1. Must be separate from the Receiving Dock
	01	*HHS*	*1*	*0.9*			1. Provide eyewash and emergency shower
	02	*bays including compactors*	*2*	*18.6*			1. Interior to Facility, includes circulation
	03	*garbage can/cart wash area*	*1*	*10.2*		Some area will be reallocated to inpatient unit for wheelchair washer	1. Provide power washer 2. Provide steam and hot water
	04	*waste bin storage/ recycling bins*	*1*	*0.0*		Will accommodate 2 large waste bins	1. Exterior to facility
4.3.03.		Biohazard Waste	1		20.9		
	01	*HHS*	*1*	*0.9*			1. With emergency eyewash
	02	*walk-in refrigerator*	*1*	*16.0*		Will accommodate stericycle containers Will act as 'anteroom' for walk-in freezer, -10	1. Will provide access to Walk-in Freezer 2. Must be alarmed to call out to MM staff 3. Must be on back-up power
	03	*walk-in freezer, -10*	*1*	*4.0*			1. Will be accessible from Walk-in Refrigerator 2. Must be alarmed to call out to MM staff 3. Must be on back-up power
4.3.04.		Post-Receiving/Breakout	1		37.1		1. Must be close to the Receiving Dock
	01	*post-receiving area*	*1*	*27.9*			1. Provide high levels of lighting suitable for for inspection of deliveries, staging of outgoing items

1A.4.3 BACK OF HOUSE: MATERIEL MANAGEMENT

Ref		Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	02	*caged holding room*	*1*	*5.6*		Temporary holding	1. Secured 2. Locate adjacent to Pharmacy Receiving/Breakdown Area
	03	*workstation, courier/porter*	*1*	*3.6*			1. Provide view to Receiving Dock
4.3.05		Washroom, Staff	1	*4.6*	4.6	Inc. by 0.6 nsm to meet CSA	1. 2 pc 2. Provide enclosed 1000 lin mm shelf above/behind toilet
4.3.06		Soiled Linen Room	1		47.4		1. Will accommodate 27 carts 2. Provide HHS
4.3.07		Clean Linen Room	1		47.4		1. Will accommodate 27 carts
		Subtotal, Shipping & Receiving			250.1		
		<u>Stores</u>					
4.3.08.		Bulk Stores Room	1		193.2		1. Provide clear ceiling ht of 6000 mm
	01	*outbound staging*	*1*	*18.6*			
	02	*inventory bulk storage*	*1*	*167.2*			1. Must be able to be segregated into securable areas to accommodate department-managed inventory
	03	*alcove, mm equipment*	*2*	*3.7*		For storing, charging mobile equip.	
4.3.09		Inactive Materiel/ Equipment Storage Room	1		139.4		1. This room may be separate from the rest of the component
4.3.10		Staff Worktable	1		4.6		
4.3.11		Porter Sign-In Station	1		4.6		
4.3.12		Office, Buyer/Supervisor	1		9.3		
		Subtotal, Stores			351.1		
		Total, Materiel Management			601.2	Component Area = 691.0 CGSM at 1.15 grossing factor	

1A.5 BIOMEDICAL ENGINEERING

This specification outlines the functional, operational, and physical requirements for the Biomedical Engineering component.

1A.5.1 FUNCTIONAL DESCRIPTION

1A.5.1.1 Statement of Purpose

1A.5.1.1(1) Staff in the Biomedical Engineering component will be responsible for the safe and proper operation of electronic devices that are connected to patients or involve some form of patient-machine interface.

1A.5.1.2 Scope of Services

1A.5.1.2(1) Functional Content

1A.5.1.2(1)(a) Services/activities to be accommodated in this component will include:

1A.5.1.2(1)(a)(i) Administrative activities, including record keeping of maintenance records;

1A.5.1.2(1)(a)(ii) Preventative maintenance and repairs (including quality assurance activities);

1A.5.1.2(1)(a)(iii) Sourcing new equipment and collaborating with clinical staff on evaluating new purchases and ensuring compliance with current standards;

1A.5.1.2(1)(a)(iv) Receive and commissioning new equipment;

1A.5.1.2(1)(a)(v) Storage of parts and supplies for repair;

1A.5.1.2(1)(a)(vi) Supporting Medical Imaging (MI) with quality control and maintenance; and

1A.5.1.2(1)(a)(vii) Decommissioning, discarding of obsolete or irreparably damaged biomedical devices in conjunction with the appropriate vendor.

1A.5.1.2(2) Planning Assumptions

1A.5.1.2(2)(a) Biomedical Engineering will also support other Authority facilities located in Queen Charlotte, Prince Rupert, Kitimat, Dease Lake, Nisga'a Valley Health Authority (NVHA) and Stewart with preventative maintenance and repairs.

1A.5.1.2(3) Scope of Education Functions

1A.5.1.2(3)(a) Biomedical Engineering will provide placement opportunities for students from BCIT and Northern Alberta Institute of Technology. At any given time, there may be one student on placement.

1A.5.1.2(4) Excluded

1A.5.1.2(4)(a) N/A.

1A.5.1.2(5) Anticipated Trends in Service Delivery

1A.5.1.2(5)(a) Increasing “smart” technology incorporated into devices.

1A.5.1.2(5)(b) Increasing interfaces between the patient, monitoring devices and the electronic medical record.

1A.5.1.2(5)(c) Increasing involvement of Biomedical Engineering personnel in selecting/purchasing, moving, repairing and maintaining equipment.

1A.5.2 OPERATIONAL DESCRIPTION

1A.5.2.1 Hours of Operation

1A.5.2.1(1) Biomedical Engineering will operate from 0730 to 1530, weekdays. After hours on-call services for the Region will be provided from the University Hospital of Northern British Columbia (UHNBC).

1A.5.2.2 Organization & Management

1A.5.2.2(1) The day-to-day operation at the Facility will be managed by two on-site staff, reporting to the Biomedical Engineering Supervisor, located at UHNBC.

1A.5.2.3 Workflow

1A.5.2.3(1) ***Staff***

1A.5.2.3(1)(a) A listing of equipment requiring preventative maintenance (PM) will be generated and followed each month.

1A.5.2.3(1)(b) Requests for service will be received electronically and a staff person will assign the work order according to need and location. The priority will be assessed and confirmed through Biomedical Engineering service personnel to establish timelines, methods, equipment, and materials that may be required.

1A.5.2.3(1)(c) Some equipment will be sent off-site for repair, depending on service contract, warranty status and nature of equipment. This equipment will be transported by Materiel Management (MM) Portering staff to the Receiving Dock and will be held in a temporary Post-Receiving/Breakout area for outgoing storage prior to shipment and pick up.

1A.5.2.3(1)(d) Biomedical Engineering will be responsible for the inspection of all new electronic equipment delivered to the Facility. New equipment delivered to the Facility will be kept in the Receiving Dock temporary Post-Receiving/Breakout area where it will be unpacked, received

and inspected prior to being delivered to the designated user area by MM Porters.

1A.5.2.3(1)(e) Ongoing maintenance and repairs specific to the dialysis equipment will be done in the satellite shop located in the *Renal Services* component.

1A.5.2.3(1)(f) Repair technicians will perform basic cleaning of equipment.

1A.5.3 STAFFING

1A.5.3.1 Estimated future staffing for this component is summarized below in terms Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

	Days		Nights
Position	Head Count	Occupancy	Head Count
Total	4		0
Weekdays	0		0
Supervisor[1]	0	-	0
Biomedical Engineering Technician	4	Workstation	0

Notes:

1. Located off-site at UHNBC.

- Source: Authority Decision Support/Finance Department; includes support for Renal Services.
- RPG in consultation with Facility staff.

1A.5.4 DESIGN CRITERIA

1A.5.4.1 External Relationships

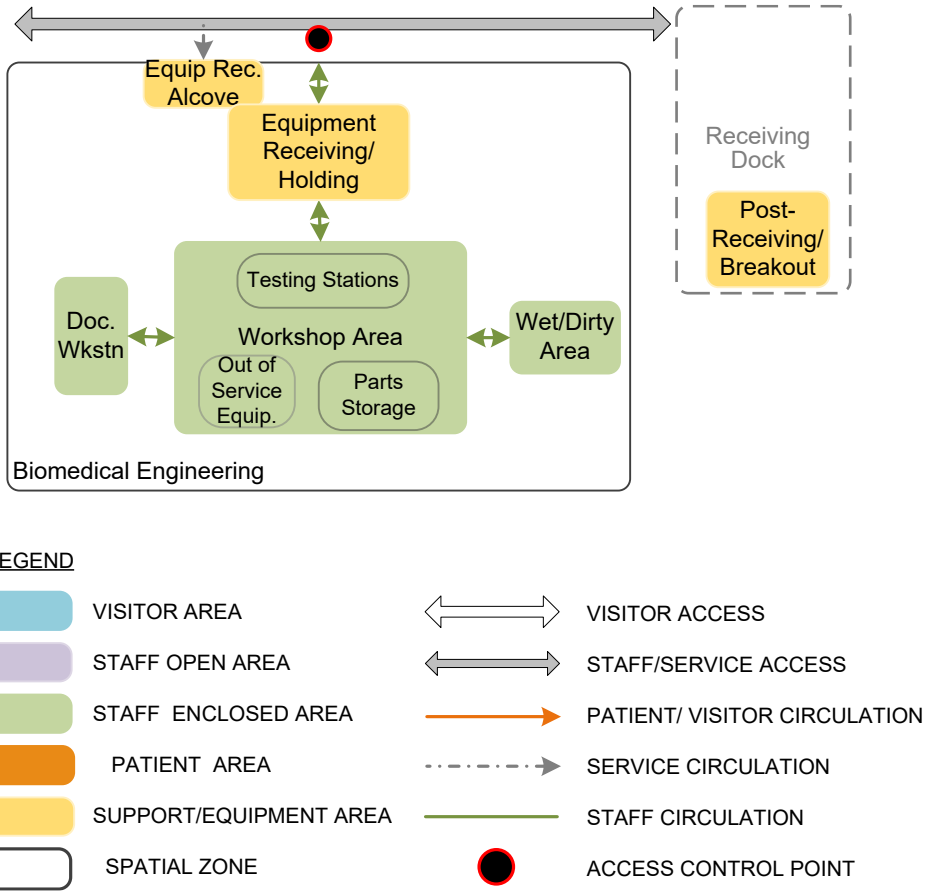
1A.5.4.1(1) The following key external relationships for Biomedical Engineering will be achieved in the priority order as numbered for the purposes stated:

1 **Service Elevators** — Provide convenient access via general circulation to/ from the service elevators for movement of equipment from inpatient and other clinical areas.

2 **Materiel Management** — Provide convenient access via general circulation to/ from Materiel Management for the movement of goods and materials.

1A.5.4.2 Functional Relationship Diagram

1A.5.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.5.4.3 Internal Design Criteria

1A.5.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this document. These two sections must be read together.

1A.5.4.3(2) Ensure clear separation of clean from soiled items, processes, and workflow.

1A.5.4.3(3) Following is a room-by -room list of spaces for Biomedical Engineering showing:

N.1.5.4.3(3)(a) Intent of Space; and

N.1.5.4.3(3)(b) Specific Design Features.

1A.5.5 SCHEDULE OF ACCOMMODATION

1A.5.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

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A1.5 BIOMEDICAL ENGINEERING

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
5.01	Alcove, Equipment Receiving	1		2.5	Alcove where equipment can be dropped off after hours This is an additional space for after hour drop-off	1. Located in service corridor outside Equipment Receiving/Holding
5.02	Equipment Receiving/Holding	1		16.5		
5.03.	Workshop Area	1		42.8		
01	*HHS*	*1*	*0.9*			
02	*utility sink*	*1*	*1.9*			
03	*testing station*	*3*	*5.6*			1. Testing stations require headwall gases including nitrous, oxygen, air and suction 2. Provide 2 x 30 amp dedicated circuits with 12 x 110 volt outlets, with a minimum of 50% of outlets on back-up power at each testing station 3. Provide infrastructure for ceiling mounted equipment lift
04	*mobile cart*	*3*	*0.9*			
05	*storage parts*	*1*	*11.1*			
06	*alcove, PPE*	*1*	*0.9*			
07	*out of service equipment*	*1*	*3.9*			
08	*circulation/staging space (12%)*	*1*	*4.8*			
5.04.	Wet/Dirty Area	1		5.4		
01	*fume hood*	*1*	*4.5*			
02	*utility sink*	*1*	*0.9*			1. Provide eyewash

A1.5 BIOMEDICAL ENGINEERING

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
5.05	Workstation, Documentation	3	3.6	10.8		
5.06	Alcove, Spare Machine	1	3.7	3.7		1. Provide 2 pwr outlets, 4 water and drain connections
	Total, Biomedical Engineering			81.7	Component Area = 106 CGSM at 1.30 grossing factor	

1A.6 CANCER CARE CLINIC

This specification outlines the functional, operational, and physical requirements for the Cancer Care Clinic (CCC) component.

1A.6.1 FUNCTIONAL DESCRIPTION

1A.6.1.1 Statement of Purpose

1A.6.1.1(1) The CCC, a partnership between the Authority and BC Cancer Agency (BCCA), will provide quality medical care and chemotherapy to patients "close-to-home". The Facility is one of nine Communities Oncology Network[1] Clinic within the Northern Cancer Control Strategy.

1A.6.1.2 Scope of Services

1A.6.1.2(1) Functional Content

1A.6.1.2(1)(a) Four sets of services will comprise the CCC: Diagnostic Services, Systemic Therapy, Follow-up Care, and Palliative Care.

1A.6.1.2(1)(b) Care will be patient- and family-focused. Services/activities will include:

1A.6.1.2(1)(b)(i) Providing assistance with all provincial screening programs in the catchment area;

1A.6.1.2(1)(b)(ii) Coordination of the diagnostic process, assessment, and staging of the cancer;

1A.6.1.2(1)(b)(iii) Chemotherapy administration (IV, oral, intraperitoneal, and bladder installation);

1A.6.1.2(1)(b)(iv) Palliative care/symptom management;

1A.6.1.2(1)(b)(v) Clinics – initial consultation/assessment, on-treatment and post-treatment follow-ups, as well as follow-ups of post-surgery patients for issues arising from their surgery;

1A.6.1.2(1)(b)(vi) Procedures on cancer patients including, but not limited to blood transfusions, hydration, paracentesis, chest drainage[2], IVAD[3] flushes, etc.;

1A.6.1.2(1)(b)(vii) Accommodation of (visiting) specialist clinics (e.g., radiation oncologist, genetic counsellor, etc.);

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1 The Communities Oncology Network (CON), a collaborative voluntary partnership with hospitals in the health authorities in conjunction with BC Cancer Centres and the Systemic and Radiation Programs. Components of the CON include patients and their families, community health care providers and volunteers, hospitals, community groups, Health Regions, BC Cancer Regional Centres, and all the processes facilitated by BC Cancer–interdependent and held together by trust, mutual respect, communication, and education.

2 Chest tube insertion will occur in the Ambulatory Care Centre (ACC) or in the CCC.

3 Implanted Vascular Access Device.

1A.6.1.2(1)(b)(viii) Surveillance and survivorship planning for children and adolescents – the objective is to return 90% or more of patients to their family physicians while complex patients remain within the care provided by the CCC;

1A.6.1.2(1)(b)(ix) Specialist and other consultations via telehealth with general practitioner oncologists (GPOs) from other sites as well as with BCC specialists (including surgeons, geneticists, and others); and

1A.6.1.2(1)(b)(x) Education for patients and family.

1A.6.1.2(1)(c) The CCC has become a regional service for both intermediate and high-risk adult patients and intermediate and low-risk paediatric patients. The Paediatric Unit at the University Hospital of Northern BC (UHNBC) (a Tier II facility) will collaborate with the Clinic at this Facility (a Tier III facility).

1A.6.1.2(1)(d) It is noted that Clinic visits may be both scheduled and unscheduled as programming focuses on each patient's individual needs.

1A.6.1.2(2) Planning Assumptions

1A.6.1.2(2)(a) The following principles will drive the design and operations of the CCC:

1A.6.1.2.(2)(a)(i) only chemotherapy-certified nurses will be employed in the CCC for the administering of systemic therapy;

1A.6.1.2.(2)(a)(ii) large families will be part of the patient experience;

1A.6.1.2.(2)(a)(iii) clinic activities associated with cancer patients will be accommodated within the CCC; and

1A.6.1.2.(2)(a)(iv) care encompasses the family as well as the patient.

1A.6.1.2(3) Scope of Education Functions

1A.6.1.2(3)(a) Oncology Services will be a place for the education of GPOs, Residents, Medical students, Pharmacy students (pharmacists and pharmacy technicians), and RNs, for completion of their chemotherapy administration certification.

1A.6.1.2(3)(b) Orientation for new staff and ongoing education for existing staff will be provided.

1A.6.1.2(4) Excluded

1A.6.1.2(4)(a) Non-cancer patient related outpatient activities will be accommodated in the Ambulatory Care Centre's (ACC's) Medical Day Care (MDC) zone

1A.6.1.2(4)(b) Radiation treatment will occur at other centres in the province.

1A.6.1.2(5) Anticipated Trends in Service Delivery

1A.6.1.2(5)(a) Administration of oral chemotherapy medications is increasing.

1A.6.1.2(5)(b) There will be an increase in the number of Peritoneal Infusions. For this therapy, the patient must be laying down as they are receiving chemotherapy drugs through a peritoneal catheter, at the same time they are receiving IV chemotherapy drugs.

1A.6.1.2(5)(c) There will be an increase in integrated clinics such as the Integrated Breast Cancer Clinic, where Surgical Services and the CCC will work as an integrated team in the patient's treatment and care. This may involve coordination of provider services within multiple components for patients.

1A.6.2 OPERATIONAL DESCRIPTION

1A.6.2.1 Hours of Operation

1A.6.2.1(1) The CCC will function weekdays from 0800 to 1600. After hours, GPO's may be contacted by Emergency Services (ES) Physicians for consultation.

1A.6.2.2 Organization & Management

1A.6.2.2(1) GPOs will provide a range of clinical services collaborating with the Medical Lead, Northern Health Cancer Care, who will provide oversight.

1A.6.2.2(2) There will be one Nurse Manager responsible for the CCC and the ACC.

1A.6.2.3 Workflow

1A.6.2.3(1) *Patient*

1A.6.2.3(1)(a) All patients who have been diagnosed with cancer attending the CCC will have seen an oncologist and will have been assigned a BCCA number.

1A.6.2.3(1)(b) On the first visit, the patient will register at the Main Registration Centre and be directed to the CCC. On subsequent visits, the CCC will register its patients.

1A.6.2.3(1)(c) Patients will be advised to bring their own medications from home for review. Patients will have their prescriptions filled at a community pharmacy for supportive care.

1A.6.2.3(1)(d) During the course of care, the patient or the family may call the CCC or the patient may present to the CCC in response to cancer related specific symptoms provided to the patient (including nausea, pain, shortness of breath, or fever) during regular hours. For urgent issues after hours, the patient will be advised to present to ES. For non-urgent and non-cancer related issues, the patient will be advised

to present to their primary care physician or primary care service location.

1A.6.2.3(2) *Staff*

1A.6.2.3(2)(a) The family physician or specialist will refer the patient suspected of having or known to have cancer to a GPO who will perform a full work-up and prepare a package of clinical information required by BCC, including diagnostics. The patient will be referred to BCC. An oncologist consult will occur by video link or in person at BCC and decisions will be made with respect to next steps – chemotherapy treatment or surveillance in this component provided by a GPO.

1A.6.2.3(2)(b) The CCC staff will provide data to BCC including the number of treatment and GPO visits.

1A.6.2.4 Support Activities

1A.6.2.4(1) *Diagnostic & Therapeutic Services*

1A.6.2.4(1)(a) The CCC will utilize *Laboratory Services* on a frequent basis. The oncology nurse will draw blood if the patient has an implanted vascular access device (IVAD) or peripherally inserted central catheter (PICC) line and will identify the priority for receiving results. The alternative would be for the patient to present directly to the Laboratory, on weekends and stat holidays. If this occurs, these patients will be given priority in waiting for specimen collection. Laboratory staff will draw blood in the CCC as clinically required, thereby avoiding patient movement through the building.

1A.6.2.4(1)(b) *Medical Imaging* (MI) services will be utilized on a regular basis. Image-guided lines insertion is performed using fluoroscopy, with the patient receiving conscious sedation. Nuclear medicine will be used for cardiovascular evaluations. Diagnostic ultrasound will be used for echocardiograms.

1A.6.2.4(2) *Pharmaceutical Services*

1A.6.2.4(2)(a) The *Pharmacy* will prepare the chemo medications and deliver them to the CCC. There will be pre-printed orders (PPOs) created by BCC when ordering cancer treatments. Drugs administered through PPOs will be determined by the BCC protocol and amendments to the PPO are postulated up front in the CONRef[4] system by the BCC most responsible physician responsible for treatment. Individual drug dose reductions and omissions after the initial CONRef-directed initiation of treatment will be the prerogative of the GPO. Such decisions will usually be taken in the context of the CON team input and, occasionally with BCC MRP input. Only medications

[4] The CONRef system is a secure online web-based system that facilitates the delegation and transfer of care from a BC Cancer regional centre to a CON clinic responsible for delivering an element of that care.

administered as part of the protocol will be supplied by the Pharmacy.

1A.6.2.4(2)(b) A medication reconciliation plan will be implemented.

1A.6.2.4(2)(c) Patients will go to the CCC to pick up oral chemo drugs so that nursing assessment can be performed. Nursing will coordinate with the Pharmacy for patient counselling/education.

1A.6.2.4(2)(d) Pharmacy will provide a limited amount of ward stock on a topped-up basis. There is no plan for an automated dispensing cabinet (ADC) in the CCC.

1A.6.2.4(3) ***Supplies & Disposal***

1A.6.2.4(3)(a) Linen will be delivered via exchange cart to Clean Supplies Room within the Clinic.

1A.6.2.4(3)(b) Linen soiled by chemo spills will be kept separate from the regular soiled linen and managed according to hazardous drug and exposure protocols.

1A.6.2.4(3)(c) CCC staff will perform simple clean-up of dirty reusable medical/ surgical supplies, including the removal of sharps, prior to pick up by Materiel Management staff for re-processing in MDR. Reprocessed sterile supplies will be delivered to the CCC by MDR staff.

1A.6.2.4(4) ***Environmental Services***

1A.6.2.4(4)(a) If there is a cytotoxic drug spill, nurses will respond appropriately in cleaning up small spills, as per the hazardous drug and exposure protocols. Two spill kits will be kept in the immediate area of the patient spaces. Housekeeping staff will perform “terminal” cleaning.

1A.6.2.4(5) ***Nourishment & Meals***

1A.6.2.4(5)(a) The provincial policy is that no meals or nourishments will be provided to patients having chemotherapy. Under compassionate situations, Food Services will be asked to provide box meals.

1A.6.3 STAFFING

1A.6.3.1 Estimated future staffing for this component is summarized below in terms of Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

		Days	Nights
Classification/Position	Headcount	Occupancy	Headcount
Total	5		0
Weekdays	0		0
Manager (shared with the ACC)	1	Office	0
Registered Nurse	3	Shared Workstation + Office	0
Nursing Unit Assistant	1	Workstation	0

Notes:

- Source: Authority Decision Support/Finance Department.
- RPG in consultation with the Facility staff.

1A.6.4 DESIGN CRITERIA

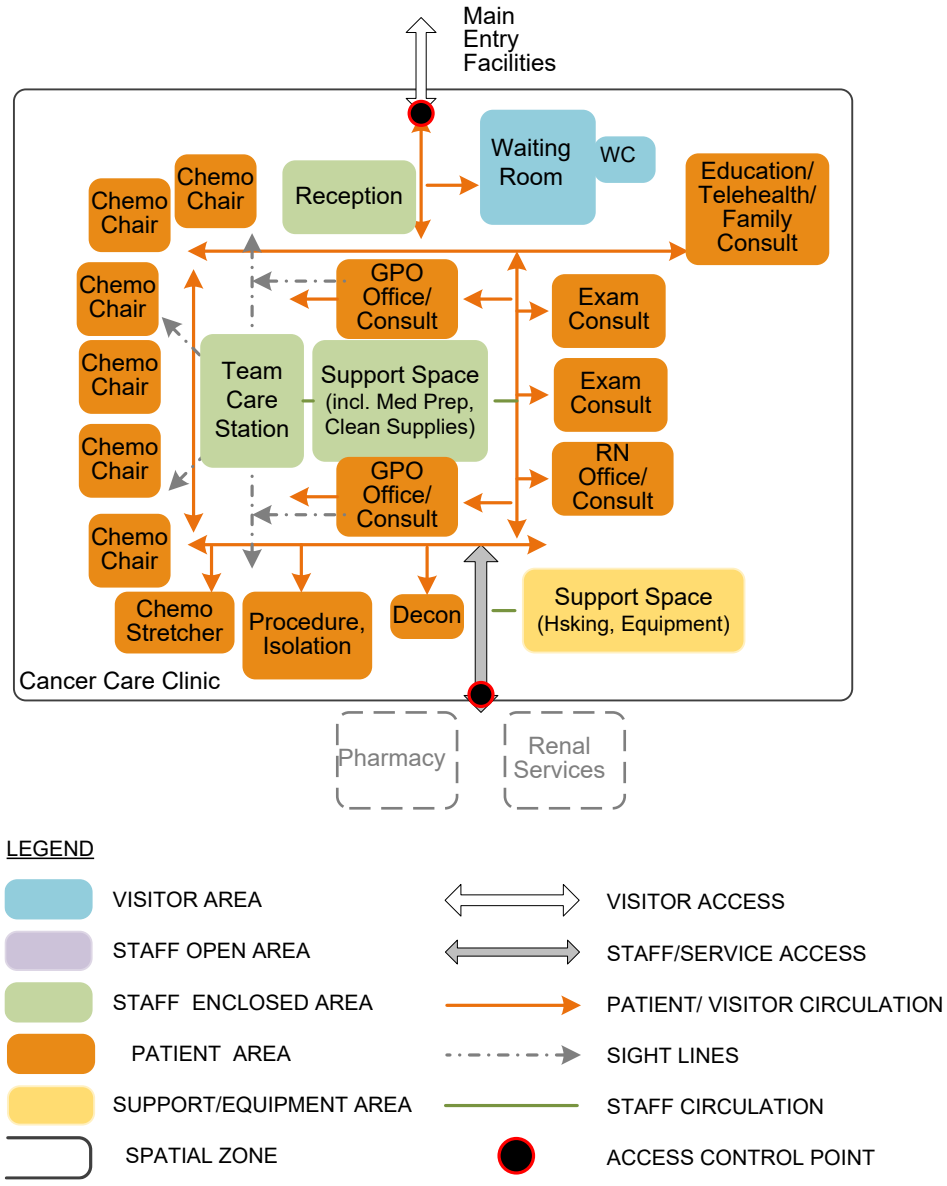
1A.6.4.1 External Relationships

1A.6.4.1(1) The following key external relationships for CCC will be achieved in the priority order as numbered for the purposes stated:

1	**Main Entry Facilities**	Provide convenient access via general circulation to/ from Main Entry Facilities for the movement of patients and visitors.
2	**Pharmacy**	Provide direct access via service circulation to/from Pharmacy for the safe delivery of chemotherapy drugs by Pharmacy staff.
3	**Laboratory Services**	Provide convenient access via general circulation to/ from Laboratory Services for the movement of specimens and staff.
4	**Medical Imaging**	Provide convenient access via general circulation to/from Medical Imaging for the movement of patients and staff.

1A.6.4.2 Functional Relationship Diagram

1A.6.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.6.4.3 Internal Design Criteria

1A.6.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this document. These two sections must be read together.

1A.6.4.3(2) Following is a room-by-room list of spaces for CCC showing:

1A.6.4.3(2)(a) Intent of Space; and

1A.6.4.3(2)(b) Specific Design Features.

1A.6.5 SCHEDULE OF ACCOMMODATION

1A.6.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.6 CANCER CARE CLINIC

Ref		Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
		Shared Spaces					1. Provide a separate patient entrance from the services entrance to the component. The services entrance shall be located near the Medication Preparation Room where the chemotherapy drugs will be received.
6.01.		Reception Desk	1		13.0	Hub for communications systems within the Clinic.	
	01	*workstation*	*1*	*4.6*			
	02	*charts & associated storage*	*1*	*4.6*			
	03	*supplies & office-type equipment*	*1*	*1.9*			
	04	*patient seat*	*1*	*1.9*			
6.02.		Waiting Room	1		27.5		1. Shall be in view of the Reception Desk and out of view of the Chemo Stations 2. Provide backing board for monitor and power and communications connections
	01	*seat, regular*	*10*	*1.9*			
	02	*seats, barrier free*	*2*	*2.8*			
	03	*educational material display*	*1*	*0.9*			
	04	*coat closet*	*1*	*2.0*		For patient coat storage	
6.03		Washroom, Patient/Visitor	1	4.6	4.6		1. 777Locate near Waiting Room 2. 2 pc 3. Non-gendered
6.04.		Team Care Station	1		15.1		1. Centrally located with view to all chemo chairs
	01	*workstation*	*2*	*2.8*			
	02	*charts & associated storage*	*1*	*3.7*			
	03	*reference library shelving*	*1*	*1.9*			
	04	*supplies & office-type equipment*	*1*	*1.9*			

1A.6 CANCER CARE CLINIC

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
05	*congregation space*	*2*	*1.0*			1. Provide data
6.05	Chemo Stations, Chairs	6	8.0	50.4		1. Provide medical gases (oxygen, air and suction) 2. Provide patient call 3. Provide infrastructure for patient education/entertainment system
6.06	Chemo Station, Stretcher	1	9.3	9.3		1. Provide medical gases (oxygen, air and suction) 2. Provide patient call 3. Provide infrastructure for patient education/entertainment system 4. Separated from other Chemo stations by movable partitions for privacy
6.14	Washroom, Patient	1	5.6	5.6		1. Shall be in view of Team Care Station close to Chemo Stations 2. 2 pc 3. Non-gendered
6.07	Exam/Consult Room	2	13.0	26.0		1. Provide medical gases (oxygen, air and suction) 2. Provide HHS 3. Provide patient call
6.08	Procedure Room/Isolation Room, Negative Pressure	1	20.0	20.0	For use of airborne and contact infectious diseases as well as accommodation for immune - suppressed patients.	1. Provide medical gases (oxygen, air and suction) 2. Provide HHS 3. Provide patient call 4. This room shall be within view of the Team Care Station
6.09	*anteroom*	*1*	*5.0*	*5.0*		1. Provide HHS
6.10	*washroom*	*1*	*4.6*	*4.6*		1. 2 pc

1A.6 CANCER CARE CLINIC

Ref		Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
6.11		Education/Telehealth/Family Consult Room	1		22.8		1. Entrance to this room must not be through the staff areas of this component
	01	*seats, regular*	*11*	*1.9*			
	02	*workstation*	*1*	*1.9*			1. ~~Intentionally deleted -~~ Added back during CM5 Nov 20
6.24		Office/Workstation, Oncology Pharmacist	1	5.6	5.6		
6.25		Office/Consult Room, GPO	2	13.0	26.0		1. Locate with sight lines and quick access to Chemo Chairs but in close proximity to Exam Rooms ~~2. Provide HHS~~ deemed not req'd Nov 20th
6.26		Office/Consult Room, RN	1		12.0		1. Provide HHS
6.12		Alcove, Purse Locker	1	1.5	1.5		1. Locate adjacent to Team Care Station
6.13		Medications Preparation Room (no ADC)	1	9.5	9.5	Nov 20th - asking for 2-Drawer Pyxis station (countertop)	1. Provide HHS ~~(deep enough to pour IV solutions with medication), millwork counter for med preparation~~ 2. Provide space for 1 med cart with charging station 3. Provide eyewash station 4. Provide secure door with glazing, door that opens into room 5. Provide red zone for area where chemo drugs are prepared and checked 6. Provide utility sink in millwork counter w/enclosed lockable storage above
6.15		Washroom, Staff	1		4.6		1. 2 pc 2. Provide enclosed shelf @1.0 lin. mm above/behind toilet 3. Non-gendered
6.16		Clean Supplies Room	1		11.0		

1A.6 CANCER CARE CLINIC

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
6.17	Nourishment Station	1		9.3	For patients and staff	1. Provide 1800 lin mm upper and lower millwork that includes a double sink, HHS, and lockable storage
6.18	Soiled Utility Room	1		3.7		1. Provide separate storage of hazardous and nonhazardous drug waste
6.19	Alcove, Crash Cart	1	1.4	1.4		
6.20	Storage Room, Equipment	1	9.3	9.3		
6.21	Housekeeping Closet, Distributed	1	0.0	0.0	Shared with Renal Services	1. See *Renal Services* component
6.22	Decontamination Shower	1	4.6	4.6		1. Provide eyewash station
6.23	HHS, Staff	3	0.9	2.7	For Chemo Area	
	Staff Lounge/Break Room	1		0.0		See *Renal Services*
	Total, Cancer Care Clinic			305.1	Component Area = 458 CGSM at 1.50 grossing factor	

1A.7.1 EDUCATION HUB: EDUCATION & MEETING FACILITIES

This specification outlines the functional, operational, and physical requirements for the Education & Meeting Facilities component.

1A.7.1.1 FUNCTIONAL DESCRIPTION

1A.7.1.1.1 Statement of Purpose

1A.7.1.1.1(1) Education & Meeting Facilities will accommodate centralized bookable meeting and conference facilities with video/telehealth-conference capability in support of administrative, clinical, and staff and patient education activities.

1A.7.1.1.1(2) The boardroom will function as the Emergency Operations Centre (EOC) as required.

1A.7.1.1.1(3) The component will accommodate educational activities in support of staff/ student orientation, recertification, ongoing education programs. Student practicum placements will access meeting space, computers in this component, and the Education Room/Physician & Learners Workrooms in patient care areas and the *Northern Clinical Simulation Centre* component.

1A.7.1.1.2 Scope of Services

1A.7.1.1.2(1) Functional Content

1A.7.1.1.2(1)(a) The learning modules will increasingly be online generating the need for access to computers. This component will include a Training/ Learning Resource Room for access by all staff/students to work on learning modules.

1A.7.1.1.2(1)(b) Telehealth support (scheduling and booking support) will be coordinated through Information Management/Information Technology (IMIT) and Administration.

1A.7.1.1.2(2) Staff Development/Training Resources

1A.7.1.1.2(2)(a) Two Clinical Nurse Educators will coordinate orientation for nurses, manage formal education programs, liaise with UNBC, coordinate students, and liaise with other staff training/development resources within the Facility, as well as coordinate the Clinical Practice Leaders (CPLs). There will be four CPLs located as follows:

1A.7.1.1.2(2)(a)(i) Inpatient Units: Medical/Surgical IPU and Birthing IPU (one for rural perinatal nursing, neonatal resuscitation. Space will be provided on the Birthing Unit for perinatal training);

1A.7.1.1.2(2)(a)(ii) Emergency Services/ICU; and

1A.7.1.1.2(2)(a)(iii) Surgical Services.

1A.7.1.1.2(2)(b) Psychiatry Inpatient Unit staff education will continue to be provided by a Community Psychiatry Educator through Mental Health & Substance Use.

1A.7.1 EDUCATION HUB: EDUCATION & MEETING FACILITIES

1A.7.1.1.2(3) Planning Assumptions

1A.7.1.1.2(3)(a) Changes in service portfolio will include an increase in Authority telehealth activity, an increase in staff education with increased number of staff, and student teaching associated with the expanded trauma/surgery/ ICU roles.

1A.7.1.1.2(3)(b) It is the intent to create an “Education Hub” for the Facility with this component, *UBC FoM Northern Medical Program*, and the *Northern Clinical Simulation Centre*, providing a focus for learning in an interdisciplinary setting.

1A.7.1.1.2(3)(c) The component will accommodate catering.

1A.7.1.1.2(4) Scope of Education Functions

1A.7.1.1.2(4)(a) In addition to staff education, patient education programs may be delivered in this component.

1A.7.1.1.2(5) Excluded

1A.7.1.1.2(5)(a) Excluded are other meeting areas to be planned in other component areas including:

1A.7.1.1.2(5)(a)(i) Administration (eight-seat meeting room);

1A.7.1.1.2(5)(a)(ii) Psychiatry Inpatient Unit – Team Meeting/Conference/ Group Room No.1 (20 seats);

1A.7.1.1.2(5)(a)(iii) UBC FoM Northern Medical Program (medium Videoconference/Seminar Room – 12 seats, library with six workstations);

1A.7.1.1.2(5)(a)(iv) two Telehealth Consult Rooms in the Ambulatory Care Centre;

1A.7.1.1.2(5)(a)(v) Education Room/Physician & Learners Workroom (12 seats) and Report/Conference/Education Room (12 seats) in the Medical/Surgical Inpatient Units;

1A.7.1.1.2(5)(a)(vi) small meeting room in each of Pharmacy, Medical Imaging, and the Cancer Care Clinic components; and

1A.7.1.1.2(5)(a)(vii) a Debriefing Room with 16 seats in the Northern Clinical Simulation Centre.

1A.7.1.2 OPERATIONAL DESCRIPTION

1A.7.1.2.1 Hours of Operation

1A.7.1.2.1(1) Hours of operation will be seven days per week from 0700 to 2200. Instructors will have scheduled access to the appropriate room(s) via authorized electronic access.

1A.7.1.2.2 Organization & Management

1A.7.1.2.2(1) ***Staff Education***

1A.7.1.2.2(1)(a) External Nursing Education Resources will be responsible for nursing education. This will include scheduling of sessions and ensuring appropriate participation by staff. Medical learners will be coordinated through the Medical Staff committee, and through the Northern Medical Program.

1A.7.1.2.2(1)(b) General staff orientation will be coordinated through Administration.

1A.7.1.2.2(1)(c) Education staff will develop programming for patient and family education, when identified and by priority. These programs will be delivered by clinical staff, with education staff acting in a 'teaching the teacher' role.

1A.7.1.2.2(2) ***Educational Resources***

1A.7.1.2.2(2)(a) Each program/service in the Facility will maintain service-specific resource materials in their individual program areas for staff use, as appropriate. These resource materials will be supplemented by access to electronic resources, supported jointly by education staff and IMIT. Access to these electronic resources will be provided from all workstations in the Facility.

1A.7.1.2.3 Workflow

1A.7.1.2.3(1) Rooms will be booked online by the individual organizing the session using the booking/scheduling software. These needs will be coordinated by Administration staff and other related departments (e.g., IMIT and Food Services, etc.), as required. Trouble shooting for telehealth equipment will be through a regionally contracted service based in Terrace.

1A.7.1 EDUCATION HUB: EDUCATION & MEETING FACILITIES

1A.7.1.3 STAFFING

1A.7.1.3.1 Estimated future staffing for this component is summarized below in terms of Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

	Days		Nights
Classification/Position	Headcount	Occupancy	Headcount
Total	3		0
Weekdays	0		0
Clinical Nurse Educator	2	Office	0
Technical Assistant	1	Workstation	0

Notes:

- Other staffing resources are distributed to other components.
- RPG in consultation with Facility staff.

1A.7.1.4 DESIGN CRITERIA

1A.7.1.4.1 External Relationships

1A.7.1.4.1(1) The following key external relationships for Education & Meeting Facilities will be achieved in the priority order as numbered for the purposes stated:

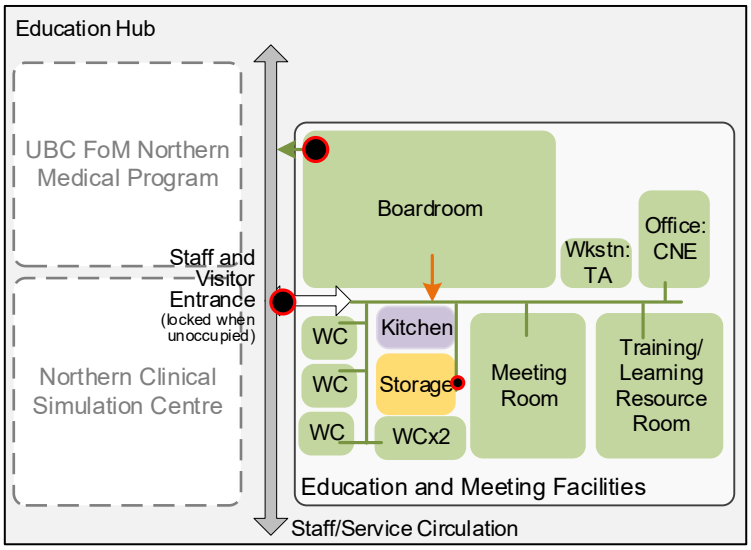
1 **Administration** — Provide convenient access via general circulation to the Administration component for ease of staff access.

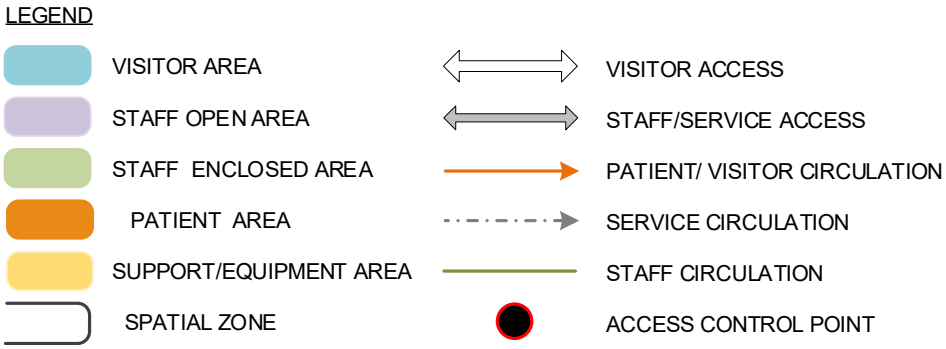
2 **UBC FoM Northern Medical Prog, Northern Clinical Sim Centre** — Provide convenient access via general circulation to the UBC FoM Northern Medical Program and the Northern Clinical Simulation Centre to create an “Education Hub”.

1A.7.1 EDUCATION HUB: EDUCATION & MEETING FACILITIES

1A.7.1.4.2 Functional Relationship Diagram

1A.7.1.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.





1A.7.1.4.3 Internal Design Criteria

1A.7.1.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.7.1.4.3(2) The Education and Meeting Facilities will be clustered with the Northern Clinical Simulation Centre and UBC FoM Northern Medical Program components to form an “Education Hub”.

1A.7.1.4.3(3) The components in the “Education Hub” will have convenient access from the Main Entry of the Facility.

1A.7.1.4.3(4) Following is a room-by-room list of spaces for Education & Meeting Facilities showing:

1A.7.1.4.3(4)(a) Intent of Space; and

1A.7.1.4.3(4)(b) Specific Design Features.

1A.7.1.5 SCHEDULE OF ACCOMMODATION

1A.7.1.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.7.1 EDUCATION & MEETING FACILITIES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Boardroom					
7.1.01.	Boardroom	1		82.0		1. Provide infrastructure for 1 large table with integrated power and communications sources 2. Provide 1 teaching/writing wall 3. Requires superior quality finishes 4. Provide multiple switching for lighting to be able to highlight the teaching wall 5. Provide various types of lighting (dimmable, zoned) 6. The entry system must be 2400 mm x 1800 mm clear with double doors 7. Provide means to communicate booking of room outside of entry door
01	*seats*	*40*	*1.9*			
02	*videoconference equipment*	*1*	*1.5*			1. Provide AV, videoconference/teleconference, multimedia capability 2. Provide infrastructure for multiple ceiling mounted microphone tracking cameras
03	*counter, EOC storage below*	*1*	*4.5*			1. Provide small stainless-steel sink, enclosed & lockable lower millwork (1800 lin mm) for EOC supplies 2. Provide access to power for countertop equipment
7.1.02	Kitchenette	1		4.9		1. Provide 1800 lin mm lower millwork that includes a double stainless-steel sink 2. Must be accessible off the Boardroom 3. Must be enclosed to prevent odours from travelling to adjacent rooms

1A.7.1 EDUCATION & MEETING FACILITIES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
7.1.03	Storage	1		7.5	Will store chairs, tables, miscellaneous presentation supplies and any other materials/ equipment, as required	1. Must be in close proximity to the Boardroom, yet central to all rooms
7.1.04	Public Washroom	5	*4.6*	23.0		1. 2 pc
	Subtotal, Boardroom			117.9		
	Meeting Space					
7.1.05	Meeting Room	1		24.3		1. Provide 1 teaching wall (writing/presentations) 2. Provide multiple switching for lighting to be able to highlight the teaching wall 3. Provide various types of lighting (dimmable, zoned) 4. Entry system must be 2400 mm x 1800 mm wide clear with double doors 5. Provide means to communicate booking of room outside of entry door
01	*seats*	*12*	*1.9*			
02	*AV/multimedia equipment*	*1*	*1.5*			1. Provide infrastructure for multiple ceiling mounted microphone tracking cameras
7.1.06.	Training/Learning Resource Room	1		39.8	This room will also be used by the UBC FoM Northern Medical Program for exams	1. This room must be designed and equipped in accordance with the "UBC Faculty of Medicine Design Guidelines and Functional Requirements for Small VC Rooms" 2. Provide access to power & communications connections from ceiling as well as around perimeter of room

1A.7.1 EDUCATION & MEETING FACILITIES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
						3. Provide means to communicate booking of room outside of entry door 4. Provide handwashing sink
01	*seats*	*16*	*2.3*			
02	*bookshelf*	*1*	*1.5*			
03	*videoconference equipment*	*1*	*1.5*			
04	*circulation - 25%*	*1*	*8.0*			
7.1.07	Office, Shared, CNE	1		11.2		
7.1.08	Workstation, Technical Assistant	1		4.6		
	Subtotal, Meeting Space			79.9		
	Total, Education & Meeting Facilities			197.8	Component Area = 247.0 CGSM at 1.25 grossing factor	

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1A.7.2 NORTHERN CLINICAL SIMULATION CENTRE

This specification outlines the functional, operational, and physical requirements for the Northern Clinical Simulation Centre (NCSC) component.

1A.7.2.1 FUNCTIONAL DESCRIPTION

1A.7.2.1.1 Statement of Purpose

1A.7.2.1.1(1) The NCSC will accommodate two e-SIM Labs and Debriefing Room in support of the UNBC School of Nursing learners, UBC undergraduate medical learners and post-graduate resident trainees, and Authority staff orientation, recertification, and ongoing education programs.

1A.7.2.1.2 Scope of Services

1A.7.2.1.2(1) Functional Content

1A.7.2.1.2(1)(a) The NCSC will permit learners and clinicians to work with patient simulators – interactive training mannequins to hone their skills in different treatment scenarios. Inpatient unit critical care, and examination room scenarios will be simulated in which a range of technologies will be available for physicians and nurses to diagnose and treat patients. Clinical Simulation education and training will be conducted on a variety of simulated experiences including human patient simulator, actor or volunteer patient, task trainer, or virtual patient device.

1A.7.2.1.2(1)(b) Technology will be used to support the delivery of clinical skills education by enhancing access to materials that learners can use to prepare, review and debrief. The primary objective and focus will be on the learner's interaction with the patient or task trainer; building communication skills, rapport, learning new skills and medical procedures, refining approach to clinical encounters, and preparing learners for medical practice.

1A.7.2.1.2(2) Planning Assumptions

1A.7.2.1.2(2)(a) The addition of the trauma and orthopaedic roles to the Facility will require additional training requirements with an increasing emphasis on the use of simulation in staff/learner education. In support of the Facility's role as the surgical "hub" for the NWHSDA, the Authority has requested that the Facility plan for a Trauma/OR Simulation Room. This room will be planned for long-term implementation, but initially may be equipped as a second simulation inpatient bedroom.

1A.7.2.1.2(2)(b) Authority regional Simulation staff will provide three-days on-site support every two months. During each visit, two "in-situ" sessions will be held on the patient floor, and two code management sessions will be held in the NCSC.

1A.7.2.1.2(3) Excluded

1A.7.2.1.2(3)(a) N/A.

1A.7.2.2 OPERATIONAL DESCRIPTION

1A.7.2.2.1 Hours of Operation

1A.7.2.2.1(1) Hours of operation will be daily from 0800 to 2000 with instructors often coming to Terrace on weekends to deliver programs. UBC learners will be able to book access to the e-SIM rooms 24/7 will require occasional after-hours access to the balance of the spaces.

1A.7.2.2.2 Organization & Management

1A.7.2.2.2(1) Coordination of the day-to-day operation of the NCSC will be the responsibility of the Regional Manager for Clinical Simulation Education who will liaise with a Technical Assistant, Clinical Nurse Educators, UBC FoM Northern Medical Program staff, and others as required.

1A.7.2.2.2(2) All funding partners will have authorized/booked 24/7 access to this component as per Memoranda of Agreements (MOAs).

1A.7.2.2.3 Workflow

1A.7.2.2.3(1) There will be an on-site Technical Assistant available to provide technical support, co-ordination and maintenance of equipment and supplies, set-up and take-down of room, booking support and scheduling of simulation activities in coordination with the Authority, and audio & video capture of scenarios for the purpose of debriefing sessions. Future vision is to have Simulation Support Staff for the region.

1A.7.2.2.3(2) Prior to a simulation event, the technical assistant will set-up all necessary equipment, ensure that disposables, such as gloves are well-stocked in the e-SIM lab, and test systems.

1A.7.2.2.3(3) Patient volunteers will be escorted to the Inpatient Private Room e-SIM as needed.

1A.7.2.2.3(4) UBC guests will require access to the Debriefing Room.

1A.7.2.2.3(5) Upon arrival of trainees, the Control Room operator and/or evaluator/ educator will provide the trainees with relevant instructions. Trainees will move directly into the e-SIM space, or Debriefing Room.

1A.7.2.2.3(6) Typical exercises require one to two hours from start to finish, including set-up and debriefing. During the simulation, the trainee will administer medical treatment to the simulation mannequin. The trainee will typically perform the simulation with at least one other individual. The simulation team may include up to four-five other learners/health care professionals in addition to the trainee for certain types of simulations, such as anaesthesia. The

evaluator may be present in the room or may participate remotely through videoconferencing.

1A.7.2.2.3(7) These rooms will be equipped with debriefing systems which will record the activities of the lab synced with patient vital signs that can be replayed after the simulation sessions. The system will have the function to stream live for larger groups to observe the simulation from the Debriefing Room. Debriefing is reflecting on communal experiences that trainees made during the session.

1A.7.2.2.3(8) In some circumstances the evaluator will have to provide instructions to the trainee during the simulation. While observing, the evaluator will annotate a recorded version of the simulation to highlight critical events that will be discussed during the subsequent debriefing. The evaluator will be able to annotate critical events during and after the simulation session which can be later discussed with trainees.

1A.7.2.2.3(9) The Control Room operator will observe the simulation from the adjoined Control Room and will continuously monitor audio from the e-SIM lab. The Control Room operator will selectively communicate with the e-SIM lab through an audio system to answer questions that the trainee has posed to the simulated patient, or to give instructions. A private wireless communication link between the educator and operator may be used to inform the operator when to trigger events on the task trainer (if remote controlled). The operator and/or educator must always be able to see the patient or task trainer and how the learners are interacting.

1A.7.2.2.3(10) After the simulation is complete, the evaluator will debrief the trainee on the outcomes of the simulation along with the other learners. A major point of focus will be the annotated recording that the evaluator prepared during the simulation.

1A.7.2.2.4 Support Activities

1A.7.2.2.4(1) N/A.

1A.7.2.3 STAFFING

1A.7.2.3.1 See *Education & Meeting Facilities* component.

1A.7.2.4 DESIGN CRITERIA

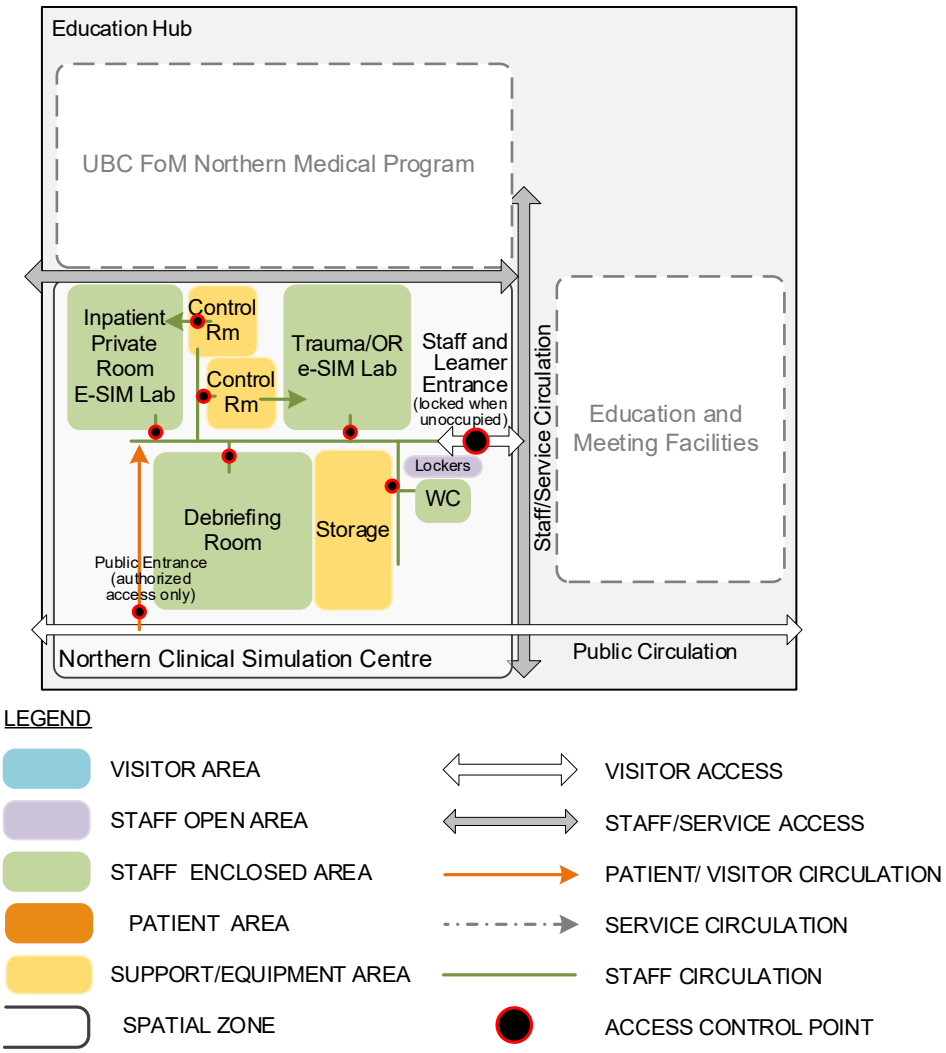
1A.7.2.4.1 External Relationships

1A.7.2.4.1(1) The following key external relationships for the NCSC will be achieved in the priority order as numbered for the purposes stated:

1	**UBC FoM Northern Medical Program Program**	Provide convenient access via staff/service circulation to the UBC FoM Northern Medical Program to create an “Education Hub”.
2	**Education & Meeting Facilities**	Provide convenient access via staff/service circulation to the Education & Meeting Facilities to create an “Education Hub”.

1A.7.2.4.2 Functional Relationship Diagram

1A.7.2.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.7.2.4.3 Internal Design Criteria

1A.7.2.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.7.2.4.3(2) The NCSC will be clustered with the Education and Meeting Facilities and UBC FoM Northern Medical Program components to form an “Education Hub”.

1A.7.2.4.3(3) The components in the "Education Hub" will have convenient access from the Main Entry of the Facility.

1A.7.2.4.3(4) The NCSC will be accessible to learners and instructors 24/7 via authorized electronic access.

1A.7.2.4.3(5) ***e-SIM Rooms***

1A.7.2.4.3(5)(a) Specific data and communications requirements must be confirmed by a Simulation Systems Engineer for AV infrastructure and a Simulation Technical Consultant for the set-up design of the space.

1A.7.2.4.3(6) Following is a room-by-room list of spaces for NCSC showing:

1A.7.2.4.3(6)(a) Intent of Space; and

1A.7.2.4.3(6)(b) Specific Design Features.

1A.7.2.5 SCHEDULE OF ACCOMMODATION

1A.7.2.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.7.2 NORTHERN CLINICAL SIMULATION CENTRE

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	e-SIM Labs					1. These rooms must meet "UBC Faculty of Medicine Design Guidelines and Functional Requirements for Clinical Skills and Enhance Clinical skills Room"
7.2.01	Patient Room, Standard	1		22.0	Will be used for simulated and human patients	
7.2.02	Trauma/OR Simulation Room	1		35.0		
7.2.03	Control Room	2	10.3	20.6		1. Ensure direct access from interior circulation to each control room to avoid having to traverse an e-SIM Lab to get to the Control Room
	Subtotal, e-SIM Labs			77.6		
	Debriefing Area					1. Must meet UBC Faculty of Medicine "Design Guidelines and Functional Requirements for Small VC Rooms" at minimum
7.2.04.	Debriefing Room	1		44.1		
01	*seats*	*16*	*2.0*		Will accommodate 20 people standing	
02	*telehealth and videoconf. equip.*	*1*	*3.3*			
03	*circulation (25%)*	*1*	*8.8*			
7.2.05	Washroom	1		4.6		1. 2 pc 2. Must be located near e-SIM rooms
	Subtotal, Debriefing Area			48.7		
	Support Area					1. Provide electronically controlled and monitored access
7.2.06	Storage Room	1		22.0	Will accommodate 2 mannequins on stretchers, clinical equipment (IV	1. Provide open floor space along with 8000 lin mm adjustable shelving

1A.7.2 NORTHERN CLINICAL SIMULATION CENTRE

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
					poles, body parts, supplies), task trainers, carts, paediatric mannequin on cart, 10 stackable chairs	2. Provide a counter at a minimum of 2400 mm long, utility sink with 1000 lin mm of open shelving above, cabinets below for storage of mannequins. Note special requirements for storage of mannequins - flip-down drawer for easy movement onto stretcher 3. Provide infrastructure for patient lift to move mannequins from the Storage Room to e-SIM room
7.2.07	"Purse" Lockers	16	0.2	2.4		1. Must be digitally lockable
~~7.2.08~~	~~Soiled Utility Room~~	~~1~~		~~0.0~~		1. 1. Intentionally deleted
7.2.09	Workstation	1		6.0		
	Subtotal, Support Area			30.4		
	Total, Northern Clinical Simulation Centre			156.7	Component Area = 212.0 CGSM at 1.35 grossing factor	

1A.7.3 UBC FoM NORTHERN MEDICAL PROGRAM

This specification outlines the functional, operational, and physical requirements for the UBC Faculty of Medicine (FoM) Northern Medical Program (UBC NMP) component.

1A.7.3.1 FUNCTIONAL DESCRIPTION

1A.7.3.1.1 Statement of Purpose

1A.7.3.1.1(1) This component will accommodate the part of academic teaching facilities required to support the MD Undergraduate Programs, Royal College components, and Family Practice resident trainee programs at the Facility. Information in this document is based on projected numbers of learners and information provided by FoM, as well as similar information prepared for Vancouver Coastal, Fraser, Interior and Vancouver Island Medical Expansion Programs.

1A.7.3.1.2 Scope of Services

1A.7.3.1.2(1) Functional Content

1A.7.3.1.2(1)(a) For reference, this component is based on the Terrace: Affiliated Regional Centre Mills Memorial Hospital Functional Program Update prepared in September 2014; and

1A.7.3.1.2(1)(b) 1st Year and most 2nd Year undergraduate education activities will be at the University Academic Campus; 3rd Year undergraduate education activities will be at the Facility, at other Authority Affiliated Regional Centres (ARCs), the UHNBC clinical academic campus, and other sites.

1A.7.3.1.2(2) Planning Assumptions

1A.7.3.1.2(2)(a) Planning assumes growth given possible introduction of the UBC Internal Medicine Residency Program and given the expanded surgery/trauma role of the Facility, as well as general growth in the program.

1A.7.3.1.2(3) Research

1A.7.3.1.2(3)(a) Though outside the scope of this document, it is understood that additional planning for research space that may be required because of the Distributed Medical Education Program.

1A.7.3.1.2(4) Excluded

1A.7.3.1.2(4)(a) Clinical skills, enhanced clinical skills, and clinic instruction will occur in the *Northern Clinical Simulation Centre* component and other clinical areas of the Facility.

1A.7.3.1.2(4)(b) Education Room/Physician & Learners Workrooms within the Inpatient Units:

1A.7.3.1.2(4)(b)(i) team meetings/conferences (up to 10 undergraduates, post-graduate resident trainees & others to review, discuss and present confidential patient cases);

1A.7.3.1.2(4)(b)(ii) student meetings w/ post-graduate resident trainees;

1A.7.3.1.2(4)(b)(iii) presentations and teleconferencing;

1A.7.3.1.2(4)(b)(iv) patient interviews and history taking;

1A.7.3.1.2(4)(b)(v) internet access and reference storage;

1A.7.3.1.2(4)(b)(vi) digital radiology image receipt and display;

1A.7.3.1.2(4)(b)(vii) bedside teaching rounds (occurring in inpatient rooms, typical maximum of four undergraduates/post-graduate resident trainees plus tutor); and

1A.7.3.1.2(4)(b)(viii) audiovisual and teaching equipment storage.

1A.7.3.1.2(4)(c) Clinic instruction within the Ambulatory Care Centre:

1A.7.3.1.2(5)(c)(i) clinical teaching w/ clinicians and their patients in a real "clinic-like" setting.

1A.7.3.1.2(5) It shall be noted that there is an expectation that there will be an increase in the number of Nursing and other Health Professional students and related academic activities at the Facility, in addition to the Distributed Medical Education Program.

1A.7.3.2 OPERATIONAL DESCRIPTION

1A.7.3.2.1 Hours of Operation

1A.7.3.2.1(1) This component will be accessed by learners 24/7. The administrative function will operate from 0800 to 1600 weekdays with occasional after-hours access required.

1A.7.3.2.1(2) Authorized/prearranged public access may occur outside of regular hours.

1A.7.3.2.2 Organization & Management

1A.7.3.2.2(1) The UBC NMP is part of the Faculty of Medicine at UBC.

1A.7.3.2.3 Workflow

1A.7.3.2.3(1) UBC undergraduate medical learners and post-graduate resident trainees will report in daily to the administrative area of the UBC NMP. The Program Director will be available to answer questions/provide support. The Site Coordinator will access the administrative area as required to conduct administrative activities.

1A.7.3.2.3(2) Academic activities of the Distributed Medical Education Program and post-graduate resident trainee programs have been categorized as follows:

1A.7.3.2.3(2)(a) Administration;

1A.7.3.2.3(2)(b) Teaching and learning (video conferenced lectures, problem-based learning);

1A.7.3.2.3(2)(c) Lockers, on-call support, lounge; and

1A.7.3.2.3(2)(d) Library and study.

1A.7.3.2.3(3) ***Administration***

1A.7.3.2.3(3)(a) Key administrative activities that may need to be accommodated within this component include:

1A.7.3.2.3(3)(a)(i) General Office:

1A.7.3.2.3(3)(a)(i)A reception, waiting and meetings,

1A.7.3.2.3(3)(a)(i)B mail handling and deliveries, and

1A.7.3.2.3(3)(a)(i)C general office support (records and files storage, photocopying, fax and office supplies storage);

1A.7.3.2.3(3)(a)(ii) program administration and coordination of:

1A.7.3.2.3(3)(a)(ii)A 3rd Year undergraduate clinical activities,

1A.7.3.2.3(3)(a)(ii)B post-graduate resident trainees program expansion coordination and administration,

1A.7.3.2.3(3)(a)(ii)C undergraduate and post-graduate resident trainee education leadership,

1A.7.3.2.3(3)(a)(ii)D curriculum management, and

1A.7.3.2.3(3)(a)(ii)E undergraduate and post-graduate resident trainee orientation and advising;

1A.7.3.2.3(3)(a)(iii) liaison (e.g., telecons, correspondence, video-conferencing) among:

1A.7.3.2.3(3)(a)(iii)A the Facility and Authority clinical units, undergraduates, post-graduate resident trainees,

1A.7.3.2.3(3)(a)(iii)B other Health Authorities and clinical units,

1A.7.3.2.3(3)(a)(iii)C other ARCs and Clinical Academic Campuses (CACs) and/or communities that may accommodate rotation trainees,

1A.7.3.2.3(3)(a)(iii)D DHCC (Diamond Health Care Centre, VGH Site), and

1A.7.3.2.3(3)(a)(iii)E UBCV, UBCO, UVic, UNBC.

1A.7.3.2.3(3)(b) Distributed Medical Education Program administrative positions will provide professional staff support for clinical programs and advanced electives, and coordination of post-graduate resident expansion, curriculum management and faculty development.

1A.7.3.2.3(3)(c) Academic and administrative liaison activities will require access to videoconference facilities within and outside of this component.

1A.7.3.2.3(4) *Teaching & Learning*

1A.7.3.2.3(4)(a) Teaching and learning will include centralized, decentralized and tele-learning activities to support the required undergraduate, post-graduate resident trainee and distributed elements of the Distributed Medical Education Program. These activities will occur in this component as well as in clinical settings combined with patient care.

1A.7.3.2.3(4)(b) In summary, key activities will include:

1A.7.3.2.3(4)(b)(i) videoconference, teaching and learning activities (e.g. clinic instruction, lectures, demonstrations, presentations to other sites, grand rounds and including two-way/real-time distributed learning for academic half-days, academic rounds, case studies, etc.);

1A.7.3.2.3(4)(b)(ii) informal seminars, discussions and team meetings in a flexible, multipurpose environment; and

1A.7.3.2.3(4)(b)(iii) general student examinations (e.g., individual or small group; may include general electronic/online and/or written exams), typically taking place within the study area/library.

1A.7.3.2.3(4)(c) The Videoconference/Seminar Room must be booked through the UBC FoM Centralized scheduling system (Resource Scheduler).

1A.7.3.2.3(5) *Lockers, On-Call Support, Lounge*

1A.7.3.2.3(5)(a) Undergraduates and post-graduate resident trainees will require support space for relaxation and networking, lockers, and on-call activities.

1A.7.3.2.3(5)(b) The on-call rooms will be shared between the rotations and disciplines expected to require access. On-call rooms must be booked through the UBC FoM Centralized scheduling system (Resource Scheduler).

1A.7.3.2.3(6) *Library and Study*

1A.7.3.2.3(6)(a) There will be additional need for access to selected electronic databases for all learners, with these databases typically copied to user-owned laptops.

1A.7.3.2.3(6)(b) The NMP Librarian, based in Prince George, will periodically visit the Facility library facilities to provide supporting librarian functions.

1A.7.3.2.3(7) *Family Practice*

1A.7.3.2.3(7)(a) Family Practice post-graduate trainee programs will have an occasional administrative presence in this component, in support of student assessment, curriculum management, site direction and related clerical support activities.

1A.7.3.2.3(7)(b) Given the expanding teaching role of the Terrace ARC and its distance from the Prince George and UBC Vancouver campus, on-site clinical academic appointments are expected.

1A.7.3.2.3(7)(c) Academic Half-Days will occur weekly and are expected to involve one group that combined, will total six residents plus up to three clinical faculty members. Both groups may meet at the same time and may occasionally all meet. It is assumed that these activities could take place in shared videoconference room space within the Facility and/or the Library within this component.

1A.7.3.2.4 Support Activities

1A.7.3.2.4(1) N/A.

1A.7.3.3 STAFFING

1A.7.3.3.1 Estimated future staffing for this component is summarized below in terms of Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

	Days		Nights
Classification/Position	Headcount	Occupancy	Headcount
Total	**3**		0
Distributed Medical Program[3]			
Director, Undergraduate	1	Office	0
Administrative Support	1	Workstation	0
Family Practice (post-graduate training)			
Site Director	1	Office	0
Administrator	-	Office	0

Notes:

- Source: UBC FoM.
- Positions funded through UBC.
- Library staff are not included (and do not presently exist); The NMP Librarian is already in place, based in Prince George, and will travel to Terrace as required.

1A.7.3.4 DESIGN CRITERIA

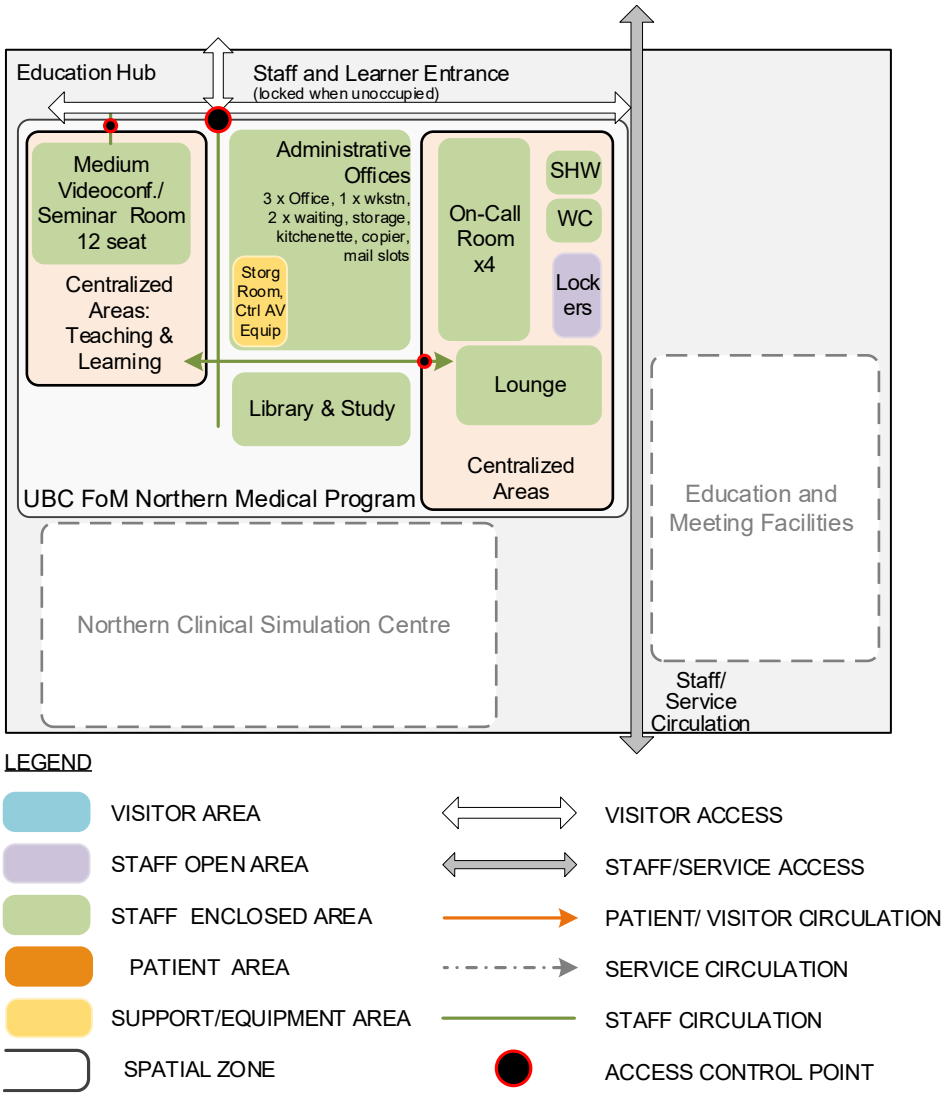
1A.7.3.4.1 External Relationships

1A.7.3.4.1(1) The following key external relationships for UBC NMP will be achieved in the priority order as numbered for the purposes stated:

1	**Northern Clinical Simulation Centre**	Provide convenient access via staff/service circulation to the Northern Clinical Simulation Centre to create an “Education Hub”.
2	**Education & Meeting Facilities**	Provide convenient access via staff/service circulation to the Education & Meeting Facilities to create an “Education Hub”.

1A.7.3.4.2 Functional Relationship Diagram

1A.7.3.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.7.3.4.3 Internal Design Criteria

1A.7.3.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.7.3.4.3(2) The UBC NMP will be clustered with the Education and Meeting Facilities and Northern Clinical Simulation Centre components to form an "Education Hub".

1A.7.3.4.3(3) The components in the "Education Hub" will have convenient access from the Main Entry of the Facility.

1A.7.3.4.3(4) All areas in this component will be designed and equipped in accordance to " UBC FoM – Specifications and Requirements for Clinical Education Facilities (non-VC), UBC FoM Design Guidelines and Functional Requirements for Small VC rooms, UBC FoM Design Guidelines and Functional Requirements for Clinical Skills and Enhanced Clinical Skills Rooms, and UBC FoM Design Guidelines and Functional Requirements for On-Call Suite as prepared by UBC Faculty of Medicine.

1A.7.3.4.3(5) For the purposes of access, functional relationships and security, this component has four distinct zones:

1A.7.3.4.3(5)(a) Centralized Areas: Teaching and Learning;

1A.7.3.4.3(5)(b) Centralized Areas;

1A.7.3.4.3(5)(c) Library & Study; and

1A.7.3.4.3(5)(d) Administrative Offices.

1A.7.3.4.3(6) To meet medical school accreditation requirements, the UBC FoM will require ubiquitous wireless (Wi-Fi) internet access at all sites of instruction including clinical education and training sites. This wireless internet access will require full Facility coverage and will have sufficient bandwidth and coverage density for the entire clinical site, accommodate all potential education users at a given site, all types of legitimate online resources including rich media, all commonly used devices, and multiple devices per user. The wireless service will allow access to commonly used educational content and will have industry standard uptime, be supported, and meet privacy and security requirements for medical education. The current solution for meeting these needs is known as 'eduroam'. See http://medit.med.ubc.ca/initiatives/eduroam/ for details.

1A.7.3.4.3(7) Following is a room-by-room list of spaces for UBC NMP showing:

1A.7.3.4.3(7)(a) Intent of Space; and

1A.7.3.4.3(7)(b) Specific Design Features.

1A.7.3.5 SCHEDULE OF ACCOMMODATION

1A.7.3.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

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Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Centralized Areas: Teaching & Learning					
7.3.01	Medium Videoconference/Seminar Room, 12 seats	1		30.0	Will accommodate 20 people standing	1. Must be accessible from general circulation to support higher utilization 2. Door to internal corridor must lock automatically 3. Provide video surveillance for this room
	Subtotal, Teaching & Learning			30.0		
	Centralized Areas					1. Provide video surveillance for these areas
7.3.02	On-Call Rooms: UBC Undergraduate Medical Learners and Post-graduate Resident Trainees	4	7.0	28.0	One room will be used as a breast-feeding room	1. Organize into a suite 2. Locate in a quiet zone
7.3.03	Locker Area	1		9.3		
7.3.04	Washroom	1		5.6		1. 2 pc 2. Non-gendered 3. Barrier-Free
7.3.05	Shower: Unisex	1		2.8		
7.3.06.	Lounge, Resident	1		25.0		1. This room shall be enclosed
01	*seats*	*6*	2.0			1. Informal study stations will be a mix of study tables and chairs and comfortable furniture
02	*study workstation*	*1*	*2.8*			1. Provide access to UHNBC network, UBC's eduroam network, the Authority network
03	*kitchenette*	*1*	*3.7*			1. Provide 1800 mm counter with single stainless-steel sink, and enclosed millwork above/below counter
04	*table*	*1*	*7.4*			
	Subtotal, Centralized Areas			71.6		

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Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Library & Study					
7.3.07	Collection	1		2.7	For Medical Program related collection materials	
7.3.08	Study Stations/VC	1		17.7		1. Provide access to UHNBC network, UBC's eduroam network, the Authority network
01	*study workstation*	*5*	2.8			
02	*workstation*	*1*	*3.6*			
	Subtotal, Library & Study			20.3		
	Administrative Offices					1. Area will be secured by electronic means when unoccupied 2. Shall be close to, but separate from all other functions in this component
7.3.09	Office, Private	3	9.3	27.9	Assumes ability to lock up of research	1. Provide access control to the Suite from office closest to entrance
7.3.10	Workstation: Administrative Support/Reception	1		4.6		1. Workstation shall be integral with the open area and be the first area visible upon entry to the suite
7.3.11	Waiting Area	1		3.0		
	Storage, Files					
7.3.12	Kitchenette	1		3.7		1. Provide 1200 mm counter with single stainless-steel sink, and enclosed millwork above/below counter
7.3.13	Work Area, Copier/Fax/Supplies	1		2.5		1. Provide 1200 mm counter/w open storage below 2. Locate adjacent to Ref No 7.3.10

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Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
7.3.14	Central AV Equipment Storage Room	1		10.2	Accommodates equip./ supplies	1. Entryway must be a minimum of 1200 mm wide x 2400 mm high
7.3.15	Mail Slots (Post-Grad Trainees, UGrad Students)	20	0.1	2.0		1. Locate along a wall of an internal corridor for ease of access without having to enter the Administrative Offices area 2. Provide 20 openings (64 mm H X 300 mm wide x 360 mm deep)
	Subtotal, Administrative Offices			53.9		
	Total, UBC FoM Northern Medical Program			175.8	Component Area = 237 CGSM at 1.35 grossing factor	

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This specification outlines the functional, operational, and physical requirements for the Emergency Services (ES) component.

1A.8.1 FUNCTIONAL DESCRIPTION

1A.8.1.1 Statement of Purpose

1A.8.1.1(1) ES will accommodate the unscheduled arrival of patients presenting with suspected or confirmed illnesses or injuries. Patients' conditions will either be resolved in ES or be referred elsewhere for treatment. Patients may be discharged to home, an inpatient unit, or to another health care facility.

1A.8.1.1(2) Services will be provided for unscheduled patients according to the five-level triage system (CTAS) for unscheduled care of patients of all age groups.

1A.8.1.1(3) Security Services will be provided in key areas throughout the Facility, primarily through electronic means. Cameras will monitor/record 24/7. Staff will carry voice-activated alarm systems.

1A.8.1.2 Scope of Services

1A.8.1.2(1) Functional Content

1A.8.1.2(1)(a) The following list specifies the minimum set of functions that must be accommodated within the component:

1A.8.1.2(1)(a)(i) rapid assessment, resuscitation, stabilization, and treatment of patients with emergent or urgent illness or injury that may threaten life, limb, or function;

1A.8.1.2(1)(a)(ii) observation of patients for up to 12 hours as required for clinical decision-making, followed by transfer to the appropriate hospital, admission to the Facility, or discharge;

1A.8.1.2(1)(a)(iii) the range and complexity of care and services for emergency patients that is appropriate to the designated level of care of the Facility including remote consultations via telehealth;

1A.8.1.2(1)(a)(iv) care for psychiatry patients presenting with an acute psychiatric illness, including those requiring seclusion;

1A.8.1.2(1)(a)(v) geriatric emergency medicine (GEM) support;

1A.8.1.2(1)(a)(vi) care for a large volume of emergency patients in accordance with implementation of the Facility's "Code Orange" plan;

1A.8.1.2(1)(a)(vii) admit to inpatient beds within the Facility or stabilize and transfer patients expediently and safely to a hospital

offering a higher level of care, when indicated based on assessment;

1A.8.1.2(1)(a)(viii) patient education and counselling for self-care management and follow-up; and

1A.8.1.2(1)(a)(ix) discharge planning (with Integrated Primary & Community Care staff) including linkages to a variety of available community service providers.

1A.8.1.2(2) Planning Assumptions

1A.8.1.2(2)(a) Outside of the Facility's normal hours of operation, a separate doorway in the vicinity of ES will become the Facility's point of access/exit for visitors. The intent of this entrance will be to enable access to other parts of the Facility while bypassing a secured ES, and while providing monitoring and control of public traffic by Security Services personnel stationed with visibility to both the after-hours entrance and the ES entrance.

1A.8.1.2(2)(b) ES will be physically contiguous with the Intensive Care Unit (ICU) for the sharing of staff, as required, and to facilitate safe patient transfer.

1A.8.1.2(2)(c) It is anticipated that there will be increased orthopaedic trauma cases as a result of the change in role of the Facility.

1A.8.1.2(2)(d) Length of stay will be impacted by access to orthopaedic or surgeon consults.

1A.8.1.2(2)(e) Elective cardioversion will be performed in ES due to the need for nursing and physician support.

1A.8.1.2(2)(f) The care pathway for hyper-acute stroke patients is well developed.

1A.8.1.2(2)(g) Patients will be admitted to the Psychiatry Unit at all times of the day following medical clearance.

1A.8.1.2(2)(h) It is assumed that a Code White team will respond to the majority of panic, alarm, and staff-assist calls broadcast from the overhead paging system.

1A.8.1.2(2)(i) The Security Office will be the principal location for security monitors and annunciator panels.

1A.8.1.2(3) Scope of Education Functions

1A.8.1.2(3)(a) Security staff will receive cultural sensitivity training and other training as required within the Facility.

1A.8.1.2(4) Excluded

1A.8.1.2(4)(a) Scheduled patient visits will be accommodated in the ACC.

1A.8.1.2(4)(b) During the ACC hours of operation, patients transferring to another facility will be held in the Medical Day Unit of the ACC.

1A.8.1.2(4)(c) Forensic storage (i.e. sexual assault kits) will be stored in the Laboratory component.

1A.8.2 OPERATIONAL DESCRIPTION

1A.8.2.1 Hours of Operation

1A.8.2.1(1) ES hours of operation will be 24/7 with continuous nursing and physician resources. Two ES physicians will be physically present from 1200 to 2400 and one ES physician will be physically present from 2400 to 1200.

1A.8.2.1(2) Security Services hours of operation will be 24/7.

1A.8.2.2 Organization & Management

1A.8.2.2(1) ES will be managed by the Nurse Manager, Critical Care reporting to the Director of Care. There will be a designated physician leader.

1A.8.2.2(2) Security Services will be contracted, reporting as per the Regional Security Plan.

1A.8.2.2(3) Workflow

1A.8.2.2(3)(a) ***Walk-In Patients***

1A.8.2.2(3)(a)(i) All patients will be triaged by a nurse and registered by a clerk 24/7. After hours registration will be performed electronically by UHNBC staff.

1A.8.2.2(3)(a)(ii) If a patient is deemed to have need for emergency surgery, depending upon the patient's condition and time of day, that individual will be cared for in ES until their time of surgery or the patient will be transferred to Surgical Day Care (SDC) in *the Surgical Services: PSSC/SDC* component (during its hours of operation) for pre-surgery care or the patient will be admitted to their assigned bed on an Inpatient Unit.

1A.8.2.2(3)(a)(iii) The registration clerk will register the individual in consultation with a family member or friend, if available, or will confer with the patient. The registration clerk will address safe keeping of patients' valuables, storing them securely in purse lockers.

1A.8.2.2(3)(a)(iv) Upon entry to the Facility, the patient will proceed to the triage desk. There will be a self-screening kiosk prior to triage for masks and handwashing disinfectant. A nurse may not always be present at the triage desk. When there is no nurse at triage, there will be a clearly identified call bell for patient use, ringing at the Team Care Station within ES.

1A.8.2.2(3)(a)(v) If the nurse(s) is triaging a patient when another patient arrives, the nurse will quickly visually assess the new patient from triage and advise the patient to sit in the designated Triage Waiting area, complete their task with the earlier patient, and call the next patient. Graphics will clearly indicate the Triage Waiting area if the triage nurse is busy and cannot immediately respond to the patient's needs.

1A.8.2.2(3)(a)(vi) Following triage, the patient will be directed to the Registration desk located immediately adjacent to Triage and the clerk will register the patient. The patient may be directed/escorted by the triage nurse to the General Waiting area or to a treatment space. The triage nurse will assign the specific treatment space and track use of the treatment spaces.

1A.8.2.2(3)(b) ***Patients Arriving by Ambulance***

1A.8.2.2(3)(b)(i) All trauma/resuscitation patients will be initially triaged on route to the Facility and will be transported directly into the prepared Trauma/Resuscitation (T/R) Room. A nurse will meet the ambulance and escort the patient into the T/R Room.

1A.8.2.2(3)(b)(ii) Non-critical patients arriving by ambulance will be transported to the AE Patient Holding Alcove where the triage nurse will see the patient and assign them to the appropriate location to wait or to be examined. Ambulance personnel will assist the triage nurse by providing relevant information and, if necessary, will stay with the patient until nursing staff are able to assume care.

1A.8.2.2(3)(b)(iii) If the patient is ambulant, they will be directed to the triage desk and be triaged in the same manner as a walk-in patient.

1A.8.2.2(3)(c) ***Patients Arriving by Private Vehicle***

1A.8.2.2(3)(c)(i) Non-critical patients arriving by private vehicle will be directed to triage, if ambulant, or escorted to an appropriate space by a nurse.

1A.8.2.2(3)(d) ***Patients Escorted by Police or Potential Psychiatric Patients***

1A.8.2.2(3)(d)(i) Patients who are acting aggressively brought by police to ES will be escorted directly to a Secure Room where triage for mental health and substance use and subsequent medical treatment will occur.

1A.8.2.2(3)(d)(ii) If the patient is not aggressive but escorted by police, they will be triaged at the triage desk and escorted to the

appropriate treatment area within ES where medical assessment and treatment will be provided.

1A.8.2.2(3)(d)(iii) In both instances, the police will stay with the patient until advised that such service is no longer necessary or until the patient has been assessed by a mental health worker.

1A.8.2.2(3)(e) ***Patients Presenting with Clear or Suspected Mental Health & Substance Use***

1A.8.2.2(3)(e)(i) When a patient presents with a mental health issue, they will be medically assessed and will potentially begin treatment. The Intensive Care Management Team may be consulted during daytime and evenings. If necessary, patients may be held in the secure room or transferred to the inpatient unit. Ministry of Children and Families may be contacted for patients 19 years and under presenting with mental health issues.

1A.8.2.2(3)(e)(ii) For children and youth up to 19 years of age presenting with mental health issues, the Ministry of Children & Family Development may be contacted, and the individual may be admitted to the Medical/Surgical Inpatient Unit temporarily.

1A.8.2.2(3)(f) ***Decontamination, Disaster***

1A.8.2.2(3)(f)(i) In the event of a communicable disease outbreak, provincial protocols will be put into effect with the use of the ambulance bay as the triage/screening location before a patient or visitor can enter the Facility.

1A.8.2.2(3)(f)(ii) Decontamination of toxic substances from patients will be performed in Decontamination Room accessed directly off the Ambulance Garage before the patient is transported into ES.

1A.8.2.2(3)(f)(iii) In the event of a disaster, implementation of the Disaster Planning Protocol will occur.

1A.8.2.2(3)(g) ***Patient Discharge***

1A.8.2.2(3)(g)(i) Patient discharge will occur in one of four ways: discharge home following treatment, admission to an inpatient bed within the Facility, death/transfer to the morgue, or transfer to another facility.

1A.8.2.2(3)(g)(ii) The decision to discharge will be the responsibility of the ES physician or nurse practitioner.

1A.8.2.2(3)(h) ***Staff***

1A.8.2.2(3)(h)(i) Security Services will be based from the Security Office, making hourly round reports, and monitoring surveillance equipment located throughout the Facility and parking lot(s).

1A.8.2.3 Support Activities

1A.8.2.3(1) Laboratory Services (LS) staff will be available 24/7. LS staff will draw blood for regular tests and the respiratory therapist will draw blood for arterial blood gases. Basic point-of-care testing in ES will be performed, specifically, urinalysis and blood sugars. Performing ECGs are the joint responsibility of LS and ES, with LS having administrative responsibility.

1A.8.2.3(2) Medical Imaging (MI) will provide general radiography, CT, and ultrasound services. If the patient is in critical condition, an ES nurse will transport the patient to MI. As needed, ES staff stay with the patient and transport the patient back to ES. Non-critically ill patients may be escorted to/from MI by a volunteer, family member/friend, by ES staff, or by MI staff. Portable x-ray examinations will be performed within the ES.

1A.8.2.3(3) Respiratory Therapy Services will be available 24/7.

1A.8.2.3(4) Food Services (FS) will provide meals as requested through the regional Diet Office. Juices and regular ward-stock snacks will be available for patients in ES, stocked on a regular basis and stored in the Nourishment Centre.

1A.8.2.3(5) Security Services contracted staff or the RCMP will provide support for Codes as appropriate.

1A.8.2.3(6) Pharmacy will provide medications to ES on a top-up basis. Pharmacy staff will deliver meds to ES. A Clinical Pharmacy Service will be provided to ES staff, assuming operational funding is allocated. Personal medications brought into ES with a patient will be stored in the Medications Preparation Room during the patient's visit. Ideally, personal medications will be sent home with a family member.

1A.8.3 STAFFING

1A.8.3.1 Estimated future staffing for this component is summarized below in terms of Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

	Days		Nights
Position	Head Count	Occupancy	Head Count
Total	15		11
Weekdays	0		0
Manager (ES & ICU)	1	Office	0
Physicians	3	Office	2
Regional Trauma Coordinator	1	Office	0
Clinical Practice Leader (EC & ICU)	1	Office	0
RNs	5	Workstation	5
Nursing Unit Clerk	1	Workstation	1
Registration Clerks	1	Workstation	2
Contracted Security Service Personnel	2	Office	1

Notes:

1. Other staffing resources are distributed to other components.
2. RPG in consultation with Facility staff.

1A.8.4 DESIGN CRITERIA

1A.8.4.1 External Relationships

1A.8.4.1(1) The following key external relationships for ES will be achieved in the priority order as numbered for the purposes stated:

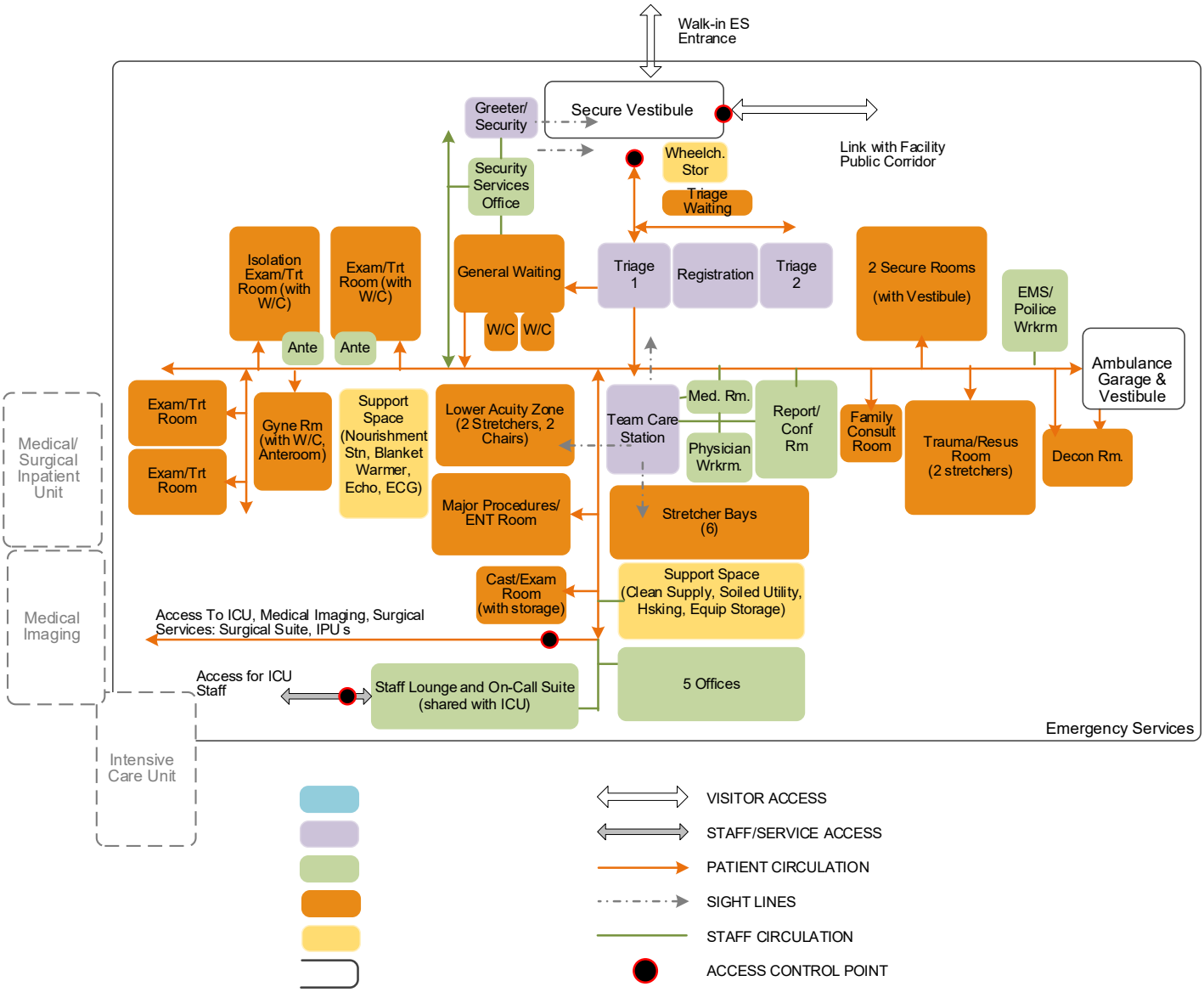
1	**Intensive Care Unit (incl. Respiratory Therapy)**	Provide direct access via internal circulation to/from the Intensive Care Unit for the movement of patients and for sharing of staff resources and spaces.
2	**Medical Imaging**	Provide convenient access via non-public circulation to/from Medical Imaging for the movement of patients and staff.
3	**Laboratory Services**	Provide convenient access via general circulation to/from Laboratory Services for the movement of staff and specimens.

1A.8.4.1(2) The following key external relationships for Security Services will be achieved in the priority order as numbered for the purposes stated:

1	**Intensive Care Unit**	Provide convenient access via general circulation to the Intensive Care Unit for the movement of staff.
2	**Psychiatry Inpatient Unit**	Provide convenient access via general circulation to the Psychiatry Inpatient Unit for the movement of staff.

1A.8.4.2 Functional Relationship Diagram

1A.8.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.8.4.3 Internal Design Criteria

1A.8.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.8.4.3(2) Wayfinding must have its focus on the Walk-in Entrance and Triage. Visualization of the Walk-in Entrance from the street is mandatory.

1A.8.4.3(3) The ES will be a self-contained area, configured such that no main traffic will pass through it to other areas of the Facility.

1A.8.4.3(4) ES shall be configured to be secured at any time from the rest of the Facility.

1A.8.4.3(5) Provide a safe, non-public route for transfer of a psychiatry patient from the Secure Rooms in ES to the Secure Rooms in the Inpatient Unit: Psychiatry IPU.

1A.8.4.3(6) Provide a non-public route for transfer of a body from ES to the Morgue.

1A.8.4.3(7) Following is a room-by-room list of spaces for ES showing:

1A.8.4.3(7)(a) Intent of Space; and

1A.8.4.3(7)(b) Specific Design Features.

1A.8.5 SCHEDULE OF ACCOMMODATION

1A.8.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.8 EMERGENCY SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
8.01	Ambulance Garage	1		93.0	Vehicle drop-off	1. Provide 2 bays at 46.5 nsm each
8.02	Ambulance Entrance (AE) Vestibule	1	10.2	10.2	No public access.	1. The corridor linking the AE Vestibule to the Trauma/ Resuscitation Room will be minimum 2740 mm in width to ensure adequate clear access
8.03.	AE Stretcher/Wheelchair Alcove	1		3.2		1. Locate near Triage but out of site from other patients waiting to be triaged
01	*stretcher*	*1*	*2.3*			
02	*wheelchair*	*1*	*0.9*			
8.04	Alcove, AE Patient Holding	*2*	5.0	10.0		1. Provide space for 1 stretcher 2. Provide headwall for each patient position
8.05.	Decontamination Room	1		11.6		1. Shall be accessed directly off the ambulance drop-off, with a separate and secure entrance into ES 2. Provide patient access directly from exterior of hospital
01	*decontamination shower*	*1*	*6.0*			
02	*storage*	*1*	*5.6*			
8.06.	EMS/Police Workroom	1		6.5		1. Locate away from the Team Care Station, close to the Ambulance Entrance to minimize disruption by EMS and police to the nursing activities occurring within ES
~~*01*~~	~~*workstation*~~	~~*0*~~	~~*2.8*~~			1. Intentionally deleted
02	*seats*	*2*	*1.9*			
03	*phone station*	*1*	*0.8*			1. Wall mounted
04	*workstation*	*1*	*1.9*			1. Provide small worksurface
n/a	EMS/Police Washroom	1	0.0	0.0		

1A.8 EMERGENCY SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
8.08	Walk-in ES Entrance Vestibule	1	10.2	10.2		1. Provide secure access with intercom/buzzer system from walk-in entrance and entrance to main hospital circulation
8.09.	Alcove, ES Entrance Stretcher/ Wheelchair	1		5.0		1. Combine w/ Ref No 8.08 Walk-in ES Entrance Vestibule
01	*~~stretcher~~ circulation space*	*1*	*2.3*			
02	*wheelchair*	*3*	*0.9*			
8.10	Greeter/Security Services Desk	1	*4.6*	4.6		
8.11.	Triage	1		23.6		1. Configure so as to protect staff from patients presenting with suspect airborne infectious diseases
01	*interview cubicle*	*2*	*7.4*			1. Provide space for wheelchair and a task chair
02	*printer/office supplies*	*1*	*1.9*			
03	*patient weigh scale, barrier-free*	*1*	*2.3*			1. Flush mount to the floor 2. Provide built-in floor scale
04	*storage*	*1*	*4.6*		For PPE, portable oxygen tanks	
8.12	Triage Waiting	1		7.6		
8.13.	Registration	1		10.8		1. Locate between the 2 Triage interview cubicles to allow the triage nurse to converse with the registration clerk through an opening in the partition to expedite the registration process
01	*interview cubicle*	*1*	*7.4*			1. Provide space for wheelchair and a task chair
02	*printer/office supplies*	*1*	*1.9*			
03	*purse lockers*	*1*	*1.5*		Secure storage of patient belongings after Main Patient Registration hours	

1A.8 EMERGENCY SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
8.53	After Hours Registration Phone Booth	1		3.8	Used for after-hours patient registration by UHNBC staff	1. Locate close to Triage
01	*sitting area*	*1*	*1.8*			
02	*standing area*	*1*	*2.0*			
8.14	General Waiting	1		41.6		1. Provide backing board for monitor and power and communications connections
01	*seats, standard*	*16*	*1.9*			1. Provide data
02	*seats, barrier free*	*4*	*2.8*			
8.15	Washroom, Public	2	7.7	15.4		1. 2 pc 2. Non-gendered
8.16.	Team Care Station	1		29.2		1. Provide direct view into the Stretcher Bays and at minimum a 180 degree view 2. Enclose station with glazing without reducing visibility 3. Provide backing board for monitor and power and communications connections
01	*workstation, clerical*	*1*	*4.6*			
02	*workstation*	*4*	*3.6*			
03	*central monitors station*	*1*	*2.8*			
04	*office equipment & supplies*	*1*	*3.8*			
05	*congregation area*	*4*	*0.9*			

1A.8 EMERGENCY SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
8.17	Medications Preparation Room	1	*13.8*	13.8		1. Provide HHS ~~(deep enough to pour IV solution with medication), millwork counter for med preparation~~ 2. Provide space for med cart with charging station 3. Provide eyewash station 4. Secured door with glazing, door that opens into room 5. Locate adjacent to Team Care Station 6. Provide utility sink in millwork counter w/ enclosed lockable storage above
8.18.	Report/Conference Room	1		17.5		1. Locate adjacent to Team Care Station
01	*seat*	*8*	*2.0*			
02	*telehealth technology*	*1*	*1.5*			
8.19	Trauma/Resus Room	1		48.6	Accommodates patients presenting with infectious diseases	1. There shall be a direct and discrete route from the Ambulance Entrance to the TR Room 2. Provide negative air pressure 3. Provide data
01	*anteroom*	1	5.0			
03	*patient stretcher area*	*2*	*13.9*			1. Provide infrastructure for ceiling mounted patient lifts
04	*workstation*	*2*	*2.8*			
05	*alcove, crash cart*	*2*	*1.4*		Adult	
06	*alcove, crash cart*	*1*	*1.4*		Paediatric	
07	*alcove, medications preparation*	*1*	*1.9*			
08	*alcove, supplies cart*	*1*	*2.3*			
09	*HHS*	*2*	*0.9*			
8.20.	Lower Acuity Care Zone	1		36.1		

1A.8 EMERGENCY SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
01	*stretcher bay*	*2*	*7.4*			
02	*treatment chair*	*2*	*5.6*			
03	*HHS, staff*	*2*	*0.9*			
04	*internal circulation (30%)*	*1*	*8.3*			
8.21	Stretcher Bay	6	9.5	57.0		1. Provide HHS 2. Provide infrastructure for ceiling mounted patient lifts
8.22.	Gynae/Sexual Assault Room	1		21.6		
01	*patient stretcher area*	1	*12.0*			1. Provide HHS 2. Provide infrastructure for ceiling mounted patient lifts 3. Must be negative pressure to anteroom
02	*washroom*	1	*4.6*			
03	*anteroom*	1	*5.0*		Entry to Gynae/Sexual Assault Room, Storage of PPE	1. Provide electronic access from corridor 2. Provide access to Gynae/Sexual Assault Room 3. Provide storage for PPE 4. Must be negative pressure to corridor
8.23.	Isolation Exam/Treatment Room			23.5	Will accommodate patients presenting with airborne infectious	1. Negative air pressure 2. Locate near Walk -in Entrance of ES 3. Provide HHS 4. Provide data 5. Provide infrastructure for ceiling mounted patient lift
01	*patient stretcher areas*	1	13.9			
02	*anteroom*	1	*5.0*			
03	*washroom*	1	*4.6*			1. 2 pc washroom

1A.8 EMERGENCY SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
8.24	Exam/Treatment Room	1	13.0	13.0		1. Provide HHS 2. Provide infrastructure for ceiling mounted patient lift
8.25	Exam/Treatment Room, ~~positive pressure~~	1		21.6	~~Will accommodate immunocompromised patients~~	1. Provide HHS 2. Provide infrastructure for ceiling mounted patient lift
01	*anteroom*	1	*5.0*		Entry to Exam/Treatment Room, Storage of PPE	1. Provide electronic access from corridor 2. Provide access to Exam/Treatment Room 3. Provide storage for PPE 4. Must be negative pressure to corridor
02	*patient stretcher area*	1	*12.0*			1. Provide HHS 2. Provide infrastructure for ceiling mounted patient lifts 3. Must be negative pressure to anteroom
03	*washroom*	1	*4.6*			
8.26	Major Procedures/EENT Room	1	23.0	23.0		1. Provide HHS 2. Provide infrastructure for ceiling mounted patient lift
8.27.	Cast/Exam Room	1		18.6		1. Provide HHS 2. Provide infrastructure for ceiling mounted patient lift
01	*exam space*	1	*13.0*			
02	*storage, supplies*	1	*5.6*			
8.28	Secure Room	2	13.9	27.8		1. Locate rooms side-by-side and close to the ambulance entrance, out of general patient care areas 2. Provide surveillance to the Secure Rooms from the Team Care Station

1A.8 EMERGENCY SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
8.29	Vestibule/Alcove, Secure Rooms	1	7.4	7.4		
8.30	Family/Consult Room	1	11.2	11.2	For the convenience of family members during the stress of the event	1. Locate near Trauma/Resus Room
8.31	Washroom, Patient	2	4.6	9.2		1. Locate at least one near Lower Acuity Zone 2. 2 pc 3. Non-gendered
8.32	Shower Room, Patient	1	7.4	7.4		
8.33.	Physician Workroom	1		12.2		1. Locate adjacent to Team Care Station
01	*workstation, sitting*	*1*	*3.6*			
02	*workstation, standing*	*3*	*1.8*			
03	*circulation (15%)*	*1*	*1.4*			
04	*storage unit*	*1*	*1.8*			
n/a	*PACS workstation*	*0*	*4.6*			
8.34	Office, Nurse Manager	1	9.3	9.3	Shared with ICU	1. Shared with ICU, locate close to ICU, but in a staff area of ES out of the way of patient areas
8.35	Office, ES Physician/ Medical Director	1	9.3	9.3		1. Locate in a staff area out of the way of patient areas
8.36	Office, Trauma Office/Multi-Use	1	9.3	9.3		1. Locate in a staff area out of the way of patient areas
8.37	Office, Clinical Practice Leader (shared with ICU)	1	9.3	9.3		1. Locate in a staff area out of the way of patient areas
8.38	Office, Clinical Pharmacist	1	9.3	9.3		1. Locate in a staff area out of the way of patient areas

1A.8 EMERGENCY SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
8.39	Office, Security Services	1	11.2	11.2	The office will be visible from the main public circulation leading from the ES entry and Facility Main Entry to allow observation of both entries.	1. HVAC must account for heat generated by amount of security equipment in room 2. This office will be the principal location for security monitors and annunciator panels 3. Monitors must not be visible by those passing the door of the Office 4. Staff will be able to view the entrance to ES through one-way glass from this location
8.40.	Staff Lounge/Break Room	1		26.7		1. Shared with ICU 2. Locate away from the patient care areas and be conveniently accessible to those working in the ICU 3. Provide communications
01	*seat*	*5*	*2.3*			
02	*kitchenette*	*1*	*3.7*			1. Provide 1200 lin mm upper and lower millwork that includes a double sink, HHS and lockable storage
03	*table area*	*1*	*7.4*			
04	*purse lockers*	*1*	*2.3*			
05	*standing workstation*	*1*	*1.8*			
8.41	Washroom, Staff	2	4.6	9.2	Use of Staff, EMS/Police	1. 2 pc washroom 2. Provide enclosed shelf @1.0 lin. mm above/behind toilet 3. Non-gendered 4. Locate 1 washroom near EMS/Police workstation
8.42	Clean Supplies Room	1		11.0		
8.43	Soiled Utility Room	1		12.0		1. Provide separate storage of hazardous and non hazardous medication waste
8.44	Alcove, Soiled Wheelchair Holding	1	2.0	2.0		

1A.8 EMERGENCY SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
8.45	Storage Room, Equipment	1	11.2	11.2		
8.46	Housekeeping Closet, Distributed	1	7.0	7.0		1. See *Housekeeping and Laundry Services* component
8.47	Nourishment Station	1	4.9	4.9	For Patients and Staff	1. Provide staff only access 2. Provide 1800 lin mm upper and lower millwork that includes a double sink, HHS, and lockable storage
8.48	Alcove, Crash Cart	1	1.4	1.4		
8.49	Alcove, ECG Machine	1	1.0	1.0		
8.50	Alcove, Echo Machine	1	1.0	1.0		
8.51	Alcove, Blanket Warmer	1	1.4	1.4		
8.52.	On-Call Suite	1		10.6		
01	*bed area*	*1*	*6.0*			1. Location of the Bed Area must allow for sound isolation
02	*washroom*	*1*	*4.6*			1. 3 pc
	Total, Emergency Department			93.0	Component Area = 102 CGSM at 1.10 grossing factor Ambulance Garage	
				719.8	Component Area = 1,080 CGSM at 1.50 grossing factor Internal Space	

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1A.8.1 INTENSIVE CARE UNIT

This specification outlines the functional, operational, and physical requirements for the Intensive Care Unit (ICU) component.

1A.8.1.1 FUNCTIONAL DESCRIPTION

1A.8.1.1.1 Statement of Purpose

1A.8.1.1.1(1) The ICU in this Facility is the *regional* ICU for the Northwest corridor.[1]

1A.8.1.1.1(2) The ICU team will provide continuous medical, nursing, and allied health care to the most acutely ill or injured patients requiring a higher level of nursing care and/or life support, which will not be provided on the Medical/Surgical Inpatient Units. At-risk patients requiring continuous monitoring of vital signs will also be accommodated in this component.

1A.8.1.1.1(3) Telemetry monitoring functions for any inpatient will be centralized here regardless of where they will be accommodated.

1A.8.1.1.2 Scope of Services

1A.8.1.1.2(1) Functional Content

1A.8.1.1.2(1)(a) The following list specifies the minimum set of functions that must be accommodated within the component:

1A.8.1.1.2(1)(a)(i) intubation and airway patency and protection;

1A.8.1.1.2(1)(a)(ii) respiratory support including mechanical ventilation, bi-PAP & Hi-Flow[2];

1A.8.1.1.2(1)(a)(iii) invasive and non-invasive haemodynamic monitoring and inotrope administration including establishment of vascular access;

1A.8.1.1.2(1)(a)(iv) close and constant observation in a high nurse-to-patient ratio environment;

1A.8.1.1.2(1)(a)(v) post operative care for higher risk/unstable patients or patients requiring specialized post operative care not available elsewhere; and

1A.8.1.1.2(1)(a)(vi) delivery of tissue plasminogen activator (tPA) medications for strokes and Tenecteplase (TNK) for myocardial infarction patients and other high-risk medications and complex regimens.

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1 Authority Critical Care Reference Group – 1st May, 2018.

2 Ventilated patients will be kept in Terrace for extubation or until a modality that cannot be locally provided is required.

1A.8.1.1.2(2) Planning Assumptions

1A.8.1.1.2(4)a) The intent is to provide as home-like atmosphere as possible, with attention given to proving the necessary services in as unobtrusive way as possible.

1A.8.1.1.2(4)b) The ICU will be a closed secure unit and only family and the patient's close support network will be permitted to visit patients in the ICU.

1A.8.1.1.2(4)c) The ICU will be physically contiguous with Emergency Services (ES), sharing a pool of critical care nurses and certain physical resources.

1A.8.1.1.2(4)d) The ICU shall have appropriate data and infrastructure in the event that the ability to offer haemodialysis is added in the future.

1A.8.1.1.2(4)e) Embedded in the ICU will be the Respiratory Therapy Zone, immediately accessible to the ICU and in very close proximity ES.

1A.8.1.1.2(3) Scope of Education Functions

1A.8.1.1.2(3)(a) The ICU will be a place for learning for a variety of individuals including medical students, family practice residents, internal medicine fellows, nursing students, nurses', pharmacists and pharmacy technicians, respiratory therapists, physiotherapists, and dietitians.

1A.8.1.1.2(3)(b) Staff will be cross trained for both the ICU and ES.

1A.8.1.1.2(4) Excluded

1A.8.1.1.2(4)(a) There will be a "High Acuity Zone" in one of the Medical/Surgical Units having three beds, enhanced nursing resources, and expertise to facilitate timely transfer from the ICU while maintaining appropriate discharge criteria.

1A.8.1.2 OPERATIONAL DESCRIPTION

1A.8.1.2.1 Hours of Operation

1A.8.1.2.1(1) The ICU will operate 24/7.

1A.8.1.2.1(2) Internal Medicine will be on-call 24/7.

1A.8.1.2.1(3) Respiratory Therapy resources will be available 24/7.

1A.8.1.2.2 Organization & Management

1A.8.1.2.2(1) The Manager of ES will also be responsible for managing the ICU.

1A.8.1.2.2(2) A Medical Director (an internist) will be designated to implement admission and discharge criteria and to provide medical expertise, input for quality assurance and development etc..

1A.8.1.2.2(3) A Critical Care Nurse Educator will be shared with ES.

1A.8.1.2.3 Workflow

1A.8.1.2.3(1) *Patients*

1A.8.1.2.3(1)(a) Patients will usually come into the ICU by stretcher or bed from the primary sources of ES, the Inpatient Units, or Surgical Services components. Frequently, a patient may come to the ICU as a transfer (repatriation from a tertiary centre or a transfer from another less acute hospital).

1A.8.1.2.3(1)(b) Patients will be admitted because of an unstable medical crisis at the sole discretion of the Medical Director (on-call internist) against a set of formalized criteria. Once in the ICU, the internist, surgeon, or paediatrician may request any number of referral consultations to diagnose and treat the presenting medical condition. The Medical Director (internist) will confer in ES and with other facilities in determining whether or not a patient is to be admitted to the ICU. It is noted that the Most Responsible Person (MRP) while the patient is in the ICU will be an internist.

1A.8.1.2.3(1)(c) Length of stay in the ICU will vary according to the type of patient.

1A.8.1.2.3(1)(d) Strict discharge/transfer criteria will be utilized to maximize use of the clinical resources of the ICU. Rarely are patients[3] discharged home from the ICU, once stable, patients will usually be transferred to an Inpatient Unit for the remainder of their hospital stay. From time-to-time, the ICU will directly repatriate to another hospital once the patient is stabilized. Patients may also be transferred to the appropriate tertiary centre outside of this Facility.

1A.8.1.2.3(2) *Staff*

1A.8.1.2.3(2)(a) All nursing care will be provided by registered nurses with critical care nursing skills only.

1A.8.1.2.3(2)(b) The Unit Clerk will work daily for a 12-hour shift.

1A.8.1.2.3(2)(c) Five RNs per shift will be required to care for the model of patients when the ICU is running at full capacity.

1A.8.1.2.4 Support Activities

1A.8.1.2.4(1) *Medical Imaging (MI):*

1A.8.1.2.4(1)(a) Portable x-rays and bedside ultrasound will be the main Medical Imaging activities in the ICU. CT scans and MRI examinations will be performed in MI.

[3] A patient discharged directly home may be one with unstable angina, a drug overdose, or a child.

1A.8.1.2.4(1)(b) Echos and ECGs will routinely be performed at the bedside.

1A.8.1.2.4(2) ***Laboratory Services (LS):***

1A.8.1.2.4(2)(a) LS will be used on a frequent basis by the ICU. Nursing or LS staff will draw blood specimens and collect other specimens. LS staff will transport specimens to LS.

1A.8.1.2.4(3) ***Pharmacy***

1A.8.1.2.4(3)(a) Clinical pharmacists will attend to the ICU to participate in the care team's review of patient care at daily rounds.

1A.8.1.2.4(4) ***Surgical Services – MDRD***

1A.8.1.2.4(4)(a) Items for reprocessing will be soaked in the Soiled Utility Room until pickup by MDR staff.

1A.8.1.2.4(4)(b) RT staff will be responsible for cleaning and maintaining ventilator machines.

1A.8.1.2.4(5) ***Food Services (FS)***

1A.8.1.2.4(5)(a) ICU staff will communicate with FS electronically to request a meal which will be delivered to the Unit by FS staff. Therapeutic nourishments will be patient-specific and provided without requisition. Nourishments will be made available following Ward Stock Policy.

1A.8.1.3 STAFFING

1A.8.1.3.1 Estimated future staffing for this component is summarized below in terms Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

	Days		Nights
Position	Head Count	Occupancy	Head Count
Total	7		7
Weekdays	0		0
Manager[1]	0	-	0
Registered Nurses	5	Workstation	5
Respiratory Therapist	1	Workstation	1
Clinical Practice Leader[2]	0	Private Office	0
Unit Clerk[3]	1	Workstation	1

Notes:

1. The Manager is shared with ES and has been accounted for in that component.
2. The Clinical Practice Leader will be shared with ES and has been accounted for in that component.
3. The Unit Clerk at present is shared with ES.

- Source: Authority Decision Support/Finance Department
- RPG in consultation with Facility staff

1A.8.1.4 DESIGN CRITERIA

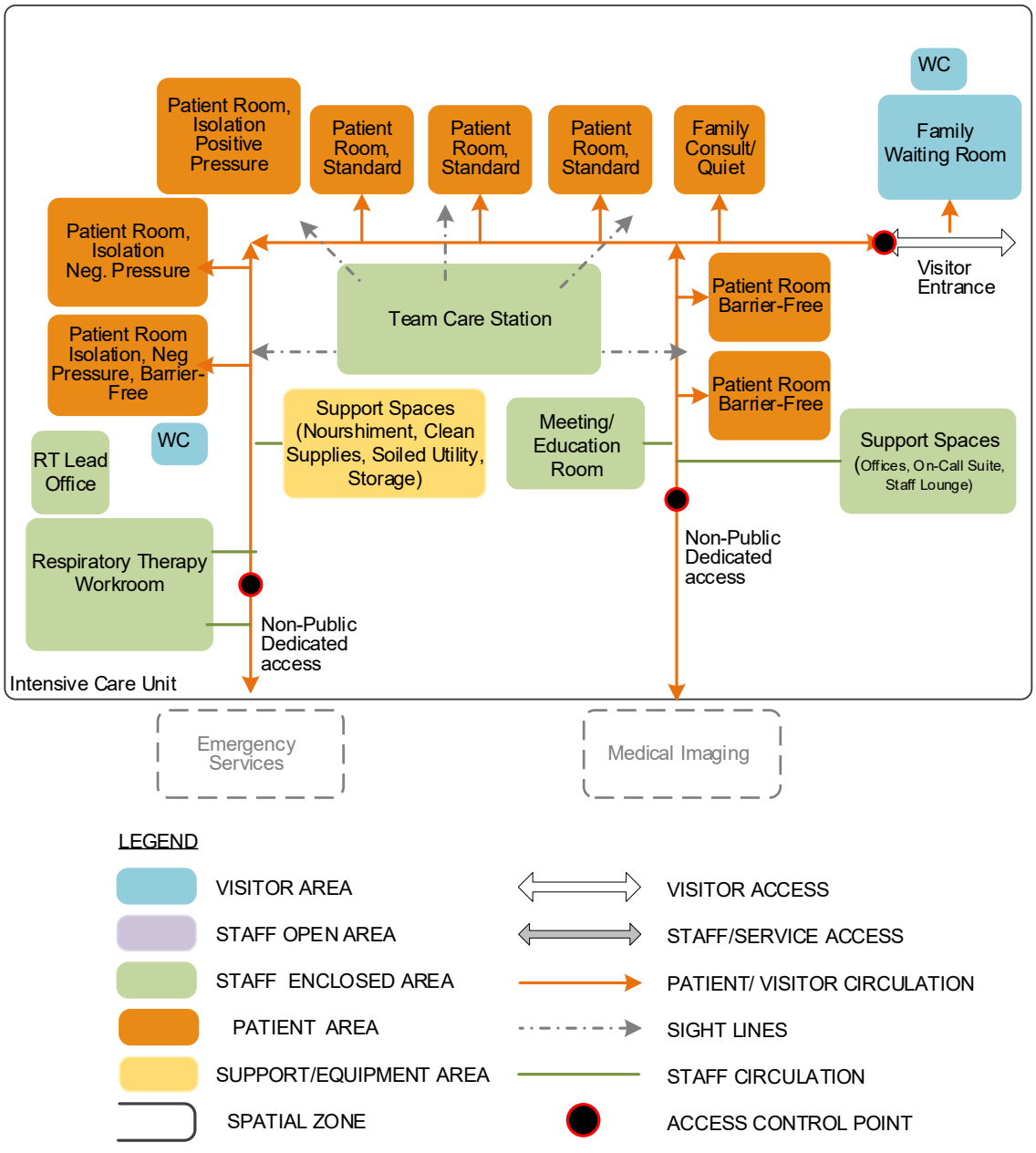
1A.8.1.4.1 External Relationships

1A.8.1.4.1(1) The following key external relationships for ICU will be achieved in the priority order as numbered for the purposes stated:

1	**Emergency Services**	Provide direct access via internal circulation to/from Emergency Services for the movement of patients and staff and sharing support spaces.
2	**Medical Imaging**	Provide convenient access via dedicated circulation to/from Medical Imaging for the movement of patients and staff.
3	**Laboratory Services**	Provide convenient access via general circulation to/from Laboratory Services for the movement of specimens and staff.

1A.8.1.4.2 Functional Relationship Diagram

1A.8.1.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.8.1.4.3 Internal Design Criteria

1A.8.1.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.8.1.4.3(2) There will be a separation between the non-public use entrance(s) and the visitor entrance of the ICU.

1A.8.1.4.3(3) The ICU shall be able to expand outwards for long-term flexibility in response to clinical needs.

1A.8.1.4.3(4) Provide a second entrance/exit to allow staff an alternate route out of the ICU.

1A.8.1.4.3(5) Following is a room-by -room list of spaces for the ICU showing:

1A.8.1.4.3(5)(a) Intent of Space; and

1A.8.1.4.3(5)(b) Specific Design Features.

1A.8.1.5 SCHEDULE OF ACCOMMODATION

1A.8.1.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

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1A.8.1 INTENSIVE CARE UNIT

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Intensive Care Unit					1. Provide release of the door into the ICU from the Team Care Station and to opening the door from inside the unit.
8.1.01.	Team Care Station	1		43.2		1. Requires visualization of the entrances to all patient rooms as well as the visitor entrance to the unit 2. No support spaces will interfere with visualization of the patient rooms from the Team Care Station 3. Include space for monitors to view patient physiological irregularities 4. Provide backing board for monitor and power and communications connections
01	*workstation*	*6*	*4.6*			
02	*charts & associated storage*	*1*	*4.6*			
03	*reference library shelving*	*1*	*1.9*			
04	*supplies & office-type equipment*	*1*	*1.9*			
05	*HHS*	*1*	*0.9*			
06	*congregation space*	*7*	*0.9*			1. Provide area for patient monitors
8.1.02	Medications Preparation Room	1	11.2	11.2		1. Provide HHS ~~(deep enough to pour IV solution with medication),millwork counter for med preparation~~ 2. Provide space for med cart with charging station 3. Provide eyewash station 4. Provide secure door with glazing, door opens into room 5. Provide utility sink in millwork counter w/enclosed lockable storage above
8.1.03	Office, Physician	1	9.3	9.3		
	Office, Manager	1	0.0	0.0		1. See ES component
	Office, Clinical Practice Leader	1	0.0	0.0		1. See ES component
8.1.04.	Multipurpose Workroom	1		18.3		

1A.8.1 INTENSIVE CARE UNIT

Ref	Space	Units	Proposed Area nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
01	*workstation*	*4*	*3.6*			
02	*internal circulation - 27%*	*1*	*3.9*			
8.1.05	Family Consult/Quiet Room	1	11.2	11.2	A comfortable space for family members to confer with staff as well as to grieve	1. Provide code blue call button
8.1.06	Family Waiting Room	1		15.0	ICU Visitors only.	1. Locate away rom Patient Rooms 2. Provide a quiet space with soft seating
8.1.07	Washroom, Family/Visitor	2	4.6	9.2		1. Locate at least one near Family Waiting Room 2. 2 pc 3. Non-gendered
8.1.08.	Patient Room, Standard	3		83.4		1. Provide HHS, code blue call button, nurse call button 2. Provide medical gases: four oxygen, one air, four suction 3. Provide infrastructure for ceiling mounted patient lift
01	*bed area*	*3*	*23.2*			
02	*washroom*	*3*	*4.6*			1. 2 pc 2. Provide hand-held shower nozzle
8.1.09.	Patient Room, Barrier free	2		65.4		1. Provide HHS, code blue call button, nurse call button 2. Provide medical gases: four oxygen, one air, four suction 3. Provide infrastructure for ceiling mounted bariatric patient lift
01	*bed area*	*2*	*25.0*			
02	*washroom, barrier free*	*2*	*7.7*			1. 3 pc 2. Provide hand-held shower nozzle

1A.8.1 INTENSIVE CARE UNIT

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
8.1.10.	Patient Room, Isolation Room, Negative Pressure	1		32.8		1. Provide HHS, code blue call button, nurse call button 2. Provide medical gases: four oxygen, one air, four suction 3. Provide infrastructure for ceiling mounted patient lift 4. Locate adjacent to Isolation Room, Barrier Free Negative Pressure
01	*anteroom*	*1*	*5.0*			
02	*bed area*	*1*	*23.2*			
03	*washroom*	*1*	*4.6*			1. Emergency call button 2. 2 pc 3. Provide hand-held shower nozzle
8.1.11.	Patient Room, Isolation Room, Barrier Free, Negative Pressure	1		40.1		1. Provide HHS and code blue call button, nurse call button 2. Provide medical gases: four oxygen, one air, four suction 3. Provide infrastructure for ceiling mounted bariatric patient lift 4. Located adjacent to Isolation Room: Negative Pressure
01	*anteroom*	*1*	*7.4*			
02	*bed area*	*1*	*25.0*			
03	*washroom*	*1*	*7.7*			1. 3 pc 2. Provide hand-held shower nozzle
8.1.12.	Patient Room, Isolation Room, Positive Pressure	1		32.8		1. Provide HHS, code blue call button, nurse call button 2. Provide medical gases: four oxygen, one air, four suction 3. Provide infrastructure for ceiling mounted patient lift
01	*anteroom*	*1*	*5.0*			
02	*bed area*	*1*	*23.2*			

1A.8.1 INTENSIVE CARE UNIT

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
03	*washroom*	*1*	*4.6*			1. 2 pc 2. Provide hand-held shower nozzle
8.1.28	Alcove, Charting	4	1.8	7.2		1. Locate between every 2 Patient Rooms
8.1.14	Nourishment Station	1	4.9	4.9	For patient nourishment	1. Provide staff only access 2. Provide 1800 lin mm upper and lower millwork that includes a double sink, HHS and lockable storage
8.1.16	Clean Supplies Room	1		11.0		1. Provide HHS
8.1.17	Soiled Utility Room	1		12.0		1. Provide separate storage of hazardous and non-hazardous drug waste
8.1.18	Alcove, Equipment	1	1.4	1.4		1. Locate in a readily accessible area to all patient rooms
8.1.19	Alcove, ECG Machine	1	1.0	1.0		1. Locate in a readily accessible area to all patient rooms
8.1.20	Storage Room, Equipment	1	13.9	13.9		
8.1.21	Storage Room, Large Equipment	1	29.0	29.0	Store equipment that is in constant use as well as equipment that is needed immediately.	1. Locate centrally
8.1.22	Housekeeping Closet, Distributed	1	7.0	7.0		1. See *Housekeeping and Laundry Services* component
8.1.23	Washroom, Staff	2	4.6	9.2		1. 2 pc washroom 2. Provide enclosed shelf @1.0 lin. mm above/behind toilet 3. Non-gendered
8.1.24	Meeting/Education Room	1		26.3		1.Shared with ES, RT
01	*seat*	*8*	*2.0*			
02	*workstation*	*3*	*2.8*		For Allied Health and learners	
03	*telehealth equipment*	*1*	*1.9*			
~~8.1.25.~~	~~On-Call Suite~~	~~1~~		~~10.6~~		1. Intentionally deleted

1A.8.1 INTENSIVE CARE UNIT

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
~~01~~	~~bed area~~	~~1~~	~~6.0~~			~~1. Location of the Bed Area must allow for sound isolated~~
~~02~~	~~washroom~~	~~1~~	~~4.6~~			~~1. 3 pc~~
	Staff Lounge/Break Room	1	0.0	0.0		1. See *ES* component
	Subtotal, Intensive Care Unit			505.4		
	Respiratory Therapy Zone					
8.1.26.	Respiratory Therapy Workroom	1		47.4		1. The respiratory therapy workroom/storage will be provided with oxygen and medical air 2. Located near the edge of the ICU, directly accessible to ES with secure access from the public corridor system as well as from the ICU itself
01	*workstation*	*1*	*3.6*			
02	*machine work area*	*1*	*9.3*			1. Provide medical gases (oxygen, air and suction) and millwork counter work surface
03	*general supplies*	*1*	*7.4*			
04	*ventilators*	*1*	*10.5*			
05	*BiPAP machines*	*1*	*2.3*			
06	*Hi-Flow machines*	*1*	*1.1*			
07	*disposable bronchoscopy towers*	*1*	*0.7*			
08	*ABG analyzer and counter space*	*1*	*2.3*			
09	*difficult airway cart*	*1*	*0.7*			
10	*internal circulation (25%)*	*1*	*9.5*			
8.1.27	Office, RT Lead	1	9.3	9.3		
	Subtotal, Respiratory Therapy Zone			56.7		
	Total, Intensive Care Unit			562.1	Component Area = 758CGSM at 1.50 grossing factor for ICU Component Area = 74 CGSM at 1.30 grossing factor for Respiratory Therapy Element	

1A.9 FOOD SERVICES

This specification outlines the functional, operational, and physical requirements for the Food Services (FS) component.

1A.9.1 FUNCTIONAL DESCRIPTION

1A.9.1.1 Statement of Purpose

1A.9.1.1(1) FS will deliver a patient-focused approach providing patients with the ability to make a selection prior to meal service in a Spoken Menu Model.

1A.9.1.2 Scope of Services

1A.9.1.2(1) Functional Content

1A.9.1.2(1)(a) The FS team will provide:

1A.9.1.2(1)(a)(i) Patient Food Services – including individualized tray service for acute care patients in this Facility, a bulk service (selective menu) and snacks for Terraceview Lodge (TVL), hot lunch for the Terraceview Day Program, and therapeutic nourishments delivery to patients as required. FS will also manage the meal preparation for McConnell Estates Assisted Living for lunch, dinner, and snacks only;

1A.9.1.2(1)(a)(ii) Outpatient Meal Services – as unit stock in the form of a box meal when a patient is in the process of being admitted or has to wait in Emergency Services for a bed; and/or going for unexpected tests that keep them there for most of the day;

1A.9.1.2(1)(a)(iii) Outpatient box meals – for purchase by patients in the Ambulatory Care Centre (ACC). A cashless system and/or process will be required for purchasing boxed meals at these locations;

1A.9.1.2(1)(a)(iv) Meals on Wheels for community clients – one individual meal per day at lunch prepared for transport to individuals' homes – entre or chilled meals will be available five days per week with the option to purchase additional frozen meals;

1A.9.1.2(1)(a)(v) Psychiatry Unit – bulk continental breakfast with bulk hot lunch and dinner served in a dining area;

1A.9.1.2(1)(a)(vi) Guest Companion Meals – will be available for all three meal services (breakfast, lunch, dinner) for family members to purchase, prior to receiving; and

1A.9.1.2(1)(a)(vii) a portion of the food will be prepared on-site from scratch using a cook-chill production system with a four-week

selective core menu for all patients. Some "ready" food items will also be purchased.

1A.9.1.2(1)(b) The following principles will drive the operations of FS:

1A.9.1.2(1)(b)(i) the current methods of food production (hot entrees prepared in the kitchen, plated, frozen, and stored in food inventory storage for individual meal assembly) will be continued with enhancements to promote patient choice closer to time of meal service. Once ordered by patients these entrees will be taken to serveries on the Inpatient Units and rethermed. Trays will be assembled in the serveries with cold items prepared ahead of time; and

1A.9.1.2(1)(b)(ii) service style (i.e., trays vs. dining room) will be specific to the patient population.

1A.9.1.2(2) Planning Assumptions

1A.9.1.2(2)(a) A cook, chill, freeze production kitchen will be implemented.

1A.9.1.2(2)(b) To support the planned model, the CBORD Room Service Module will be utilized.

1A.9.1.2(2)(c) FS staff will be trained to ensure that patients with special diets are provided appropriate selections as per CBORD.

1A.9.1.2(2)(d) Warewashing will be decentralized at TVL and centralized at the Facility.

1A.9.1.2(2)(e) Food items for TVL will be transported chilled or frozen.

1A.9.1.2(2)(f) The production equipment will be a combination of gas and electric to ensure production capability during power outage.

1A.9.1.2(2)(g) Lockable serveries on each Inpatient Unit will be used for storage, meal plating, warewashing, and to park empty tray carts. Electronic access will be utilized to access each servery and Acute Care Unit supplies would be available for patient use.

1A.9.1.2(3) Scope of Education Functions

1A.9.1.2(3)(a) At any given time, FS may accommodate two to three dietetic interns, FS students, cooks and/or food service supervisors as part of a placement program from the University of British Columbia (UBC), Canadian Society of Nutritional Management, and/or other accredited education institutions such as Community Colleges.

1A.9.1.2(4) Excluded

1A.9.1.2(4)(a) Cafeteria Service – Potential partnerships with local operators will be explored for the Facility.

1A.9.1.2(4)(b) Registered Dietitians will continue to be accountable for the development and ongoing refinement of the nutritional care screening, assessment and counseling programs.

1A.9.1.2(4)(c) Vending will be contracted through a third-party vendor, managed by the Facility Auxiliary.

1A.9.1.2(4)(d) Outpatient meal services will not be provided to *Cancer Care Centre* or *Renal Services* patients.

1A.9.2 OPERATIONAL DESCRIPTION

1A.9.2.1 Hours of Operation

1A.9.2.1(1) Production will operate weekdays from 0700 to 1800.

1A.9.2.1(2) Patient food distribution will operate daily from 0600 to 2000.

1A.9.2.1(3) Weekend and statutory holiday production and shipping may occasionally be required, supported by minimal FS staff.

1A.9.2.2 Organization & Management

1A.9.2.2(1) A Manager of FS who is also responsible for Housekeeping Services and Materiel Management, will be responsible for FS. A Coordinator will also be shared with Housekeeping Services. The FS Supervisor will supervise the day-to-day operations of the component.

1A.9.2.3 Workflow

1A.9.2.3(1) ***Supplies*** – Ordering, Receiving, Storage and Tempering.

1A.9.2.3(1)(a) Food supplies and other supplies will be purchased from an Authority approved vendor.

1A.9.2.3(1)(b) All raw, semi processed, and fully prepared food items as well as non-perishable food related items will be received at the Receiving Dock of the Facility.

1A.9.2.3(1)(c) All incoming goods will be audited for quantity and quality by FS personnel.

1A.9.2.3(1)(d) Delivery staff will porter incoming products to the Receiving/De-Casing area of this component where FS staff will inspect the product received prior to placing the items directly into the appropriate refrigerated, freezer, or dry storage areas. These items will be entered on FS inventory upon receipt and entered into CBORD.

1A.9.2.3(1)(e) Non-food items specific to FS will be stored within the component. Commonly used items such as gloves will be requisitioned by FS staff at regular intervals and placed into day storage areas within work areas.

1A.9.2.3(1)(f) On a daily basis, selected ready-to-use food items will be removed from frozen storage rooms and tempered. A rapid tempering chamber will be used to facilitate tempering of frozen product within a single shift. Once tempered, chilled items will be placed in a holding/inventory refrigerator.

1A.9.2.3(2) *Preparation and Production*

1A.9.2.3(2)(a) Meal production will consist of approximately 70% on-site production of selected patient menu items, supplemented with a combination of approximately 30% purchased chilled and frozen pre-prepared food products.

1A.9.2.3(2)(b) Blast chilling and/or freezing technologies will be utilized for items produced on-site. Items will be prepared and panned in advance of meal service, chilled and/or frozen and placed in refrigerated/ freezer holding/inventory.

1A.9.2.3(2)(c) Semi processed ingredients for cold menu items will be removed from refrigerated storage and transferred to a preparation area. Once prepared, these items will be moved to the Meal Assembly area, or the serveries on the Inpatient Units.

1A.9.2.3(3) *Meal Assembly, and Retherm Services*

1A.9.2.3(3)(a) Acute patients will have the opportunity to make meal selections on-demand from a set menu offering a variety of hot and cold selections for each meal.

1A.9.2.3(3)(b) Selection may consist of multiple hot entrees and more extensive selection of cold items, beverages, etc. based on the core menu and appropriate room service menu which will be developed over time.

1A.9.2.3(3)(c) Patient diet orders will be received, screened to ensure compliance with individual patient diet profile, and transmitted to specific serveries located on the Inpatient Units.

1A.9.2.3(3)(d) Bulk and pre-plated chilled and tempered meals will be transported to on-unit serveries for plating, reheating, and service.

1A.9.2.3(3)(e) The panning and portioning of chilled meal items in unit specific requirements will be done in the Hot/Cold Production area of the Central Kitchen Facilities.

1A.9.2.3(3)(f) Chilled bulk meals, entrees, and other food supplies required for the inpatient units will be panned and portioned and/or placed in carts and delivered to the on-unit serveries on a daily basis.

1A.9.2.3(3)(g) Cold items such as pre-portioned salads, sandwiches, beverages, and other supplies will be assembled centrally, placed in insulated carts, and shipped daily to on-unit serveries.

1A.9.2.3(3)(h) On-Unit serveries will be equipped with roll-in and reach-in refrigerators to enable food service to stock food product and supplies required for each meal.

1A.9.2.3(3)(i) In all circumstances, FS staff will be responsible for taking orders, assembling and reheating meals, delivering meals to the patients, and delivering soiled service wares back to the on-unit serveries.

1A.9.2.3(3)(j) After the meal service, all on-unit service wares and trays will be returned to the Warewashing area by FS staff on a set schedule. Bulk pans and carts will also be returned for pot and cart washing. Dishware and cutlery and other kitchen items will be washed and stored in the serveries on the Inpatient Units.

1A.9.2.3(4) *Staff*

1A.9.2.3(4)(a) Tablets and/or mobile devices will be used by FS staff for various communication requirements including room-to-room service for patient meal confirmation.

1A.9.2.3(4)(b) Staff will require Vocera type communications or an emergency call system for staff working alone.

1A.9.2.3(4)(c) Cleaning will be a joint responsibility between FS staff and Housekeeping Services. Housekeeping will be responsible for cleaning and sanitizing in food production area (floors, walls, windows, floors and walls of freezers and fridges, ventilation hoods, ceiling lights, garbage cans etc.). FS staff will clean food service equipment and food storage areas.

1A.9.2.3(4)(d) An external company will be responsible for internal hood cleaning.

1A.9.2.3(5) Support Activities

1A.9.2.3(5)(a) Housekeeping will collect waste and recyclable materials from holding areas two to three time per day and transport to the waste dock for outside pick up.

1A.9.2.3(5)(b) An automated food waste management system (digester) will be utilized.

1A.9.2.3(5)(c) FMO will be responsible for preventative maintenance and repair of equipment. This will include servicing grease traps and all equipment yearly (minimum) as well as responsibility for temperature, drainage issues.

1A.9.3 STAFFING

1A.9.3.1 Estimated future staffing for this component is summarized below in terms of Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

Classification/Position	Days Headcount	Days Occupancy	Nights Headcount
Total	16		2
Weekdays	0		0
Manager: FS & Housekeeping (shared) (M-F)	1	Office	0
Coordinator: FS & Housekeeping (shared) (Tues. to Sat)	1	Office	0
FS Supervisor (Daily)	1	Workstation	0
Cook II (Daily)	4		0
Food Service Worker II (Daily)	7		2
Dietitian (M-F)	1	Workstation	0
Clerical Support/Administrative Assistant (shared) (M-F)	1	Workstation	0

Note:

- N/A.

1A.9.4 DESIGN CRITERIA

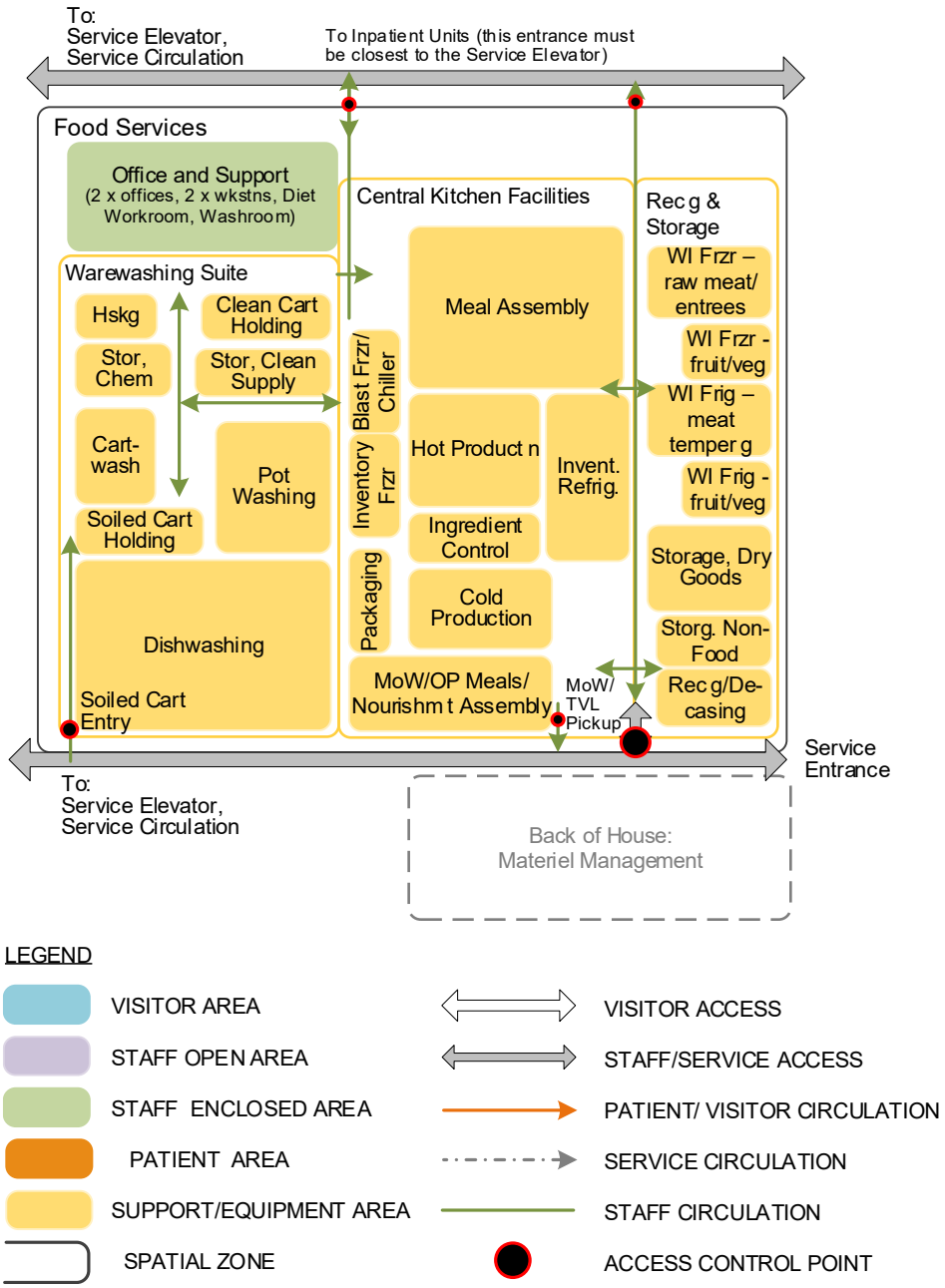
1A.9.4.1 External Relationships

1A.9.4.1(1) The following key external relationships for Food Services will be achieved in the priority order as numbered for the purposes stated:

1	**Service Entrance**	Provide convenient access via service circulation to/ from the Service Entrance of the Facility to efficiently move supplies between the loading dock, kitchen, and service elevator to patient floors.

1A.9.4.2 Functional Relationship Diagram

1A.9.4.2(1) **Functional relationships** between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.9.4.3 Internal Design Criteria

1A.9.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.9.4.3(2) Ensure the Central Kitchen Facilities will support the flow of food products in different stages of processing. Food products will move through the kitchen in one direction only – forward from receiving through storage and processing to assembly and distribution.

1A.9.4.3(3) Ensure deliveries must not pass through a production area to be placed into storage.

1A.9.4.3(4) Ensure the layout allows the flow of fully prepared chilled and frozen products to be separate from the flow of semi processed or raw items. The placement of the refrigerated and frozen storage rooms will take into account these flow restrictions.

1A.9.4.3(5) Provide means for the refrigerated and frozen storage rooms to be back loaded from an internal corridor that will connect to the FS Receiving & Storage Area.

1A.9.4.3(6) Ensure the areas within the Central Kitchen Facilities are arranged to accommodate a reversing flow of waste. To assist in ensuring the two workflows do not cross, provide a separate access for soiled carts.

1A.9.4.3(7) Provide handwash stations with hands-free/touchless soap dispensers in all work areas of the component.

1A.9.4.3(8) Provide handwashing sinks with sensor control – hands-free at each entrance and exit.

1A.9.4.3(9) Internal corridors, (Receiving/De-Casing area) doorways, and points of access and egress must be a minimum of 2400 mm wide clear x 2400 mm high clear.

1A.9.4.3(10) Provide automated door openers at all entry/exits.

1A.9.4.3(11) Ensure the refrigeration monitoring system has the capability to monitor and record all temperatures in refrigerated and frozen equipped areas.

1A.9.4.3(12) Provide surface mounted electronic ultrasonic rodent repellent devices in high risk zones such as waste management areas, storage rooms and the Receiving Dock of the *Back of House: Materiel Management* component to deter rodent activity.

1A.9.4.3(13) Provide electronic ultraviolet flying insect traps to help alleviate common house and fruit fly infestation.

1A.9.4.3(14) Ramps or step-up into walk-in coolers and freezers will be avoided.

1A.9.4.3(15) Provide the following uninterrupted power supply (UPS) and emergency back-up power requirements:

1A.9.4.3(15)(f)(i)	the refrigerators and freezers, reheating equipment within each of the Inpatient Unit Serveries must be able to withstand a two-minute power interruption;
1A.9.4.3(15)(f)(ii)	all lighting, Diet Workroom, refrigerators and freezers, and dishwashing equipment must be on UPS;
1A.9.4.3(15)(f)(iii)	100% all refrigerators, freezers and blast chillers must be on emergency back-up power;
1A.9.4.3(15)(f)(iv)	at a minimum, 50% production equipment will be on emergency back-up power; and
1A.9.4.3(15)(f)(v)	all Rethermalization equipment must be 100% on emergency back-up power.

1A.9.4.3(16) Following is a room-by-room list of spaces for FS showing:

1A.9.4.3(16)(a) Intent of Space; and

1A.9.4.3(16)(b) Specific Design Features.

1A.9.5 SCHEDULE OF ACCOMMODATION

1A.9.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.9 FOOD SERVICES

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1A.9 FOOD SERVICES

Ref	Space	Proposed Area units	nsm/ unit	nsm	i. Intent of Space	ii. Specific Design Features
	Receiving & Storage					
9.01	Receiving/De-casing	1		12.9		
9.02	Storage, Non-Food Products	1		11.1		1. Provide compact storage system for this room
9.03	Storage, Dry Goods	1		18.0		1. Ensure location of Dry Goods Storage is away from any heat and humidity producing areas 2. Dry goods must be stored 150 mm AFFL 3. Ensure there is no direct sunlight in this room 4. Provide compact storage system for this room
9.04	Walk-In Freezers	3	9.3	27.9		1. Ensure all lighting is covered and shatterproof 2. Provide non-slip floor
9.05	Walk-In Refrigerators	3	9.3	27.9		1. Ensure all lighting is covered and shatterproof 2. Provide non-slip floor
	Subtotal, Receiving & Storage			97.8		
	Central Kitchen Facilities					1. Ceiling ht must be no less than 3.0 m/10'-0"
	Preparation/Production					1. Provide handwash sink with emergency eyewash
9.06	Meal Assembly (portioning and panning)	1		46.4		1. Must be temperature controlled to between 10 – 20 degrees Celsius 2. Area does not need to be enclosed
9.27	Ingredient Control Room	1		14.5		1. Must be able to maintain 50% humidity 2. Temperature must be be maintained between 10 - 20 deg. Celsius 3. Ensure location of Dry Goods Storage is away from any heat and humidity producing areas

1A.9 FOOD SERVICES

Ref	Space	Proposed Area units	nsm/ unit	nsm	i. Intent of Space	ii. Specific Design Features
						4. Provide compact storage system for this room
						5. Combine with Ref No 9.09 Packaging
9.09	Packaging	1		7.4		1. Must be temperature controlled to between 10 – 20 degrees Celsius
						2. Combine w/Ingredient Control Room
9.07	Cold/Hot Production	1		41.8	Incl. production of sandwich fillings	3. Provide direct access to Blast Chilling/Blast Freezer
9.08	Blast Chilling/Blast Freezer	1		7.4		1. Must be able to walk through to Cold Production area
9.10	Inventory Refrigerator	1		27.8		
9.11	Inventory Freezer	1		9.3	For pre-prepared meals	
9.12	Meals-on-Wheels/OP Meals/ Nourishments Assembly Area	1		16.7		1. Provide 3000 lin mm of counter space with shelving below
	Subtotal, Preparation/Production			171.3		
	Warewashing Suite					1. Enclosed
9.13	Soiled Cart Holding	1		13.9		
9.14	Pot Washing	1		23.2		
9.15	Dishwashing	1		55.7		1. Configure dishwashers in a straight line 2. Provide infrastructure for ORCA Food Digester equipment
9.16	Cart Wash	1		16.7		1. Provide waterproof wall, floor finishes 2. 2. Provide trench drain in sloped floor 3. 3. Automatic cart wash is not required
9.17	Clean Cart Holding	1		13.9		1. Provide access to Meal Assembly Area

1A.9 FOOD SERVICES

Ref	Space	Proposed Area units	nsm/ unit	nsm	i. Intent of Space	ii. Specific Design Features
9.18	Storage, Chemical	1		7.4		
9.19	Storage, Clean Supplies	1		7.4	For storage of clean bowls, plates, etc.	
9.20	Housekeeping Closet	1		5.6		
	Subtotal, Warewashing Suite			143.8		
	<u>Office and Support</u>					
9.21	Office, Manager, Food Services and Housekeeping	1		9.3		
9.22	Workstation, Supervisor, Food Services	1		4.6		
9.23	Workstation, Shared	1		4.6	For online training	
9.24	Workstation, Shared Administrative Assistant	1		4.6		
9.25.	Diet Workroom	1		13.8		
01	*CBORD computer*	*2*	*3.6*			
02	*files/printer*	*2*	*1.9*			
03	*Circulation – 25%*	*1*	*2.8*			
9.26	Washroom, Staff	1		4.6		
	Subtotal, Office and Support			41.5		
	Total, Food Services			454.4	Component Area = 568 CGSM at 1.25 grossing factor	

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1A.10 INFORMATION MANAGEMENT INFORMATION TECHNOLOGY SERVICES AND TELEHEALTH

This specification outlines the functional, operational, and physical requirements for the Information Management Information Technology Services (IMIT) and Telehealth component.

1A.10.1 FUNCTIONAL DESCRIPTION

1A.10.1.1 Statement of Purpose

1A.10.1.1(1) The IMIT client services team will manage the information management and information technology process, coordinate with the service desk, and provide desk-side technicians.

1A.10.1.2 Scope of Services

1A.10.1.2(1) Functional Content

1A.10.1.2(1)(a) IMIT staff will continue to be responsible for:

1A.10.1.2(1)(a)(i) refreshing of equipment every three years;

1A.10.1.2(1)(a)(ii) deployment and management of IMIT infrastructure including local and wide-area networks (wired and wireless), file servers, voice systems, archiving, back-up IMIT systems and the Data Centres;

1A.10.1.2(1)(a)(iii) coordination, implementation and support for existing and new end-user devices, systems and applications;

1A.10.1.2(1)(a)(iv) developing and monitoring disaster recovery plans and coordination of back-ups and storage of archived data for all stand-alone systems throughout the Facility;

1A.10.1.2(1)(a)(v) maintenance and support for interfaces to various systems and applications requiring integration including digital signage (video display) in key patient areas throughout the Facility;

1A.10.1.2(1)(a)(vi) monitoring and providing user support for clinical and administrative systems including internet access and firewall;

1A.10.1.2(1)(a)(vii) preventative and demand technology maintenance, as well as upgrading and capacity monitoring;

1A.10.1.2(1)(a)(viii) ensuring all clinical, administrative and financial information is recorded in the Authority computerized information system;

1A.10.1.2(1)(a)(ix) ensuring that systems are properly designed to capture, store and distribute data to authorized users with valid requirements, while maintaining confidentiality;

1A.10.1.2(1)(a)(x) providing development, maintenance and support for all computer systems and network related items in the Facility and for a number of distributed services; and

1A.10.1.2(1)(a)(xi) working extensively with vendors to provide software development, hardware specifications and provision of Facility networking systems.

1A.10.1.2(1)(b) Characteristics of the system for the Facility will include an integrated, health information system that will support:

1A.10.1.2.(1)(b)(i) an electronic patient record;

1A.10.1.2.(1)(b)(ii) point-of-care collection tools;

1A.10.1.2.(1)(b)(iii) central scheduling/booking and registration for a number of specified areas;

1A.10.1.2.(1)(b)(iv) self registration;

1A.10.1.2.(1)(b)(v) e-Charting, electronic order entry and results reporting;

1A.10.1.2.(1)(b)(vi) point-of-use technology for inventory management and supply;

1A.10.1.2.(1)(b)(vii) E-Requisitioning;

1A.10.1.2.(1)(b)(viii) use of hand-held wireless devices;

1A.10.1.2.(1)(b)(ix) wireless communication systems;

1A.10.1.2.(1)(b)(x) videoconferencing;

1A.10.1.2.(1)(b)(xi) real-time access to authorized users;

1A.10.1.2.(1)(b)(xii) electronic authentication and authorization;

1A.10.1.2.(1)(b)(xiii) real time location systems for tracking patients and equipment throughout the building; and

1A.10.1.2.(1)(b)(xiv) standard interfaces to facilitate the exchange of data.

1A.10.1.2(2) Planning Assumptions

1A.10.1.2(2)(a) IMIT and Telehealth will operate through a hub and spoke model with two to four regional staff on-site.

1A.10.1.2(2)(b) Consistent with other regional initiatives, the Authority will implement an IMIT plan that will assist with improving the efficiency and cost effectiveness of care delivery at the Facility.

1A.10.1.2(2)(c) Facilities for contracted itinerant staff and server/communications rooms will be programmed in this component. This will include a Backup Communications Centre and a Main Communicatiions Centre that will house IT and telecommunication equipment as well as distributed data communication closets.

1A.10.1.2(2)(d) All conference rooms will be wired for various technology formats.

1A.10.1.2(3) Excluded

1A.10.1.2(3)(a) N/A.

1A.10.2 OPERATIONAL DESCRIPTION

1A.10.2.1 Hours of Operation

1A.10.2.1(1) On-site coverage will be available for regular business hours on weekdays, supported by 24/7 helpline services. Remote support will also be available during off-hours.

1A.10.2.2 Organization & Management

1A.10.2.2(1) IMITS will be a regional service managed by the Authority.

1A.10.2.3 Workflow

1A.10.2.3(1) ***Information Flow***

1A.10.2.3(1)(a) IMITS personnel will monitor the regional system, including personal input devices, main and backup data centres and all network and transmission equipment both remotely and on-site.

1A.10.2.3(1)(b) Information will continue to be backed-up daily to ensure business continuity.

1A.10.2.3(2) ***Hardware & Software Training***

1A.10.2.3(2)(a) Training for clinical systems will be coordinated by IMIT and managed by third party vendors. Classroom training will occur in the Training/Learning Resource Room programmed in the *Education Hub: Education & Meeting Facilities* component.

1A.10.2.3(2)(b) All new desk-side equipment will be delivered to the IMIT component from receiving by Materiel Management (MM) personnel. The equipment will be held on a workbench in the Service Desk Office for inspection and testing. Once the equipment has been approved for use it will be tagged as an Authority asset and issued to the user area.

1A.10.2.3(2)(c) Equipment in need of repair will be inspected in the Service Desk Office and shipped to an outside contractor for servicing if required.

1A.10.2.3(2)(d) Any large rollout of IT equipment (hardware and software) will occur from the Meeting Room of the *Education Hub: Education & Meeting Facilities* component.

1A.10 INFORMATION MANAGEMENT INFORMATION TECHNOLOGY SERVICES AND TELEHEALTH

1A.10.3 STAFFING

1A.10.3.1 Estimated future staffing for this component is summarized below in terms of full-time equivalents (FTE), and headcount (HC). The information is for space planning purposes only and does not represent a commitment for hiring.

	Days		Nights
Classification/Position	Headcount	Occupancy	Headcount
Total	3-4		0
Weekdays			
IMITS Support Staff	3-4	Shared Office	0

Notes:

- Other staffing resources are distributed to other components.
- RPG in consultation with staff.

1A.10.4 DESIGN CRITERIA

1A.10.4.1 External Relationships

1A.10.4.1(1) The following key external relationships for IMITS and Telehealth will be achieved in the priority order as numbered for the purposes stated:

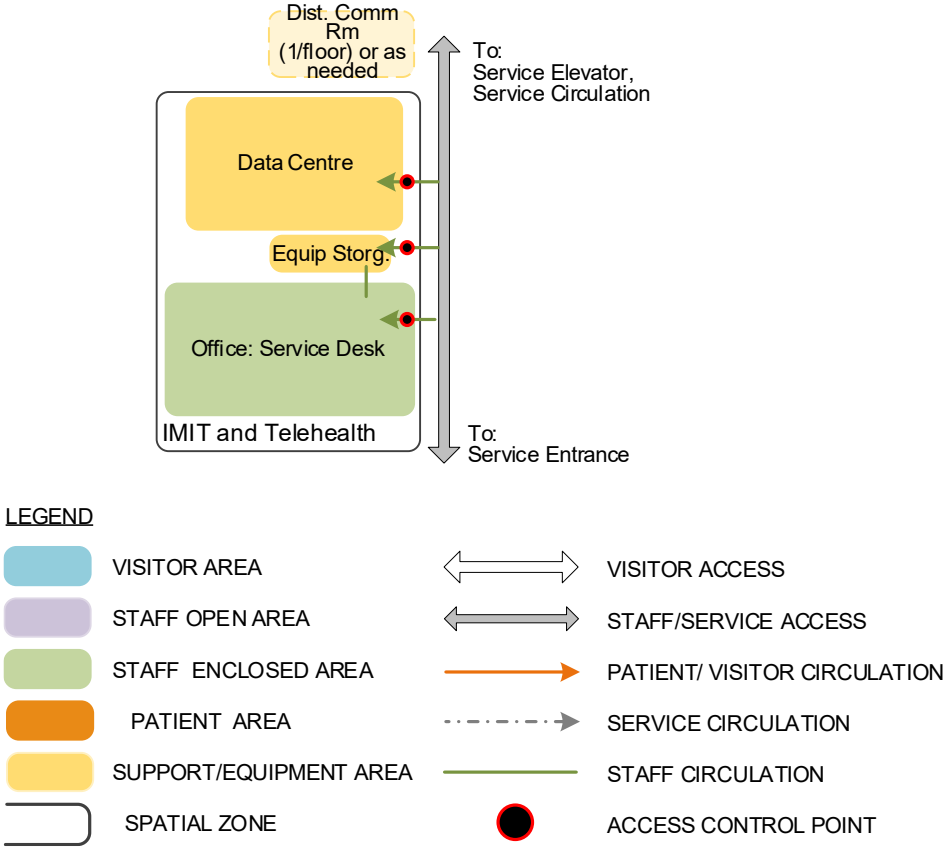
1 **Service Entrance** — Provide convenient access via service circulation to/ from the service entrance for the movement of staff and equipment.

2 **Service Elevator/ Service Circulation** — Provide convenient access via service circulation to/ from the service elevator for the movement of staff and equipment.

1A.10 INFORMATION MANAGEMENT INFORMATION TECHNOLOGY SERVICES AND TELEHEALTH

1A.10.4.2 Functional Relationship Diagram

1A.10.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.10.4.3 Internal Design Criteria

1A.10.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.10.4.3(2) Following is a room-by -room list of spaces for IMITS and Telehealth showing:

1A.10.4.3(2)(a) Intent of Space; and

1A.10.4.3(2)(b) Specific Design Features.

1A.10 INFORMATION MANAGEMENT INFORMATION TECHNOLOGY SERVICES AND TELEHEALTH

1A.10.5 SCHEDULE OF ACCOMMODATION

1A.10.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.10 INFORMATION MANAGEMENT INFORMATION TECHNOLOGY SERVICES AND TELEHEALTH

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
10.01.	Office: Service Desk	1		31.6		
01	*workstations*	*4*	*4.6*			
02	*workbench*	*1*	*2.3*			1. Provide 8 electrical outlets, 8 communications ports 2. Workbench must be clustered with Workstations 3. Workbench will be standing ht
03	*supplies area*	*1*	*4.6*		Will accommodate back up equipment such as printers	
04	*internal circulation*	*1*	*6.3*			
10.02.	Equipment Storage	1	7.9	7.9		1. Provide access from the Office: Service Desk
01	*equipment receiving/holding*	*1*	*2.3*			
02	*storage*	*1*	*5.6*			
10.03.	Data Centre	2	23.8	47.6		1. Provide infrastructure to support large server equipment and TELUS/ Core Switching/ Routing/PACS/Biomed/ BMS/ Security 2. Data Centre shall not be located next to electrical rooms, near or under washrooms or sources of water, or back onto elevator shafts 3. There is 1 Backup Communications Centre and 1 Main Communications Centre and no other Data Centres
01	*staging area*	*1*	*2.3*			
02	*server racks equipment*	*1*	*21.5*			

1A.10 INFORMATION MANAGEMENT INFORMATION TECHNOLOGY SERVICES AND TELEHEALTH

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
10.04	Distributed Communication Closets	6	7.4	44.4		
	Total, Information Management/ Information Technology Services and Telehealth			131.5	Component Area = 158.0 CGSM at 1.20 grossing factor	

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1A.11.1 INPATIENT UNITS: BIRTHING UNIT

This specification outlines the functional, operational, and physical requirements for the Inpatient Units: Birthing Unit component.

1A.11.1.1 FUNCTIONAL DESCRIPTION

1A.11.1.1.1 Statement of Purpose

1A.11.1.1.1(1) The Birthing Unit staff and care providers will deliver medical, nursing, and allied health supportive care to women and babies during labour and birth.

1A.11.1.1.1(2) Family-centred maternity care and the Baby-Friendly Hospital Initiative[1] (BFHI) with an emphasis on education will be overriding principles of programming within the Birthing Unit. Postnatal education will occur while the mother is an inpatient, with further postnatal education will be provided by community-based agencies.

1A.11.1.1.2 Scope of Services

1A.11.1.1.2(1) Functional Content

1A.11.1.1.2(1)(a) The following list specifies the minimum set of functions that must be accommodated within the component:

- 1A.11.1.1.2(1)(a)(i) labour assessment and monitoring;
- 1A.11.1.1.2(1)(a)(ii) vaginal deliveries (c-section deliveries are performed in the Surgical Suite);
- 1A.11.1.1.2(1)(a)(iii) postpartum care (prior to discharge);
- 1A.11.1.1.2(1)(a)(iv) outpatient newborn wellness;
- 1A.11.1.1.2(1)(a)(v) fetal assessment (outpatient service);
- 1A.11.1.1.2(1)(a)(vi) high-risk antepartum inpatient services;
- 1A.11.1.1.2(1)(a)(vii) patient/family education;
- 1A.11.1.1.2(1)(a)(viii) resuscitation, stabilization, and coordination of transport for critically ill newborns and women requiring higher level care;
- 1A.11.1.1.2(1)(a)(ix) short-term newborn inpatient care;
- 1A.11.1.1.2(1)(a)(x) discharge planning with community resources;
- 1A.11.1.1.2(1)(a)(xi) ongoing staff education including use of simulation; and
- 1A.11.1.1.2(1)(a)(xii) administrative activities.

1A.11.1.1.2(1)(b) During pregnancy, various tests, medications, and procedures (including non-stress tests) will be provided on an outpatient basis in the Assessment/Triage Room. As much as possible, these

[1] The Baby-Friendly Hospital Initiative was launched by the WHO and UNICEF in 1991.

diagnostic activities will be scheduled within the Inpatient Units: Birthing Unit to ensure optimal service.

1A.11.1.1.2(1)(c) RNs will develop, execute, and evaluate the comprehensive individualized plan of care for each patient and family.

1A.11.1.1.2(1)(d) Staff of the Special Care Nursery will provide the care required of infants with a gestational age greater than or equal to 32 weeks and 0 days and a birth weight greater than 1500 grams. These neonates may require continuous positive airway pressure (CPAP), either transitional or extended stable CPAP. They may have mechanical ventilation for brief durations (less than 24-hours).

1A.11.1.1.2(1)(e) Other services in the Special Care Nursery include but are not limited to:

1A.11.1.1.2(1)(e)(i) insertion and maintenance of umbilical lines;

1A.11.1.1.2(1)(e)(ii) maintenance of peripherally inserted central catheter (PICC) lines; and

1A.11.1.1.2(1)(e)(iii) peripheral intravenous medications.

1A.11.1.1.2(2) Planning Assumptions

1A.11.1.1.2(2)(a) The Birthing Unit aims to provide a pregnant woman and her partner as normal, comfortable, and positive a birthing experience as possible.

1A.11.1.1.2(2)(b) The LDRP model of service delivery will be implemented and reflects best practice.

1A.11.1.1.2(2)(c) Most routine non-operative birthing procedures will be performed in the LDRPs including forceps/vacuum delivery, epidural anaesthesia, electronic fetal monitoring, and induction/augmentation.

1A.11.1.1.2(2)(d) A woman scheduled to have a caesarean section will be admitted through Surgical Day Care in the *Surgical Services: PSSC/SDC* component. A woman having an unscheduled caesarean section will have been admitted to an LDRP in labour.

1A.11.1.1.2(2)(e) A Special Care Nursery will be planned, designed to be eventually designated as “Level 2B”. Premature babies or those requiring specialized care beyond the resources at the Facility will be transported to the location deemed appropriate by the available Neonatal Transport Team. Level 2 (specialty) special care nurseries can provide care to infants who are moderately ill with problems that are expected to resolve rapidly. These patients are at moderate risk of serious complications related to immaturity, illness, and/or their management. In general, care in this setting shall be limited to newborn infants who are recovering from serious illness treated in a Level 3 (subspecialty) NICU. Level 2 nurseries are differentiated into

two categories, 2A and 2B, on the basis of their ability to provide assisted ventilation.

1A.11.1.1.2(2)(f) Level 2A nurseries do not have the capabilities to provide assisted ventilation except on an interim basis until the infant can be transferred to a higher-level facility. Level 2B nurseries can provide mechanical ventilation for brief durations (less than 24-hours) or continuous positive airway pressure. They must have equipment (e.g., portable chest radiograph, blood gas laboratory) and personnel (e.g., physician, specialized nurses, respiratory therapists, radiology technicians, and laboratory technicians) continuously available to provide ongoing care as well as to address emergencies.

1A.11.1.1.2(2)(g) Staffing for the Special Care Nursery will be “borrowed” from the Birthing Suite staff for the foreseeable future.

1A.11.1.1.2(2)(h) It is important that the environment contribute to the privacy of the patient and her family members.

1A.11.1.1.2(3) Scope of Education Functions

1A.11.1.1.2(3)(a) The Birthing Unit will provide a clinical learning environment for nursing students, medical students, residents, Pharmacy students (pharmacists and pharmacy technicians), orientation for new staff, ongoing education, and students in the various allied health professions (physiotherapy students, dietetic students, laboratory technology students, etc.). Up to three at one time.

1A.11.1.1.2(4) Excluded

1A.11.1.1.2(4)(a) Post-op inpatient women's health surgery (e.g., gynaecology/ urology) will be done in Unit 2 of the *Medical/Surgical Inpatient Unit* component.

1A.11.1.1.2(4)(b) A Women’s Health Clinic, functioning in collaboration with Public Health will be developed by community resources and located in the community.

1A.11.1.1.2(4)(c) All c-sections (emergency and planned) will occur in the *Surgical Services: Surgical Suite* component.

1A.11.1.1.2(4)(d) Colposcopies and terminations will be accommodated in the new Ambulatory Care Centre (ACC).

1A.11.1.1.2(4)(e) Women's health/urology surgical inpatient services, along with breast surgery inpatient services, will be accommodated within the general Medical/Surgical Inpatient Unit closest to the Birthing Unit to create a “women’s zone” of clinical services within the Facility.

1A.11.1.2 OPERATIONAL DESCRIPTION

1A.11.1.2.1 Hours of Operation

1A.11.1.2.1(1) The Birthing Unit will function 24/7.

1A.11.1.2.1(2) Anaesthesia coverage will be provided 24/7 on-call.

1A.11.1.2.2 Organization & Management

1A.11.1.2.2(1) The Inpatient Units: Birthing Unit will function under the Manager shared with the Medical/Surgical Inpatient Unit reporting to the Director of Care. A Clinical Practice Leader will be assigned to the Unit. The Executive Lead of the Northern Health Perinatal Program will serve as a resource to the Manager.

1A.11.1.2.3 Workflow

1A.11.1.2.3(1) ***Patient***

1A.11.1.2.3(1)(a) It is expected that most women will be pre-admitted into the Birthing Unit and some will have attended prenatal classes online or physically (through community resources) and had a virtual tour of the Facility prior to being admitted for delivery and recovery.

1A.11.1.2.3(1)(b) Physicians' offices will send obstetrical records and information to the Birthing Unit at approximately 20 weeks gestation, with an update at 36 weeks.

1A.11.1.2.3(1)(c) A woman in advanced labour will by-pass Patient Registration in the *Main Entry Facilities* and proceed directly to the Birthing Unit when the main entrance is open. After 2000 hours when the main entrance is closed, a woman in labour will enter through the *Emergency Services (ES)* walk-in entrance and by-pass triage and registration and proceed directly to the Birthing Unit.

1A.11.1.2.3(1)(d) The patient chart will be held in triage in the Birthing Unit until after the after baby is born.

1A.11.1.2.3(1)(e) All potential-for-admission pregnant women will be assessed in the Assessment/Triage Room. Based on these assessments, a decision will be made to admit, transfer, or discharge the patient. Patients who cannot return home (geographical or climatic reasons) will stay in the Assessment/Triage Room or will be admitted to an inpatient bed or will be invited to move freely around the Facility until it is time to be admitted to one of the LDRPs.

1A.11.1.2.3(1)(f) Following delivery, initial assessment of the newborn will occur in the LDRP. As required, further resuscitation and advanced neonatal care will occur in the nursery while awaiting possible transfer to a facility providing a higher level of care.

1A.11.1.2.3(1)(g) Of significant importance to a successful discharge is mother and partner education. Prior to discharge, nursing staff will provide expert support for infant feeding, infant care, and maternal assessment and care.

1A.11.1.2.3(1)(h) All pregnant women who present to ES will be triaged, assessed, and treated as needed by their gestational age. Usually patients greater than 22 weeks gestation who present to ES will be sent to the Birthing Unit for assessment, including non-stress tests (NSTs). If the woman is over 20 weeks gestation, her physician will be notified.

1A.11.1.2.3(1)(i) With respect to the Special Care Nursery, when and if formal Level 2B designation is granted, admission and discharge criteria will be established. The MRP will likely be one of the paediatricians on-call.

1A.11.1.2.3(2) *Family*

1A.11.1.2.3(2)(a) Fathers or other birthing partners will change in the washrooms provided within the Unit.

1A.11.1.2.3(2)(b) No meals or nourishments will be provided to birthing partners within the Birthing Unit.

1A.11.1.2.3(3) *Staff*

1A.11.1.2.3(3)(a) Though the requirement for portable ultrasound is not expected to increase it is anticipated that physicians delivering maternity care will be trained to conduct and interpret portable ultrasounds.

1A.11.1.2.3(3)(b) Laboratory staff will be available to the Birthing Unit to draw peripheral blood specimens, as required. Other specimens will be collected by Unit nursing staff. Blood gas specimens, including cord gases, will be drawn by medical staff.

1A.11.1.2.3(3)(c) When a neonate is being mechanically vented awaiting transport, Respiratory Therapy services will be provided, as necessary.

1A.11.1.2.3(3)(d) Food Services staff will be responsible for stocking the Birthing Unit with beverages and therapeutic nourishments (evening snack) – according to Unit Stock Policy – which are delivered to patients by Unit staff.

1A.11.1.2.3(3)(e) Those mothers who have been discharged while their baby remains in the Special Care Nursery will pump and store expressed milk (properly identified) in a separate, secure refrigerator within the Nursery Medication Preparation Room.

1A.11.1.2.3(3)(f) Obstetrical nursing staff will be provided with surgical “greens” and will change in space provided within the Birthing Unit.

1A.11.1.2.3(4) *Medication*

1A.11.1.2.3(4)(a) The Pharmacy will prepare a “box” of medication for use in each LDRP during delivery, stored securely.

1A.11.1.2.3(4)(b) Self-administered drugs will be stored in a locked drawer in the patient's LDRP or postpartum room. The patient will record her input of these drugs.

1A.11.1.2.4 Support Activities

1A.11.1.2.4(1) *Supplies*

1A.11.1.2.4(1)(a) Sterile instruments will be prepared by MDR and supplied to the Birthing Unit as needed.

1A.11.1.2.4(1)(b) Items for reprocessing will be rinsed and made safe for transport by nursing staff and stored in the Soiled Utility Room until collection and delivery by Materiel Management (MM) staff to MDR.

1A.11.1.2.4(1)(c) MM will supply disposable delivery packs.

1A.11.1.2.4(1)(d) Pre-filled formalin containers will be supplied to the Birthing Unit by MM staff.

1A.11.1.2.4(1)(e) Housekeeping staff will clean the infant bassinettes and other specialized equipment as necessary.

1A.11.1.3 STAFFING

1A.11.1.3.1 Estimated future staffing for this component is summarized below in terms Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

Position	Days Head Count	Days Occupancy	Nights Head Count
Total	7		4
Weekdays	0		0
Manager[1]	1	-	0
Registered Nurses: Birthing	3	Workstation	3
Clinical Practice Leader	1	Private Office	0
Clerk	1	Workstation	0
Housekeeping Staff	1	-	1

Notes:

1. The Manager is shared with the Medical/Surgical Inpatient Unit and accounted for in that staffing model.

- Source: Authority Decision Support/Finance Department.
- RPG in consultation with Facility staff.
- Clerical functions are shared at present with the Medical/Surgical Inpatient Unit.

1A.11.1.4 DESIGN CRITERIA

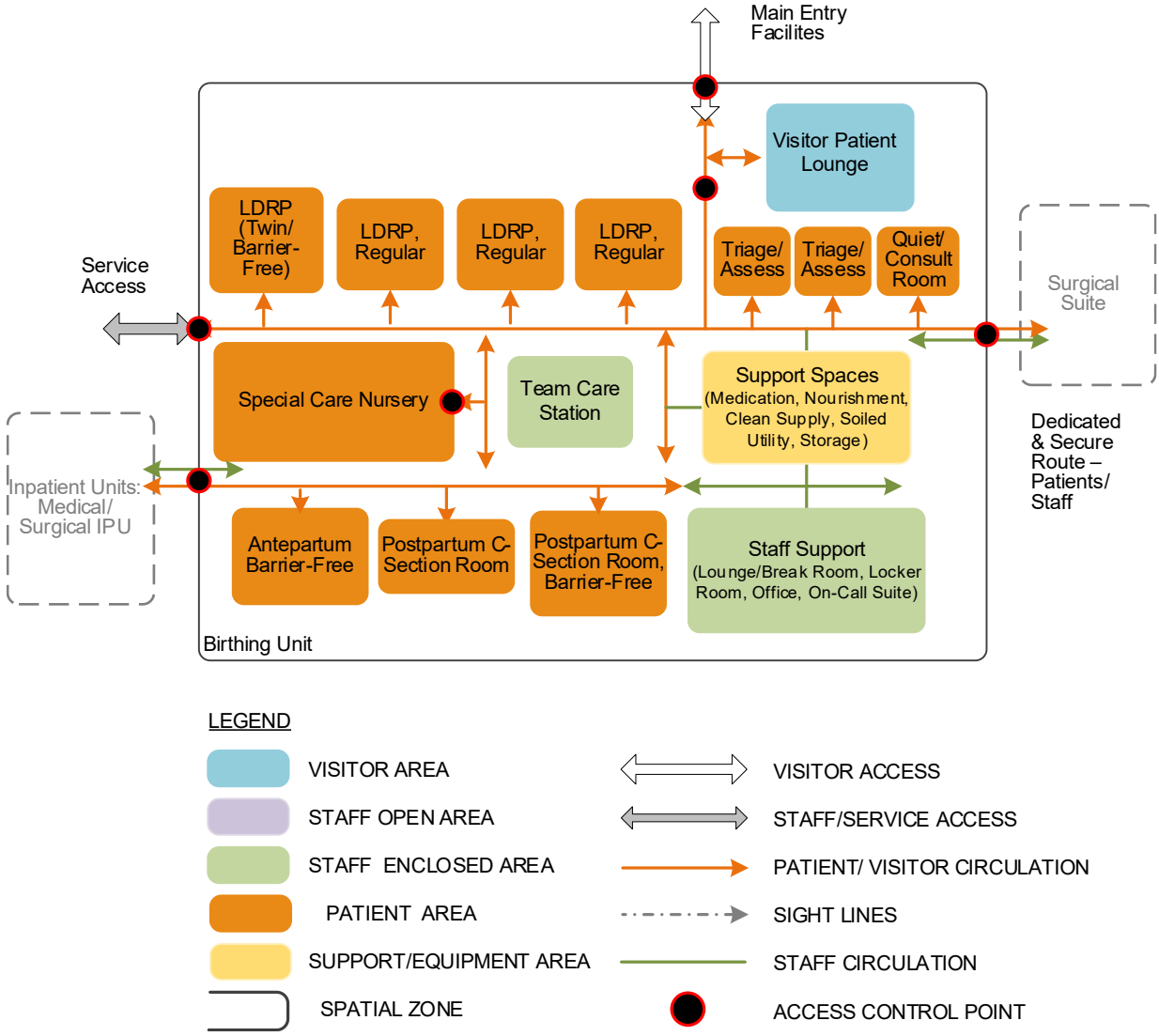
1A.11.1.4.1 External Relationships

1A.11.1.4.1(1) The following key external relationships for Inpatient Units: Birthing Unit will be achieved in the priority order as numbered for the purposes stated:

1	**Surgical Suite**	Provide direct access via non-public circulation to/ from the Surgical Suite for the safe transfer of patients requiring an unscheduled c-section.
2	**Medical/Surgical Inpatient Units**	Provide direct access via internal circulation to/from Medical/Surgical Inpatient Units to facilitate staff support/coverage for surge capacity shall all LDRP's and postpartum beds be filled.
3	**Main Entry Facilites**	Provide convenient access via general circulation to/ from Main Entry Facilities for the movement of women in labour.

1A.11.1.4.2 Functional Relationship Diagram

1A.11.1.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.11.1.4.3 Internal Design Criteria

1A.11.1.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.11.1.4.3(2) The Birthing Unit, including the Special Care Nursery, will have restricted access 24-hours.

1A.11.1.4.3(3) Following is a room-by -room list of spaces for Inpatient Units: Birthing Unit showing:

1A.11.1.4.3(3)(a) Intent of Space; and

1A.11.1.4.3(3)(b) Specific Design Features.

1A.11.1.5 SCHEDULE OF ACCOMMODATION

1A.11.1.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

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1A.11.1 INPATIENT UNITS: BIRTHING UNIT

Ref		Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
		Birthing Zone					
11.1.01.		Team Care Station	1		28.1		1. Position to provide easy access to all LDRPs, Postpartum and Antepartum patient rooms 2. Provide backing board for monitor and power and communications connections
	01	*workstation, clerical*	*1*	*4.6*			
	02	*workstation, staff*	*5*	*2.8*			
	03	*charts & associated storage*	*1*	*3.7*			
	04	*reference library shelving*	*1*	*1.9*			
	05	*supplies & office-type equipment*	*1*	*1.9*			
	06	*congregation space*	*2*	*1.0*			
11.1.02		Alcove, Computer Charting	7	1.8	12.6		1. Locate at each LDRPs, Postpartum and Antepartum patient room.
11.1.03.		Staff Lounge/Break Room	1		19.1		1. Location to ensure privacy for staff
	01	*soft seats*	*4*	*2.0*			
	02	*table area*	*1*	*7.4*			
	03	*kitchenette*	*1*	*3.7*			1. Includes HHS with 1200 mm millwork counter and lockable storage
11.1.04.		Staff Locker Room	1		18.9		1. Location to ensure privacy for staff
	01	*privacy vestibule*	*1*	*4.6*			
	02	*lockers*	*1*	*6.0*			
	03	*boot storage area*	*1*	*0.9*			
	04	*private change cubicles*	*2*	*1.4*			
	05	*washroom*	*1*	*4.6*			1. 3 pc
11.1.05		Office, Clinical Practice Leader	1	9.3	9.3		

1A.11.1 INPATIENT UNITS: BIRTHING UNIT

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
11.1.06	Washroom, Staff	1	4.6	4.6		1. 2 pc washroom 2. Provide enclosed shelf @1.0 lin. mm above/behind toilet 3. Non-gendered
11.1.07	Medications Preparation Room	1	9.5	9.5		1. Provide HHS ~~(deep enough to pour IV solutions with medication), millwork counter for med preparation~~ 2. Provide space for 1 med cart with charging station 3. Provide eyewash station 4. Provide secure door with glazing, door that opens into room 5. Provide utility sink in millwork counter w/enclosed lockable storage above
11.1.08	Nourishment Station	1	4.9	4.9	For patient nourishment	1. Provide staff only access 2. Provide 2400 lin mm upper and lower millwork that includes a double sink, HHS and lockable storage
11.1.41	Alcove, Water/Ice Machine	1		1.2	For patients and family	
11.1.09	Clean Supplies Room	1		11.0		
11.1.42	Alcove, POCT/Microscope	1		4.6		1. Locate adjacent to Soiled Utility Room 2. Provide millwork counter space with power and data for use of microscopes and POCT
11.1.10	Soiled Utility Room	1		12.0		
11.1.11	Alcove, Storage, Pre-filled Formalin	1	1.4	1.4		1. Locate alcove within Soiled Utility Room 2. Provide space to store 8 X 4L containers and 6 X 2L containers
11.1.13	Storage Room, Equipment	1	13.9	13.9		
11.1.14	Housekeeping Closet, Distributed	1		7.0		1. See *Housekeeping and Laundry Services* component
11.1.15	Alcove, Wheelchair Storage	1		2.0		

1A.11.1 INPATIENT UNITS: BIRTHING UNIT

Ref		Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
11.1.16		Alcove, Stretcher Storage	1		2.3		
11.1.17		Quiet/Consult Room	1		13.8		
11.1.18.		Visitor/Patient Lounge	1		27.0		1. Locate outside of the secure area
	01	*seats*	*13*	*2.0*			
	02	*television*	*1*	*1.0*			
11.1.25		Washroom, Patient	1	4.6	4.6	~~For Early Labour Lounge~~	1. 2 pc 2. Non-gendered 3. To be accessible to patients and families who have access to the Visitor/Patient Lounge Ref No 11.1.18
11.1.19.		Postpartum C-Section	1		27.0	Will be used for LDRP surge capacity	1. Configuration and environmental standards will match those of a LDRP room 2. Provide HHS 3. Provide two sets of medical gases (air, oxygen, suction and Entonox) 4. Provide lockable drawer for patient self-administered medication and a locked cupboard for the medication "Box' 5. Provide infrastructure for ceiling mounted patient lift
	01	*bed area*	*1*	*21.4*			1. Provide nurse call at bedside and code button
	02	*washroom*	*1*	*5.6*			1. 3 pc with shower with hand held nozzle 2. Provide nurse call in washroom/shower 3. Provide Entonox in washroom/shower
11.1.20.		Postpartum C-Section, Barrier Free	1		41.2	Will be used for LDRP surge capacity	1. Configuration and environmental standards will match those of a LDRP room 2. Provide HHS 3. Provide two sets of medical gases (oxygen, air, suction and Entonox)

1A.11.1 INPATIENT UNITS: BIRTHING UNIT

Ref		Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
							4. Provide lockable drawer for patient self-administered medication and a locked cupboard for the medication "Box' 5. Provide infrastructure for ceiling mounted bariatric patient lift
	01	*bed area*	*1*	*33.5*			1. Provide nurse call at bedside and code button
	02	*washroom*	*1*	*7.7*			1. 3 pc with shower with handheld nozzle 2. Provide nurse call in washroom/shower 3. Provide Entonox in washroom/shower
11.1.21.		Antepartum, Barrier Free	1		41.2	Will be used for LDRP surge capacity	1. Configuration and environmental standards will match those of a LDRP room 2. Provide HHS 3. Provide two sets of medical gases (oxygen, air, suction and Entonox) 4. Provide lockable drawer for patient self-administered medication and a locked cupboard for the medication "Box' 5. Provide infrastructure for ceiling mounted bariatric patient lift
	01	*bed area*	*1*	*33.5*			1. Provide nurse call at bedside and code button
	02	*washroom*	*1*	*7.7*			1. 3 pc with shower with handheld nozzle 2. Provide nurse call in washroom/shower 3. Provide Entonox in washroom/shower
11.1.22		Triage/Assessment Room	2	13.9	27.8		1. Locate in close proximity to LDRP rooms 2. Provide HHS 3. Provide medical gases (oxygen, air, suction and Entonox) 4. Provide nurse call at delivery bed 5. Provide millwork counter space with power for microscope in one room

1A.11.1 INPATIENT UNITS: BIRTHING UNIT

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
11.1.23	Washroom, Patient	1	4.6	4.6	For Triage Assessment Room	1. 2 pc 2. Non-gendered
~~11.1.24.~~	~~Early Labour Lounge~~	~~0~~		~~0.0~~		1. Intentionally deleted
~~*01*~~	~~*reclining chair*~~	~~*1*~~	~~*3.0*~~			~~1. Provide nurse call~~
~~*02*~~	~~*regular chairs*~~	~~*2*~~	~~*2.3*~~			~~1. Provide nurse call~~
~~*03*~~	~~*television area*~~	~~*1*~~	~~*1.0*~~			
11.1.26.	LDRP, Regular	3		121.5		1. Provide HHS 2. Provide access to Entonox as well as oxygen, suction, and air for the mother 3. Provide a second set of oxygen, suction and air will be provided for baby 4. Provide nurse call at bedside 5. Provide lockable drawer for patient self-administered medication and a locked cupboard for the Medication "Box' 6. Provide enclosed, lockable storage for delivery equipment (monitor, delivery table, infant warmer) when not in use 7. Provide infrastructure for ceiling mounted patient lift
01	*bed area*	3	*33.5*			
02	*washroom*	3	*7.0*			1. Provide shower and tub with handheld shower nozzle 2. Provide nurse call in washroom/shower 3. Provide Entonox in washroom/shower

1A.11.1 INPATIENT UNITS: BIRTHING UNIT

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
11.1.27.	LDRP, Twin, Barrier Free	1		52.1	This room and associated washroom will be used for water births.	1. Locate closest to Special Care Nursery 2. Provide HHS 3. Provide access to Entonox as well as oxygen, suction, and air for the mother 4. Provide 2 sets of medical gases (oxygen, air and suction) in the event of twin babies 5. Provide nurse call at bedside 6. Provide lockable drawer for patient self-administered medication and a locked cupboard for the medication "Box' 7. Provide enclosed, lockable storage for delivery equipment (monitor, delivery table, infant warmer) when not in use 8. Provide infrastructure for ceiling mounted bariatric patient lift
01	*bed area*	1	*40.9*			
02	*washroom*	1	*11.2*		Water births and barrier free	1. Provide shower and tub with handheld shower nozzle 2. Provide nurse call in washroom/shower 3. Provide Entonox in washroom/shower
11.1.28.	On-Call Suite	1		10.6		
01	*bed area*	*1*	*6.0*			1. Location of the Bed Area must allow for sound isolated
02	*washroom*	*1*	*4.6*			1. 3 pc
11.1.29	Alcove, Food Trays Storage	1	4.6	4.6		
11.1.30	Storage Room	1	7.4	7.4		
	Subtotal, Birthing Zone			545.8		

1A.11.1 INPATIENT UNITS: BIRTHING UNIT

Ref		Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
		Special Care Nursery					1. Must be accessible from LDRPs, postpartum rooms 2. Infant Spaces must be in direct view of the Team Care Station 3. Team Care Station must be in view of entry to Nursery or a camera/buzzer must be provided. 4. A portable x-ray machine will be used in this area
11.1.31.		Team Care Station	1		10.9		
	01	*workstation*	*2*	*3.6*			1. Provide access to Special Care Nursery doors from this location
	02	*charts & associated storage*	*1*	*3.7*			
11.1.32		Infant Space, Regular Size	2	4.5	9.0		1. Provide medical gases (2 oxygen,2 air and 1 suction) 2. Provide nurse call at bedside 3. Provide 8 electrical outlets 4. Provide movable partitions to separate spaces
11.1.33		Infant Space, Large Size	2	7.4	14.8		1. Provide medical gases (2 oxygen,2 air and 1 suction) 2. Provide nurse call at bedside 3. Provide 8 electrical outlets 4. Provide movable partitions to separate spaces
11.1.34		Exam/Treatment Room	1	13.0	13.0		1. Provide medical gases (oxygen, air and suction) 2. Provide nurse call
11.1.35		HHS	2	0.9	1.8		
11.1.36		Alcove, Clean Supplies	1	2.5	2.5		
11.1.37		Alcove, Soiled Utility	1	2.5	2.5		

1A.11.1 INPATIENT UNITS: BIRTHING UNIT

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
11.1.38	Medication Preparation Room	1	5.6	5.6	No ADC.	1. Provide HHS ~~(deep enough to pour IV solutions with medication), millwork counter for med preparation~~ 2. Provide space for 1 med cart with charging station 3. Provide eyewash station 4. Provide secure door with glazing, door that opens into room 5. Configure to support addition of an ADC in the future 6. Provide utility sink in millwork counter w/enclosed lockable storage above
11.1.39	Storage Room, Incubators & Other Equipment	1	9.3	9.3		
11.1.40	Alcove, Crash Cart, Neonatal	1	1.4	1.4		1. Locate adjacent to Infant Spaces
	Subtotal, Special Care Nursery			70.8		
	Total, Birthing Unit			616.6	Component Area = 819.0 CGSM at 1.50 grossing factor Birthing Zone Component Area = 113.0 CGSM at 1.60 grossing factor Special Care Nursery	

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1A.11.2 INPATIENT UNITS: MEDICAL/SURGICAL IPU

This specification outlines the functional, operational, and physical requirements for the Inpatient Units: Medical/Surgical IPU (M/S IPU) component.

1A.11.2.1 FUNCTIONAL DESCRIPTION

1A.11.2.1.1 Statement of Purpose

1A.11.2.1.1(1) Acute care will be based on a holistic care philosophy focusing on patient and family. The multidisciplinary team may include physiotherapist and occupational therapist, clinical dietitian, diabetes educator, spiritual care, social worker, indigenous patient liaison, pharmacist, and support services staff, in addition to medical and nursing staff, and Home & Community Care representation.

1A.11.2.1.2 Scope of Services

1A.11.2.1.2(1) Functional Content

1A.11.2.1.2(1)(a) The following list specifies the minimum set of functions that must be accommodated within the component:

- 1A.11.2.1.2(1)(a)(i) post-surgical care;
- 1A.11.2.1.2(1)(a)(ii) providing therapeutic interventions by the multidisciplinary team to manage medical conditions;
- 1A.11.2.1.2(1)(a)(iii) chronic disease management;
- 1A.11.2.1.2(1)(a)(iv) ordering and interpreting diagnostic procedures and tests;
- 1A.11.2.1.2(1)(a)(v) medications administration – encompassing IV, patient-controlled analgesia (PCA), transfusions, epidural infusions;
- 1A.11.2.1.2(1)(a)(vi) wound therapy;
- 1A.11.2.1.2(1)(a)(vii) assessing and attending to the physical, emotional, educational, and spiritual needs of patients and their families or significant others;
- 1A.11.2.1.2(1)(a)(viii) health teaching;
- 1A.11.2.1.2(1)(a)(ix) in cooperation with Home & Community Care, planning and education for discharge – including linking to Outpatient Services and community resources for follow-up to ensure the best health outcomes; and
- 1A.11.2.1.2(1)(a)(x) evaluating the delivery of services.

1A.11.2.1.2(1)(b) RNs and LPNs will develop, execute, and evaluate the comprehensive individualized plan of care for each patient and family.

1A.11.2.1.2(1)(c) Palliative care services will be provided by a multidisciplinary team consisting of physicians, nurses, religious/spiritual leaders, and others, as required. An assessment of patient and family needs will be made and a suitable plan to address those needs will be initiated on admission and as patient symptoms evolve. Interventions that are only available in an acute setting will be provided within the IPUs whereas palliative care provided within Terraceview Lodge will have a much lesser medical focus. Families will play a large part in the day-to-day care of their loved ones in palliative care programming.

1A.11.2.1.2(1)(d) A volunteer Hospice program and Home & Community Care support will be available for those who wish to avoid a hospital admission. Three palliative care beds exist in the residential care program which will be accessible to those with palliative designation in acute care.

1A.11.2.1.2(2) Planning Assumptions

1A.11.2.1.2(2)(a) The following planning principles will drive the design and operations of the M/S IPU:

1A.11.2.1.2(2)(a)(i) The mix of patient types will include:

1A.11.2.1.2(2)(a)(i)A adult medicine and general surgery patients;

1A.11.2.1.2(2)(a)(i)B paediatric medicine and general surgery patients;

1A.11.2.1.2(2)(a)(i)C adult psychiatry patients with medical issues;

1A.11.2.1.2(2)(a)(i)D patients undergoing detoxification;

1A.11.2.1.2(2)(a)(i)E paediatric psychiatry patients (because the Psychiatry Unit does not admit children or adolescents);

1A.11.2.1.2(2)(a)(i)F palliative patients;

1A.11.2.1.2(2)(a)(i)G orthopaedic surgery patients;

1A.11.2.1.2(2)(a)(i)H gynaecology and other female surgery patients;

1A.11.2.1.2(2)(a)(i)I convalescent/rehabilitation patients;

1A.11.2.1.2(2)(a)(i)J psychogeriatric patients;

1A.11.2.1.2(2)(a)(i)K patients undergoing geriatric assessment; and

1A.11.2.1.2(2)(a)(i)L ALC patients.

1A.11.2.1.2(2)(b) Unit No. 1 will have designated Secure Rooms to be used as needed, to accommodate adolescent psychiatry patients and adult psychiatry patients requiring medical care who cannot be safely cared for in the general patient population.

1A.11.2.1.2(2)(c) In Unit No. 2, the Step-Down/High Acuity Unit will be a suite of beds. Physiological monitoring of these three patients will occur at the ICU

nurse station as well as at the M/S Team Care Station. Telemetry service within both M/S IPUs will also be provided.

1A.11.2.1.2(2)(d) Specific patient populations will be cohorted in both Units, as appropriate: where possible, patients with similar needs will be physically grouped for care to be more focused.

1A.11.2.1.2(2)(e) Unit No. 1 will be more focused on medicine and medicine-type patients including general medicine patients, patients on telemetry, ALC patients, convalescent/rehabilitation patients, and psychiatry patients with medical conditions. Unit No. 2 will accommodate the remainder of the medicine population and will focus on surgical patients, including five orthopaedic patients. Unit No. 2 will be adjacent to the Birthing Unit with two rooms informally allocated to gynaecology and other female surgery, thus physically consolidating female care programming and providing for surge capacity in obstetrics.

1A.11.2.1.2(2)(f) Beds will not be blocked for specific services to ensure maximum flexibility of use.

1A.11.2.1.2(2)(g) Rehabilitation programming will be increased, reflecting the population of those having had orthopaedic surgeries as well as those having had a stroke. *Rehabilitation Services* will be accessible from the M/S IPUs.

1A.11.2.1.2(3) Scope of Education Functions

1A.11.2.1.2(3)(a) The M/S IPU will provide a clinical learning environment for nursing students, medical students and residents, new staff – for orientation, pharmacy students (pharmacists and pharmacy technicians), ongoing education for all staff working in this area, social work students, and students in the various allied health professions (physiotherapy students, dietetic students, laboratory technology students, etc.).

1A.11.2.1.2(4) Excluded

1A.11.2.1.2(4)(a) Adults requiring procedures will be transported to the Ambulatory Care Centre (ACC) during weekday hours if the procedure is deemed inappropriate to occur in the patient bedroom.

1A.11.2.1.2(4)(b) No haemodialysis will be performed within the M/S IPU.

1A.11.2.2 OPERATIONAL DESCRIPTION

1A.11.2.2.1 Hours of Operation

N.1.11.2.2.1(1) The M/S IPU will function 24/7.

1A.11.2.2.2 Organization & Management

N.1.11.2.2.2(1) The M/S IPU will be managed by the Manager, Acute Care, shared with the Birthing Unit, reporting to the Director of Care. The Manager will work weekdays from 0700 to 1500.

N.1.11.2.2.2(2) There will be Patient Care Coordinators (PCCs) present 24/7 focusing on discharge planning and evening educational events for nursing staff. Two PCCs will workdays and one will work evenings and nights.

1A.11.2.2.3 Workflow

1A.11.2.2.3(1) *Medicine Patients*

1A.11.2.2.3(1)(a) While most medicine patients will be admitted through Emergency Services (ES), there will also be some direct admissions from family physicians and transfers from other hospitals. A patient admitted from ES will have registration as an inpatient completed and a bed assigned by the Patient Care Coordinator while in ES.

1A.11.2.2.3(1)(b) Patients coming from another facility or from a physician's office directly will have a bed assigned by the Patient Care Coordinator. The patient will be escorted by a porter to the assigned room on the Unit. Registration of such a patient will occur on the Unit for the convenience of the patient, if feasible. Otherwise, a family member will represent the patient at Patient Registration.

1A.11.2.2.3(1)(c) Discharge planning starts at the time of admission as is a critical component of the care planning in partnership with Home & Community Care.

1A.11.2.2.3(1)(d) Screening criteria have been developed for provision of palliative care services as part of the Palliative Care Program in the community.

1A.11.2.2.3(2) *Surgical Patients*

1A.11.2.2.3(2)(a) Most scheduled surgical patients will be admitted through *Surgical Services: PSSC/Surgical Day Care* and will be transported from the *Surgical Services: Surgical Suite* PACU following their procedures to their assigned inpatient bed within the Unit. Unplanned or emergent patients will come through ES or be transferred in from another facility by BC Ambulance Service (BCAS).

1A.11.2.2.3(3) *Patients*

1A.11.2.2.3(3)(a) Patients will be transported to/from Medical Imaging for x-rays by porters. Portable x-ray equipment will be available. Portering will be available for six hours on weekdays. Ideally, additional resources would be added to portering, bringing the resource up to eight hours daily.

1A.11.2.2.3(4) *Staff*

1A.11.2.2.3(4)(a) Laboratory staff will be available to the M/S IPU to draw peripheral blood specimens, as required. Other specimens will be collected by Unit nursing staff. Arterial blood gas specimens will be drawn by Respiratory Therapy (RT) staff during their working hours or by certified nursing staff at other times. Laboratory staff will perform ECGs on the Unit. Nurses will perform ECGs in stat situations.

1A.11.2.2.3(4)(b) In addition to doing arterial blood gas specimens, the RT will provide support on the Inpatient Units in the form of home O_2 assessments, trach care, code response, and other basic RT functions.

1A.11.2.2.3(4)(c) Therapies (PT and OT11.2 Medi/Suri) will be provided to inpatients on the Unit though some patients will be transported to the *Rehabilitation Services* component for PT and OT, as appropriate. SLP will focus on swallowing assessments in collaboration with the clinical dietitians.

1A.11.2.2.3(4)(d) During daytime hours, Health Information Management staff will retrieve paper patient records upon request. After hours, the Patient Care Coordinator or another nurse or Unit Clerk will retrieve paper records. Paper records will be stored at the Team Care Station until such time that the electronic medical record is fully implemented.

1A.11.2.2.4 Support Activities

1A.11.2.2.4(1) *Medications*

1A.11.2.2.4(1)(a) Medication distribution system will utilize an ADC.

1A.11.2.2.4(1)(b) Physician ordering will be online. This document assumes a paper-based system with the ability to convert to computerized physician order entry (CPOE) when it is ready to be implemented.

1A.11.2.2.4(2) *Supplies*

1A.11.2.2.4(2)(a) For the majority of patients, Food Services (FS) staff will provide a room service style meal delivery with individualized tray service for all meals utilizing cambro-like carts with a bulk food system. The FS worker will offer the patient options based on diet, then assemble the tray outside the patient's door based on preferences. For patients who are unable to make decisions, a pre-assembled tray will be utilized in a just-in-time manner from the servery located between the Units.

1A.11.2.2.4(2)(b) FS staff will be responsible for stocking the IPUs with beverages and therapeutic nourishments (afternoon and evening snacks) delivered to patients by Unit staff according to Ward Stock Policy.

1A.11.2.2.4(2)(c) Nutritional supplements will be provided to patients, as required, supplied by FS, and stored in each Unit's Nourishment Station.

1A.11.2.3 STAFFING

1A.11.2.3.1 Estimated future staffing for this component is summarized below in terms Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

Position	Days Head Count	Days Occupancy	Nights Head Count
Total	22		14
Weekdays	0		0
Patient Care Manager (PCM)	1	Shared Office	0
RNs	6	Workstation	6
LPNs	6	Workstation	4
RN: Step-Down Unit	1	Workstation	1
Nursing Unit Clerk (NUC)	2	Workstation	2
Clinical Nurse Educators (CNE)	2	Shared Office	0
Porter	2	-	0
Patient Care Coordinator (PCC)	2	Shared Office	1

Notes:

- Source: Authority Decision Support/Finance Department.
- RPG in consultation with Facility staff.

1A.11.2.4 DESIGN CRITERIA

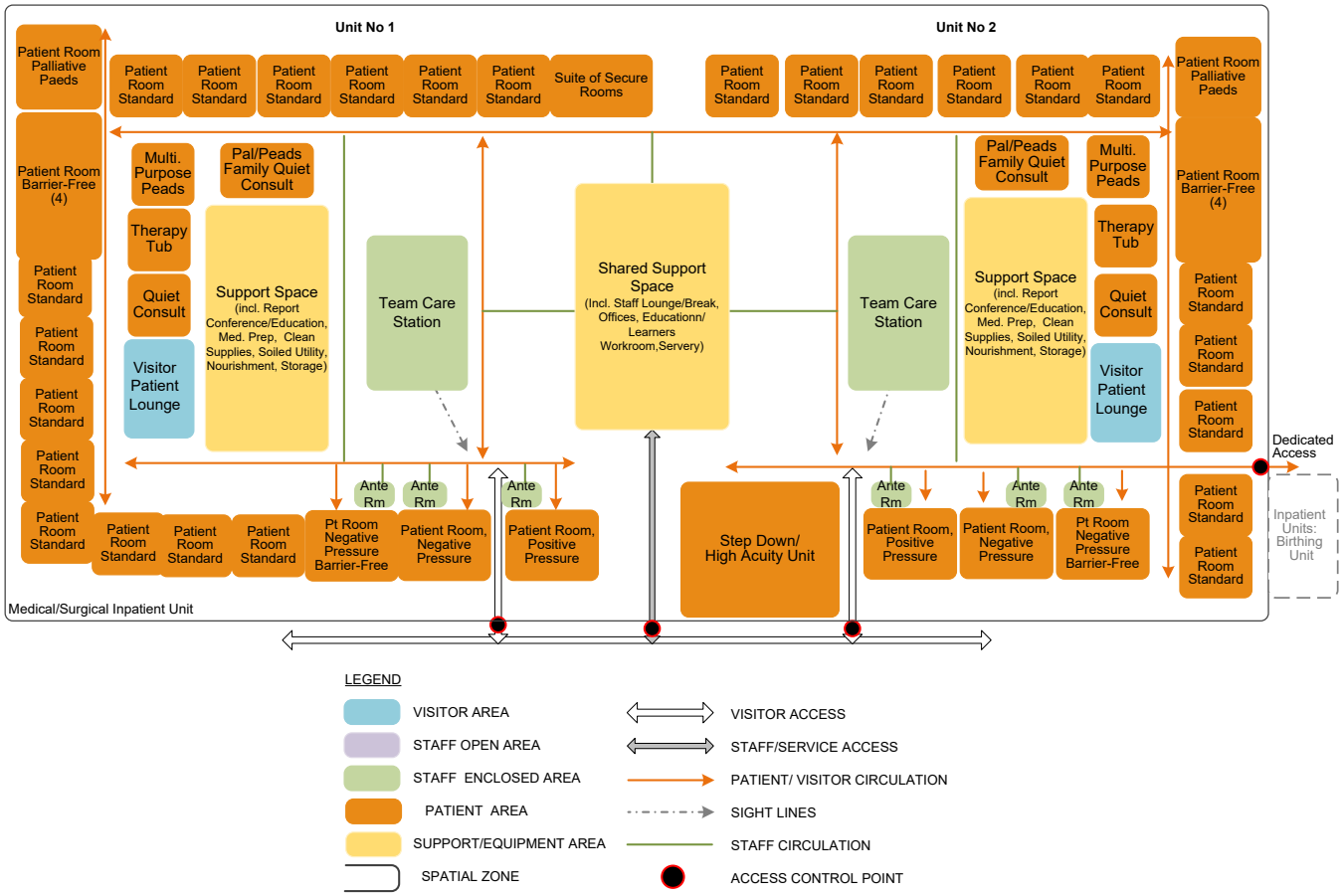
1A.11.2.4.1 External Relationships

1A.11.2.4.1(1) The following key external relationships for Inpatient Units: M/S IPU will be achieved in the priority order as numbered for the purposes stated:

1	**Birthing Unit (to/from Unit 2)**	Provide direct access via internal circulation to/from Unit No 2. to the Birthing Unit for the movement of gynaecology patients and staff.
2	**Surgical Suite**	Provide direct access via dedicated circulation to/ from the Surgical Suite for the movement of patients and staff.
3	**Rehabilitation Services**	Provide convenient access via general circulation to/ from Rehabilitation Services for the movement of patients and staff.

1A.11.2.4.2 Functional Relationship Diagram

1A.11.2.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.11.2.4.3 Internal Design Criteria

1A.11.2.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.11.2.4.3(2) A *Wander Guard* type system will be utilized. The system will monitor all perimeter doors and will be zoned by Unit in groups of up to 12 beds.

1A.11.2.4.3(3) The Standard and Barrier-Free Patient Rooms with video surveillance shall not be located near the Team Care Station, nor located in corner rooms farthest from the Team Care Station.

1A.11.2.4.3(4) Following is a room-by -room list of spaces for Inpatient Units: M/S IPU showing:

1A.11.2.4.3(4)(a) Intent of Space; and

1A.11.2.4.3(4)(b) Specific Design Features.

1A.11.2.5 SCHEDULE OF ACCOMMODATION

1A.11.2.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.11.2 INPATIENT UNITS: MEDICAL/SURGICAL IPU

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Unit No. 1: 22 beds					
11.2.01.	Team Care Station	1		35.0		1. Provide security glazing. Glazing must not impact human interaction 2. The Team Care Station will be the control point of the entry to the M/S IPU 3. Will be central location for telemetry monitoring 4. Provide backing board for monitor and power & communications connections
01	*workstation, clerical*	*1*	*4.6*			
02	*workstations: sitting*	*4*	*2.8*			
03	*workstations: standing*	*4*	*1.8*			
04	*charts & associated storage*	*1*	*4.6*			
05	*reference library shelving*	*1*	*1.9*			
06	*supplies & office-type equipment*	*1*	*1.9*			
07	*congregation space*	*4*	*0.9*			
11.2.02	Alcove, Computer Charting	11	1.8	19.8		1. Locate 1 between 2 Patient Rooms
11.2.03	Alcove, Staff Purse Lockers	1		3.0		
11.2.04.	Report/Conference/Education Room	1		21.5		1. Provide line of sight to the Team Care Station
01	*seats*	*10*	*2.0*			
02	*videoconferencing equipment*	*1*	*1.5*			
11.2.05	Workstation, Patient Care Coordinator	1		4.6		

1A.11.2 INPATIENT UNITS: MEDICAL/SURGICAL IPU

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
11.2.06	Washroom, Staff	1		4.6		1. 2 pc 2. Provide enclosed shelf @1.0 lin. mm above/behind toilet 3. Non-gendered
11.2.07	Washroom, Visitor	1		4.6		1. 2 pc 2. Non-gendered
11.2.08	Medications Preparation Room	2	11.3	22.6		1. Provide HHS and adjacent counter for med preparation 2. Provide space for 2 medication carts 3. Provide eyewash station 4. Provide hazardous waste storage 5. Provide secure door with glazing, door opens into room
11.2.09	Nourishment Station	1		4.9	For patient nourishment	1. Provide staff only access 2. Provide 2400 lin mm upper and lower millwork that includes a double sink, HHS and lockable storage
11.2.77	Alcove, Water/Ice Machine	1		1.2	For patients and family	
11.2.10	Clean Supplies Room	1		11.0		
11.2.11	Soiled Utility Room	1		12.0		1. Provide macerator/tornado 2. Provide separate storage of hazardous and non-hazardous drug waste
11.2.12	Alcove, Equipment/ECG	2	1.4	2.8		
11.2.13	Storage Room, Equipment	1		17.0		
11.2.14	Housekeeping Closet, Distributed	1		7.0		1. See *Housekeeping and Laundry Services* component

1A.11.2 INPATIENT UNITS: MEDICAL/SURGICAL IPU

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
11.2.15	Soiled Trays Holding Closet	1		2.3		
11.2.16	Alcove, Wheelchair Storage	1		6.3	Space for 7 wheelchairs	
11.2.17	Alcove, Stretcher Storage	1		2.3	Space for 1 stretcher	
11.2.18	Quiet/Consult Room	1		12.0		
11.2.19.	Visitor/Patient Lounge	1		34.2		
01	*seats*	*8*	*2.3*			
02	*table area*	*2*	*7.4*		Patient Dining	1. Provide 2 sets of medical gases (oxygen, air and suction)
03	*television*	*1*	*1.0*			
11.2.20.	Patient Room, Standard	14		378.0		1. Provide HHS 2. Provide medical gases (oxygen, air and suction) 3. Provide infrastructure for ceiling mounted patient lift from bed to toilet and shower
01	*vestibule zone*	*14*	*5.0*			
02	*bed area*	*14*	*16.4*			1. Provide nurse call and code blue 2. Provide a wall-mounted waterless hand disinfectant dispenser
03	*washroom*	*14*	*5.6*			1. Provide nurse call and HHS 2. 3 pc 3. Provide hand-held shower nozzle

1A.11.2 INPATIENT UNITS: MEDICAL/SURGICAL IPU

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
11.2.21.	Patient Room, Barrier-Free	4		136.8		1. Provide HHS 2. Provide two sets of medical gases (oxygen, air and suction) 3. Provide infrastructure for ceiling mounted bariatric patient lift
01	*vestibule zone*	*4*	*5.0*			
02	*bed area*	*4*	*21.5*			1. Provide nurse call and code blue 2. Provide a wall-mounted waterless hand disinfectant dispenser
03	*washroom*	*4*	*7.7*			1. Provide nurse call and HHS 2. 3 pc 3. Provide hand-held shower nozzle
11.2.22.	Patient Room, Palliative/Paed	1		36.6		1. Provide HHS 2. Provide two sets of medical gases (oxygen, air and suction) 3. Provide infrastructure for ceiling mounted patient lift 4. Provide hand sink in family zone with small counter surface
01	*vestibule zone*	*1*	*5.0*			
02	*bed area/family area*	*1*	*26.0*			1. Provide nurse call and code blue 2. Provide a wall-mounted waterless hand disinfectant dispenser

1A.11.2 INPATIENT UNITS: MEDICAL/SURGICAL IPU

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
03	*washroom*	*1*	*5.6*			1. Provide nurse call and HHS 2. 3 pc 3. Provide hand-held shower nozzle
11.2.23	Palliative/Paed Family/Quiet Room	1		13.9		1. Provide nurse call
11.2.24	Multipurpose Paediatric Room	1		7.4		1. Provide HHS, 1200 mm counter and lockable storage 2. Provide medical gases (oxygen, air and suction)
11.2.25.	Patient Room, Positive Pressure Isolation Room	1		34.4		1. Provide HHS 2. Provide medical gases (oxygen, air and suction) 3. Provide infrastructure for ceiling mounted patient lift 4. Locate at entrance to Unit No. 1: 22 Beds
01	*anteroom*	*1*	*7.4*			1. Provide HHS 2. Provide patient access in a bed or stretcher through a locked door bypassing the anteroom
02	*vestibule zone*	*1*	*5.0*			
03	*bed area*	*1*	*16.4*			1. Provide nurse call and code blue
04	*washroom*	*1*	*5.6*			1. Provide nurse call and HHS 2. 3 pc 3. Provide hand-held shower nozzle
11.2.26.	Patient Room, Negative Pressure Isolation Room	1		34.4		1. Provide HHS 2. Provide medical gases (oxygen, air and suction 3. Provide infrastructure for ceiling mounted patient lift 4. Locate at entrance to Unit No. 1: 22 Beds
01	*anteroom*	*1*	*7.4*			1. Provide HHS

1A.11.2 INPATIENT UNITS: MEDICAL/SURGICAL IPU

Ref		Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
							2. Provide patient access in a bed or stretcher through a locked door bypassing the anteroom
	02	*vestibule zone*	*1*	*5.0*			
	03	*bed area*	*1*	*16.4*			1. Provide nurse call and code blue
	04	*washroom*	*1*	*5.6*			1. Provide nurse call and HHS 2. 3 pc 3. Provide hand-held shower nozzle
11.2.27.		Patient Room, Negative Pressure Barrier-Free Isolation Room	1		42.6		1. Provide HHS 2. Provide two sets of medical gases (oxygen, air and suction) 3. Provide infrastructure for ceiling mounted bariatric patient lift 4. Locate at entrance to Unit No. 1: 22 Beds
	01	*anteroom*	*1*	*7.4*			1. Provide HHS 2. Provide patient access in a bed or stretcher through a locked door bypassing the anteroom
	02	*vestibule zone*	*1*	*6.0*			
	03	*bed area*	*1*	*21.5*			1. Provide nurse call and code blue
	04	*washroom*	*1*	*7.7*			1. Provide nurse call and HHS 2. 3 pc 3. Provide hand-held shower nozzle
11.2.29		Storage Room, Large Equipment	1		17.0		
11.2.30.		Therapy Tub Room	1		16.8		
	01	*therapy tub*	*1*	*11.2*			1. Provide nurse call and code blue

1A.11.2 INPATIENT UNITS: MEDICAL/SURGICAL IPU

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
02	*washroom*	*1*	*4.6*			1. Provide nurse call 2. 2 pc
03	*clean linen storage*	*1*	*1.0*			
11.2.31.	Suite of Secure Rooms	1		41.8		1. Provide HHS 2. Provide medical gases (oxygen, air and suction)
01	*entrance vestibule*	*1*	*8.4*			
02	*bed area*	*2*	*13.9*			1. Provide nurse call and code blue
03	*washroom*	*1*	*5.6*			1. Provide nurse call and HHS 2. 3 pc
	Subtotal, Unit No. 1: 22 beds			988.4		
	Unit No. 2: 18 Beds plus 3-Bed Step Down/High Acuity Unit					1. Locate near the Team Care Station for flexibility of staffing
11.2.32.	Team Care Station	1		35.0		1. Must provide security glazing. Glazing must not impact human interaction 2. Will be central location for telemetry monitoring 3. Provide backing board for monitor and power & communications connections
01	*workstation, clerical*	*1*	*4.6*			
02	*workstations, sitting*	*4*	*2.8*			
03	*workstations, standing*	*4*	*1.8*			
04	*charts & associated storage*	*1*	*4.6*			
05	*reference library shelving*	*1*	*1.9*			
06	*supplies & office-type equipment*	*1*	*1.9*			

1A.11.2 INPATIENT UNITS: MEDICAL/SURGICAL IPU

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
07	*congregation space*	*4*	*0.9*			
11.2.33	Alcove, Computer Charting	11	1.8	19.8		1. Locate 1 between 2 Patient Rooms
11.2.34	Alcove, Staff Purse Lockers	1		2.8		
11.2.35.	Report/Conference/Education Room	1		21.5		
01	*seats*	*10*	*2.0*			
02	*videoconferencing equipment*	*1*	*1.5*			
11.2.36	Workstation, Patient Care Coordinator	1		4.6		
11.2.37	Washroom, Staff	1		4.6		1. 2 pc washroom 2. Provide enclosed shelf @1.0 lin. mm above/behind toilet 3. Non-gendered
11.2.38	Washroom, Visitor	1		4.6		1. 2 pc 2. Non-gendered
11.2.39	Medications Preparation Room	2	*11.3*	22.6		1. Provide utility sink (deep enough to pour IV solution with medication), millwork counter for med preparation 2. Provide space for two medication carts 3. Provide eyewash station 4. Provide HHS 5. Provide secure door with glazing, door opens into room
11.2.40	Nourishment Station	1		4.9	For patient nourishment	1. Provide staff only access 2. Provide 2400 lin mm upper and lower millwork that includes a double sink, HHS and lockable storage
11.2.78	Alcove, Water/Ice Machine	1		1.2	For patients and family	

1A.11.2 INPATIENT UNITS: MEDICAL/SURGICAL IPU

Ref	Space	Proposed Area			i. Intent of Space	ii. Specific Design Features
		units	nsm/unit	nsm		
11.2.41	Clean Supplies Room	1		11.0		
11.2.42	Soiled Utility Room	1		12.0		1. Provide macerator/tornado 2. Provide separate storage of hazardous and non-hazardous drug waste
11.2.43	Alcove, Crash Cart	2	1.4	2.8	For Adult & Paeds	
11.2.44	Storage Room, Equipment	1		17.0		
11.2.45	Housekeeping Closet, Distributed	1		7.0		1. See *Housekeeping & Laundry Services* component for description
11.2.46	Soiled Trays Holding Closet	1		2.3		
11.2.47	Alcove, Wheelchair Storage	1		6.3	Space for 7 wheelchairs	
11.2.48	Alcove, Stretcher Storage	1		2.3	Space for 1 stretcher	
11.2.49	Quiet/Consult Room	1		12.0		
11.2.50.	Visitor/Patient Lounge	1		34.2		
01	*seats*	*8*	*2.3*			
02	*table area*	*2*	*7.4*		For Patient Dining	1. Provide 2 sets of medical gases (oxygen, air and suction)
03	*television*	*1*	*1.0*			
11.2.51.	Patient Room, Standard	10		270.0		1. Provide HHS 2. Provide medical gases (oxygen, air and suction) 3. Provide infrastructure for ceiling mounted patient lift
01	*vestibule zone*	*10*	*5.0*			
02	*bed area*	*10*	*16.4*			1. Provide nurse call and code blue
03	*washroom*	*10*	*5.6*			1. Provide nurse call and HHS

1A.11.2 INPATIENT UNITS: MEDICAL/SURGICAL IPU

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
						2. 3 pc 3. Provide hand-held shower nozzle
11.2.52.	Patient Room, Barrier-Free	4		140.8		1. Provide HHS 2. Provide two sets of medical gases (oxygen, air and suction) 3. Provide infrastructure for bariatric ceiling mounted patient lift from bed to toilet and shower
01	*vestibule zone*	*4*	*6.0*			
02	*bed area*	*4*	*21.5*			1. Provide nurse call and code blue
03	*washroom*	*4*	*7.7*			1. Provide nurse call and HHS 2. 3 pc 3. Provide hand-held shower nozzle
11.2.53.	Patient Room, Palliative/Paed	1		36.6		1. Provide HHS 2. Provide two sets of medical gases (oxygen, air and suction) 3. Provide infrastructure for ceiling mounted patient lift 4. Provide hand sink in family zone with small counter surface
01	*vestibule zone*	*1*	*5.0*			
02	*bed area/family area*	*1*	*26.0*			1. Provide nurse call and code blue
03	*washroom*	*1*	*5.6*			1. Provide nurse call and HHS 2. 3 pc 3. Provide hand-held shower nozzle
11.2.54	Palliative/Paed Family/Quiet Room	1		13.9		

1A.11.2 INPATIENT UNITS: MEDICAL/SURGICAL IPU

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
11.2.55	Multipurpose Paediatric Room	1		7.4		1. Provide HHS 2. Provide medical gases (oxygen, air and suction) 3. Provide infrastructure for ceiling mounted patient lift
11.2.56.	Patient Room, Positive Pressure Isolation Room	1		34.4		1. Provide HHS 2. Provide medical gases (oxygen, air and suction) 3. Provide infrastructure for ceiling mounted patient lift 4. Locate at entrance to Unit No. 2: 18 Beds, but not close to entrance to Birthing Unit
01	*anteroom*	*1*	*7.4*			1. Provide HHS 2. Provide patient access in a bed or stretcher through a locked door bypassing the anteroom
02	*vestibule zone*	*1*	*5.0*			
03	*bed area*	*1*	*16.4*			1. Provide nurse call and code blue
04	*washroom*	*1*	*5.6*			1. Provide nurse call and HHS 2. 3 pc 3. Provide hand-held shower nozzle
11.2.57.	Patient Room, Negative Pressure Isolation Room	1		34.4		1. Provide HHS 2. Provide medical gases (oxygen, air and suction) 3. Provide infrastructure for ceiling mounted patient lift 4. Locate at entrance to Unit No. 2: 18 Beds, but not close to entrance to Birthing Unit
01	*anteroom*	*1*	*7.4*			1. Provide HHS 2. Provide patient access in a bed or stretcher through a locked door bypassing the anteroom

1A.11.2 INPATIENT UNITS: MEDICAL/SURGICAL IPU

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
02	*vestibule zone*	*1*	*5.0*			
03	*bed area*	*1*	*16.4*			1. Provide nurse call and code blue
04	*washroom*	*1*	*5.6*			1. Provide nurse call and HHS 2. 3 pc 3. Provide hand-held shower nozzle
11.2.58	Patient Room, Negative Pressure Barrier-Free Isolation Room	1		42.6		1. Provide HHS 2. Provide two sets of medical gases (oxygen, air and suction) 3. Provide infrastructure for ceiling mounted bariatric patient lift 4. Locate at entrance to Unit No. 2: 18 Beds, but not close to entrance to Birthing Unit
01	*anteroom*	*1*	*7.4*			1. Provide HHS 2. Provide patient access in a bed or stretcher through a locked door bypassing the anteroom
02	*vestibule zone*	*1*	*6.0*			
03	*bed area*	*1*	*21.5*			1. Provide nurse call and code blue
04	*washroom*	*1*	*7.7*			1. Provide nurse call and HHS 2. 3 pc 3. Provide hand-held shower nozzle
11.2.60	Storage Room, Large Equipment	1		14.0		
11.2.61.	Therapy Tub Room	1		16.8		
01	*therapy tub*	*1*	*11.2*			1. Provide nurse call and code blue 2. Provide infrastructure for ceiling mounted patient lift

1A.11.2 INPATIENT UNITS: MEDICAL/SURGICAL IPU

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
02	*washroom*	*1*	*4.6*			1. Provide nurse call and HHS 2. 2 pc
03	*clean linen storage*	*1*	*1.0*			
	Subtotal, Unit No. 2: 18 Beds plus 3-Bed Step-Down/High Acuity Unit			839.4		
	Unit No. 2: Step-Down/High Acuity Unit					1. Locate this Unit centrally to the 2 Med/Surg Units
~~11.2.62~~	~~Team Care Station~~	~~1~~		~~7.4~~	Intentionally deleted	~~1. Provide security glazing. Glazing must not impact human interaction~~ ~~2. Team Care Station must have views to Patient Rooms~~ ~~3. Will be central location for patient monitoring~~ ~~4. Provide millwork counter for medication preparation and HHS~~
11.2.63	Alcove, Clean Supplies	1		5.6		
11.2.64	Alcove, Soiled Holding	1		4.6		
11.2.65.	Patient Room	3		66.0		1. Provide HHS 2. Provide medical gases (oxygen, air and suction) 3. Provide infrastructure for ceiling mounted patient lift 4. Provide patient telemetry
01	*bed area*	*3*	*16.4*			1. Provide nurse call and code blue
02	*washroom*	*3*	*5.6*			1. Provide nurse call and HHS 2. 3 pc 3. Provide hand-held shower nozzle

1A.11.2 INPATIENT UNITS: MEDICAL/SURGICAL IPU

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Subtotal, Step-Down/High Acuity Unit			76.2		
	Spaces Shared Between Units					
11.2.66.	Staff Lounge/Break Room	1		30.7		
01	*soft seats*	*8*	*2.3*			
02	*table area*	*1*	*7.4*			
03	*kitchenette*	*1*	*4.9*			1. Provide double HHS with 1800 mm counter, lockable millwork storage
11.2.67	Office, Multi-Use	1		9.3		
11.2.68	Office, Nurse Manager	1		9.3		
	Office, Clinical Nurse Educator	1		0.0		1. See *Education & Meeting Facilities* component
11.2.69	Office, Patient Care Coordinators	1		11.2		
11.2.70	Office, Clinical Pharmacist	1		9.3		
11.2.71.	Education Room/Physician & Learners Workroom	1		31.5		
01	*seats*	*15*	*2.0*			
02	*videoconferencing equipment*	*1*	*1.5*			
11.2.72	Zone Housekeeping Room	1		0.0		1. See *Housekeeping & Laundry Services* component
11.2.73	Zone Soiled Wheelchair Holding	1		2.0		1. Locate near service elevator
11.2.74.	Servery	1		20.9	For Food Services	1. Provide electrical outlets, double utility sink 2. The refrigerators and freezers, and reheating equipment must be able to withstand a 2-minute power interruption and must be on uninterrupted power supply (UPS)

1A.11.2 INPATIENT UNITS: MEDICAL/SURGICAL IPU

Ref		Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
							3. All rethermalization equipment must be on 100% back-up power
	01	*refrigerator & freezer*	*1*	*0.9*			
	02	*work counter*	*1*	*2.3*			1. Provide minimum 1200 lin mm millwork above and below a counter
	03	*utility sink*	*1*	*4.6*			1. Provide 1000 mm linear millwork counter
	04	*HHS*	*1*	*0.9*			
	05	*retherm cart zone*	*1*	*7.4*			
	06	*internal circulation (30%)*	*1*	*4.8*			
11.2.75		Equipment Cleaning Room	1		12.0	For Housekeeping Services	1. Provide floor drain, plumbed hand-sprayer (steam/hot water) 2. Provide open shelving for chemical storage, hand-held sprayers, wipe-down materials 3. HVAC to ensure mitigation of humidity in room 4. Configuration shall accommodate unidirectional flow of equipment from an in-coming 'dirty' door to an out-going 'clean' door 5. Both entry and exit doors must be a minimum of 1200 mm wide to accommodate the movement of larger equipment for cleaning
		Subtotal, Spaces Shared Between Units			136.2		
		Total, Medical/Surgical Inpatient Units			2,040.2		Component Area = 204 CGSM at 1.50 grossing factor Shared Spaces Component Area = 122 CGSM at 1.60 grossing factor Step-Down Unit Component Area = 1,259 CGSM at 1.50 grossing factor Unit No. 2 Component Area = 1,483 CGSM at 1.50 grossing factor Unit No. 1

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1A.11.3 INPATIENT UNITS: PSYCHIATRY INPATIENT UNIT

This specification outlines the functional, operational, and physical requirements for the Psychiatry Inpatient Units component.

1A.11.3.1 FUNCTIONAL DESCRIPTION

1A.11.3.1.1 Statement of Purpose

1A.11.3.1.1(1) This component will accommodate critical and acute care inpatient services for those aged 19 years and older[1] requiring assessment and stabilization, consultation and brief treatment and discharge planning for a major mental illness or substance use issue.

1A.11.3.1.2 Scope of Services

1A.11.3.1.2(1) Functional Content

1A.11.3.1.2(1)(a) The Psychiatry Inpatient Unit will offer a multidisciplinary approach to care, with liaison and community services to ensure continuity of care when patients are discharged to the community. Services/ activities include, but are not limited to:

- 1A.11.3.1.2(1)(a)(i) Inpatient accommodation (including Secure/ Observation Rooms);
- 1A.11.3.1.2(1)(a)(ii) intake activities – screening by telephone or in person;
- 1A.11.3.1.2(1)(a)(iii) assessments (on or off the Unit as indicated) – medical psychiatric assessment (on or off the Unit), medical assessment by family physician (on the Unit), social/family assessment, functional assessment, OT, and recreational assessment, the latter assessments on referral;
- 1A.11.3.1.2(1)(a)(iv) individual therapy;
- 1A.11.3.1.2(1)(a)(v) group therapy focused on a psycho-social rehabilitation model;
- 1A.11.3.1.2(1)(a)(vi) indoor and outdoor recreational therapies and activities;
- 1A.11.3.1.2(1)(a)(vii) life-skills training;
- 1A.11.3.1.2(1)(a)(viii) interdisciplinary team meetings;
- 1A.11.3.1.2(1)(a)(ix) regional discharge planning rounds;
- 1A.11.3.1.2(1)(a)(x) education of patients, family, and staff; and
- 1A.11.3.1.2(1)(a)(xi) administrative activities.

1A.11.3.1.2(1)(b) Assessment and brief treatment will be provided to begin the process of assisting individuals to build skills and abilities, carrying out effective discharge planning, and linking them to community-based

[1] Very occasionally patients under the age of 19, as an exception, are admitted to the Unit.

services and supports. The acute care team may assist with the following skills-building:

1A.11.3.1.2(1)(b)(i) assistance with medication management;

1A.11.3.1.2(1)(b)(ii) education about their illness, lifestyle, and medications;

1A.11.3.1.2(1)(b)(iii) activities of daily living including hygiene, grooming, nutrition needs, budgeting, etc.;

1A.11.3.1.2(1)(b)(iv) help and advice with respect to linking, reinstituting, or strengthening linkages with community agencies and services;

1A.11.3.1.2(1)(b)(v) ongoing follow-up support for a variety of bio, psychosocial and spiritual needs;

1A.11.3.1.2(1)(b)(vi) support for family and friends and other identified support networks;

1A.11.3.1.2(1)(b)(vii) support in working toward community integration, including life skill supports and vocational, recreational and social needs;

1A.11.3.1.2(1)(b)(viii) assistance with goal setting and problem solving;

1A.11.3.1.2(1)(b)(ix) support with identified housing needs; and

1A.11.3.1.2(1)(b)(x) assist with making connections to cultural and spiritual opportunities.

1A.11.3.1.2(2) Planning Assumptions

1A.11.3.1.2(2)(a) When on the Unit, a high level of patient observation will be required. The Unit shall be lockable.

1A.11.3.1.2(2)(b) Planning assumes service delivery will generally continue as described above, with the following enhancement of services:

1A.11.3.1.2(2)(b)(i) increased interface with the Facility acute inpatient services to support staff training/skill development, and back-up for code support;

1A.11.3.1.2(2)(b)(ii) attendance of community mental health patients and staff at select group therapies/programming; and

1A.11.3.1.2(2)(b)(iii) increased visibility of patient areas from the Team Care Station, and enhanced opportunity for patient privacy options.

1A.11.3.1.2(2)(c) The Psychiatry Inpatient Unit will actively participate in telehealth/ teleconferencing events.

1A.11.3.1.2(3) Scope of Education Functions

1A.11.3.1.2(3)(a) The Unit will accommodate up to two students on practicum training programs and up to three residents at any one time. UNBC brings three-to-four nursing students in groups for clinical rounds.

1A.11.3.1.2(4) Excluded

1A.11.3.1.2(4)(a) Patients who are not medically stable will be treated in Emergency Services (ES).

1A.11.3.1.2(4)(b) ECT procedures are planned for the future, operational planning and available staffing resources will determine if they will be performed in Surgical Services component or the ACC component.

1A.11.3.1.2(4)(c) The following factors preclude eligibility:

1A.11.3.1.2(4)(c)(i) sole diagnosis of neurological developmental delay or substance use;

1A.11.3.1.2(4)(c)(ii) acutely intoxicated – except when concurrent severe mental illness is known or suspected (acutely intoxicated patients will be cared for on a Medical/ Surgical Unit until, after assessment by the appropriate health care professional, the patient may be admitted to the Psychiatry Inpatient Unit); and

1A.11.3.1.2(4)(c)(iii) sole diagnosis is neurocognitive disorder.

1A.11.3.2 OPERATIONAL DESCRIPTION

1A.11.3.2.1 Hours of Operation

1A.11.3.2.1(1) The Psychiatry Inpatient Unit will operate 24/7.

1A.11.3.2.2 Organization & Management

1A.11.3.2.2(1) The Unit's Team Leader reports to a Manager who will report to the Director of Specialized Services reporting to the Chief Operating Officer of the Northwest (NW).

1A.11.3.2.2(2) Psychiatrist coverage will be through resident consultant psychiatrists. Psychiatrists will operate on an on-call rotation for the NW, working with NW family physicians to admit patients to the Unit. The nurse in charge on the Unit liaises with the Patient Transfer Network (PTN) for regional admissions.

1A.11.3.2.3 Workflow

1A.11.3.2.3(1) ***Patients***

1A.11.3.2.3(1)(a) Patients admitted will include all psychiatric diagnosis including concurrent with substance use. Typically, adolescents are not

admitted, although youth will be admitted if necessary. There may be a certain population of people with distinct needs that may not be the best cared for in the *Medical/Surgical Inpatient Unit*. For client and staff safety reasons, these patients may be supported short-term on IPU, on a case-by-case basis.

1A.11.3.2.3(1)(b) When an individual is referred by a long-term care facility, agreement to take the individual back into care will be secured at the time of admission to the Psychiatry Inpatient Unit to minimize problems with blocked beds.

1A.11.3.2.3(1)(c) Most admissions will be on an emergency/urgent basis. It is expected that a significant proportion of admissions will be involuntary, requiring at least short-term Form 4 certification.

1A.11.3.2.3(1)(d) Referrals to the Unit will come from Mental Health and Substance Use Services (MHSUS), Community Services, or physicians. Patients from Terrace presenting at ES, will be assessed by a physician and medically cleared prior to admission. Referrals from elsewhere in the Region who are transferred into Terrace will be assessed prior to transfer by the family physician and are planned admissions prior to arrival. Ideally patients arriving in this manner will be accompanied by ambulance personnel from the vehicle directly through the on-grade entrance to the Psychiatric Inpatient Unit. After hours arrivals may come through the ES entrance. Occasionally patients will be transferred to the Psychiatric IPU from the *Inpatient Units: Medical/Surgical IPU*, subsequent to stabilization of a medical condition.

1A.11.3.2.3(1)(e) A washer and dryer for individuals to do their own personal laundry will be located on the Unit.

1A.11.3.2.3(1)(f) The majority of patients will be mobile and when permitted, they will have controlled but easy access to and from the component. Patients may have therapeutic leave granted to be away from the Unit, either accompanied or unaccompanied. Most patients will have free access to the secure Outdoor Therapy Area.

1A.11.3.2.3(1)(g) All individuals admitted to the Psychiatry Inpatient Unit will have a multi-faceted and integrated discharge plan that is initiated by the care team on a systematic basis as at the time of admission as part of the treatment/care plan. This plan, which will be reviewed regularly, will respect both clinical considerations and individual choices and will be outcome focused. Its intent is discharge to the best situation possible, which ideally will include overview by family physicians and/or appropriate community-based services and supports.

1A.11.3.2.3(1)(h) The individual, his or her personal supports, and key community-based providers will be involved along with the Program's care team

in all aspects. The continuum of care will be emphasized in the discharge plan.

1A.11.3.2.3(1)(i) Patients may be discharged home or to other provincial facilities (e.g., Hillside), via BC road ambulance or air transport.

1A.11.3.2.3(2) *Family and Visitors*

1A.11.3.2.3(2)(a) No visitors will enter the Unit or the Outside Therapy area without staff authorization.

1A.11.3.2.3(3) *Staff*

1A.11.3.2.3(3)(a) A Laboratory technician will visit the Psychiatry Inpatient Unit as required to draw blood for diagnostic tests and monitoring of blood levels of medications. It is anticipated that weekly bloodwork will be performed on each patient.

1A.11.3.2.3(3)(b) Patients will be transported by Psychiatry Unit staff to Medical Imaging as required for CT scans and x-rays.

1A.11.3.2.3(3)(c) ECTs will be offered at the Facility on an inpatient and outpatient basis. When a psychiatry inpatient requires ECT, once recovered from the procedure they will return to the Unit.

1A.11.3.2.3(3)(d) Food will be prepared in the central FS, chilled, and brought to the Psychiatry Inpatient Unit in bulk on a rethermalization cart for rethermalization in the servery. A FS worker will deliver the cart and serve the food to patients. Boxed meals will be available outside of serving hours. Nourishments will be available for staff to give to patients as requested and as scheduled.

1A.11.3.2.4 Support Activities

1A.11.3.2.4(1) *Medication*

1A.11.3.2.4(1)(a) There will be a 24-hour unit dose point-of-use drug distribution system.

1A.11.3.2.4(1)(b) Medications will be filled with fill lists generated through the POU Information System and distributed to the Units using master replenishment cart or a bin/tote. These will be brought to the floors and replenished on a daily basis by Pharmacy technician staff.

1A.11.3.2.4(2) *Supplies*

1A.11.3.2.4(2)(a) Clean linen will be provided by exchange cart brought to the clean supply room on the Unit. Unit staff will dispense the linen to the patient on request.

1A.11.3.2.4(2)(b) Medical/surgical supplies will be delivered on a top-up basis to the clean supply room.

1A.11.3.3 STAFFING

1A.11.3.3.1 Estimated future staffing for this component is summarized below in terms of Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

	Days		Nights
Classification/Position	Headcount	Occupancy	Headcount
Total	18		6
Weekdays	0		0
Nursing Unit Manager (5 days/week)	1		0
Patient Care Coordinator (5 days/week)	1		0
RNs	6	Shared Workstation	5
Social Worker (5 days/week)	1	Private Office	0
Unit Clerk (weekdays)	1	Workstation	1
Other[2]	5		0
Recreation Therapist[1]	1		0
Recreation Assistant[1]	1		0
Occupational Therapist[1]	1		0

Notes:

1. Recreation/Occupational Therapy staff are .40 Psychiatry Inpatient Unit, and .60 Seven Sisters.
2. Case Managers from Community Services come in for weekly meetings for discharge planning.

- Source: Authority Decision Support/Finance Department/Facility staff.
- RPG in consultation with the Facility staff.

1A.11.3.4 DESIGN CRITERIA

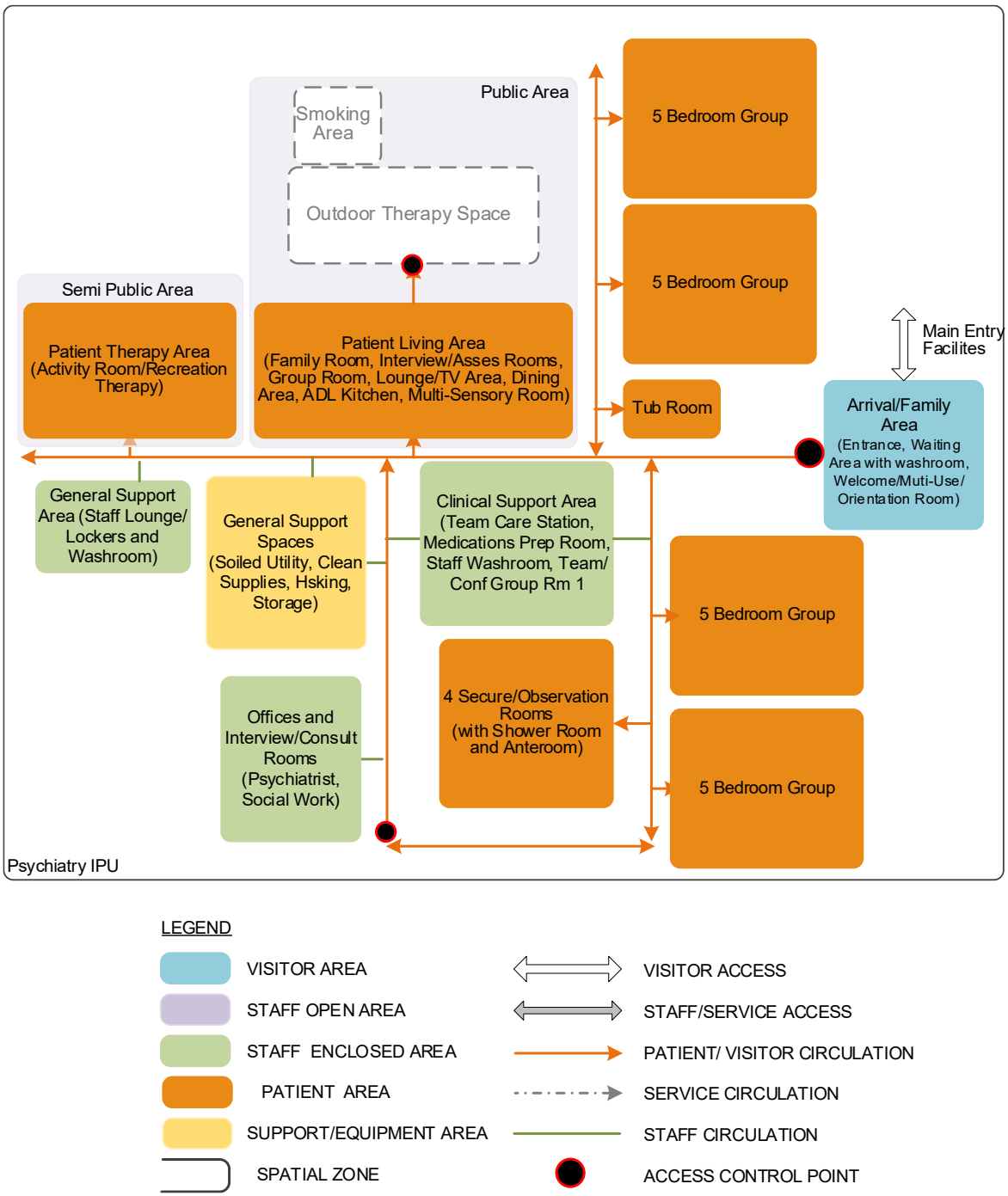
1A.11.3.4.1 External Relationships

1A.11.3.4.1(1) The following key external relationships for the Psychiatry Inpatient Units will be achieved in the priority order as numbered for the purposes stated:

1	**Emergency Services**	Provide convenient access via non-public circulation to/from Emergency Services for the movement of patients and staff.
2	**Medical/Surgical Inpatient Unit**	Provide convenient access via general circulation to/from Medical/Surgical Inpatient Unit for the movement of patients and code white staff.

1A.11.3.4.2 Functional Relationship Diagram

1A.11.3.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.11.3.4.3 Internal Design Criteria

1A.11.3.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.11.3.4.3(2) The Unit must be designed to adequately accommodate this unique patient population and its respective levels of intensity of care within the Unit.

1A.11.3.4.3(3) The layout of the Psychiatry Inpatient Unit must be such that visual observation from the Team Care Station to the majority of the Inpatient Rooms is achieved. The layout will be simple and provide sightline visualization of patient areas in order of priority as follows:

1A.11.3.4.3(3)(a) Secure/Observation Rooms;

1A.11.3.4.3(3)(b) Patient living spaces (lounge/dining areas);

1A.11.3.4.3(3)(c) Main entry/arrival;

1A.11.3.4.3(3)(d) Inpatient Rooms; and

1A.11.3.4.3(3)(e) the layout shall address the following:

1A.11.3.4.3(3)(e)(i) group Patient Bedrooms into groups of five. The closest set of five rooms to the Team Care Station will have video cameras for surveillance; and

1A.11.3.4.3(3)(f) For all Patient Rooms, provide ambient light controls at the bedside and the door entrance.

1A.11.3.4.3(4) Following is a room-by-room list of spaces for Psychiatry Inpatient Unit showing:

1A.11.3.4.3(4)(a) Intent of Space; and

1A.11.3.4.3(4)(b) Specific Design Features.

1A.11.3.5 SCHEDULE OF ACCOMMODATION

1A.11.3.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.11.3 INPATIENT UNITS: PSYCHIATRY INPATIENT UNIT

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Arrival/Family Area					
11.3.01	Entrance Vestibule		7.4	0.0		1. External to the facility
11.3.02.	Waiting Area	1		7.5	Support area for visitors	1. The Waiting Area shall be adjacent to the Welcome/Multi-Use/ Orientation Room
01	*seats*	*1*	*1.9*			1. Ensure sufficient space between chairs to avoid conflicts
02	*seats, barrier free*	*2*	*2.8*			
11.3.03	Washroom, Public/ Patient	1	4.6	4.6		1. Located adjacent to Waiting Area 2. 2 pc 3. Non-gendered
11.3.04	Welcome/Multi-Use/ Orientation Room	1		12.0	Used for a variety of activities requiring a quiet peaceful environment. Used for private orientation to the Unit for a new patient and family	
	Subtotal, Arrival/Family Area			24.1		
	Clinical Support Area					
11.3.05.	Team Care Station	1		42.1	Reception for visitors to the unit as well as a 24/7 staff work base and control point to monitor patient activity.	1. Provide at minimum 2 lockable, electronic access entry/exits to Team Care Station 2. Provide safety glazing surround to separate staff from patient area 3. Provide 360-degree visibility of the Unit from the Team Care Station 4. Entrance doors to the Unit and door to the Outdoor Therapy Space will be electronically controlled from the main Team Care Station 5. Provide backing board for monitor and power and communications connections

1A.11.3 INPATIENT UNITS: PSYCHIATRY INPATIENT UNIT

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
01	*workstation, clerical*	*1*	*4.6*			
02	*workstations, staff*	*5*	*2.8*			
03	*congregation space*	*6*	*0.9*			
04	*surveillance monitors*	*1*	*2.3*		Will monitor doors to unit, Lounge, Recreation/Therapy Area, Observation Rooms	1. Location of patient monitors must allow patient privacy and shall not be viewable from outside the Team Care Station
05	*office supplies/equipment*	*1*	*1.9*			
06	*shelving area*	*1*	*1.9*			
07	*office, Psychiatrist*	*2*	*6.0*			
11.3.06.	Medications Preparation Room	1		9.5		1. Provide utility sink (deep enough to pour IV solution with medication), millwork counter for med preparation 2. Provide space for two medication carts 3. Provide eyewash station 4. Provide HHS 5. Provide secure door with glazing, door opens into room
~~11.3.08~~	~~Washroom, Staff~~	~~0~~	~~4.6~~	~~0.0~~	Intentionally deleted	~~1. 2 pc~~ ~~2. Provide enclosed shelf @1.0 lin. mm above/behind toilet~~ ~~3. Non-gendered~~
11.3.09.	Team Meeting/ Conference/ Group Room No.1	1		42.8	Used for training, consultation, team conferences, etc. Meetings with larger numbers of people will occur in space booked elsewhere within the Facility.	1. Locate near Team Care Station 2. Provide glazing with blinds so staff can see the activities occurring around them 3. Provide backing board for monitor and power and communications connections 4. Provide access to power/communications for parking 2 WOWs

1A.11.3 INPATIENT UNITS: PSYCHIATRY INPATIENT UNIT

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
01	*seats*	*20*	*2.0*			
02	*videoconferencing equipment*	*1*	*2.8*			
11.3.10	Office, Team Leader	1	9.3	9.3		1. Locate away from high traffic areas for security and confidentiality
11.3.11	Interview/Consult Room, Psychiatrists	1		12.0	~~Also office for Psychiatrists~~	1. Locate away from high traffic areas for security and confidentiality for patients and staff 2. Provide a second door to an adjoining office/room for staff egress
11.3.12	Office, Workroom	1		10.5	For OT/Rec Therapy.	1. Locate away from high traffic areas for security and confidentiality
11.3.13	Interview/Consult Room, Social Work	1	12.0	12.0		1. Locate away from high traffic areas for security and confidentiality for patients and staff 2. Provide a second door to an adjoining office/room for staff egress
	Subtotal, Clinical Support Area			138.2		
	Patient Room Areas					1. No medical gases will be required in patient rooms
11.3.14	Patient Room, Standard	18	13.0	234.0		1. Provide door that swings outwards and has glazing 2. Provide nurse call, a code blue button and night lights 3.Provide ambient light controls at bedside and door entrance

1A.11.3 INPATIENT UNITS: PSYCHIATRY INPATIENT UNIT

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
11.3.15	Washroom: Patient Room, Standard	18	4.6	82.8		1. No washrooms shall open in the line of vision of any corridor 2. Must be able to be locked from the outside to restrict access 3. The door to each washroom must either slide or open outwards 4. Each washroom shall have water shut-off capability by staff 5. Provide tamper-proof staff call devices 6. In lieu of curtain provide partial height wall for privacy
11.3.16	Patient Room, Barrier Free	2	13.5	27.0		1. Provide door that swings outwards and has glazing 2. Provide nurse call, a code blue button and night lights 3. Provide ambient light controls at bedside and door entrance
11.3.17	Washroom, Patient Room, Barrier Free	2	7.7	15.4		1. No washrooms shall open in the line of vision of any corridor 2. Must be able to be locked from the outside to restrict access, if required 3. The door to each washroom must either slide or open outwards 4. Each washroom shall have water shut-off capability by staff, 5. Provide tamper-proof staff call devices 6. In lieu of curtain provide partial height wall for privacy
11.3.18	Tub Room	1	16.7	16.7		1. Tub rooms will be barrier free (tub, toilet and HHS) 2. The area must have adequate heating

1A.11.3 INPATIENT UNITS: PSYCHIATRY INPATIENT UNIT

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
						and ventilation 3. Provide tamper-proof nurse call button and anti-ligature fixtures 4. Must not open directly into main circulation route
11.3.19	Laundry Room, Patient	1	7.4	7.4		1. Provide utility sink, and millwork counter space for sorting and ironing 2. Locate away from Patient Rooms and the public shared spaces (lounge, dining room, etc.)
11.3.20	Alcove, Sitting	4	4.0	16.0	Patient retreat and privacy	1. Locate in corridors by Patient Rooms 2. Sitting alcoves shall not obstruct the staff's views nor provide nooks for hiding from staff that might create a safety risk
	Subtotal, Patient Room Areas			399.3		
	Secured Environment					1. The location of the suite of these four rooms must not interfere with other patient space on the Unit and must be proximate to the entrance of the component for movement of patients from Emergency Services as quickly as possible and with minimal disruption to the activities of the Unit.
11.3.21	Secure/Observation Room	4	13.9	55.6		1. Ensure door swings to corridor or both ways
11.3.22	Shower, Secure/Observation Room	1	4.6	4.6		1. Locate central to Secure/Observation Rooms
11.3.23	Anteroom, Secure/Observation Room	1	11.2	11.2		1. Shared among Secure/Observation Rooms

1A.11.3 INPATIENT UNITS: PSYCHIATRY INPATIENT UNIT

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
						2. Provide a wall mounted panic device within 1.0 m. of the anteroom door
	Subtotal, Secured Environment			71.4		
	Patient Living Areas					1. Locate the patient living areas in the public area of the unit 2. Living spaces may be divided into smaller clusters of living areas.
11.3.24	Family Room	1	15.0	15.0	Multi-use. Used by staff for private sessions with patients as well as for quiet family meetings. Individuals will use these rooms for quiet/alone time.	1. Located in quiet area
11.3.25	Multi-Sensory Room	1	11.0	11.0		1. Provide dimmable lighting 2. Provide calming colours on walls and wall murals
11.3.26	Interview/Consultation/Assessment Room	1	12.0	12.0		1. Provide window in door or in wall adjacent to door
11.3.27	Group Room No. 2	1		22.8		
01	*seating*	*10*	*2.0*			
02	*videoconferencing equipment*	*1*	*2.8*			
11.3.28.	Lounge/TV Area	1		61.3	Designed for small group or independent activity or visiting	1. Lounge/TV Area will be contiguous with the Dining Area 2. The lounge shall resemble a residential living room in décor and scale, providing comfortable surroundings
01	*seating*	*20*	*2.3*			
02	*storage*	*1*	*3.0*			
03	*circulation (25%)*	*1*	*12.3*			

1A.11.3 INPATIENT UNITS: PSYCHIATRY INPATIENT UNIT

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
11.3.29.	Dining Area	1		80.5	Accommodate a total of 30 people (20 patients, plus 10 visitors and staff) in a comfortable non-institutional environment. When not used for dining, it may be used for other activities	1. Dining Area will be contiguous with the Lounge/TV Area
01	*tables area*	*5*	*11.1*			
02	*ADL Kitchen*	*1*	*8.0*		This area may be used for functional assessments addressing cooking skills, safety issues, etc. Will also be used as Nourishment Station after food service hours	1. Provide ability to lock area when required. 2. Provide lockable cupboards for storage, counter surface, double sink and HHS that is barrier free
03	*HHS*	*1*	*0.9*			
04	*internal circulation (25%)*	*1*	*16.1*			
11.3.30	Servery	1	16.0	16.0	For FS Use.	1. Provide lockable 1200 mm wide roll up gate that will act as a pass through 2. Provide 1800 lin mm serving counter on the inside of the roll up gate 3. Provide electrical outlets, double utility sink 4. All rethermalization equipment must be on 100% back-up power
11.3.31	Washroom, Patient/Visitor	1	4.6	4.6		1. 2 pc 2. Non-gendered 3. Provide anti-ligature fixtures
	Subtotal, Patient Living Areas			223.2		
	Patient Therapy Areas					Locate the Patient Therapy Areas in the semi-public area of the unit

1A.11.3 INPATIENT UNITS: PSYCHIATRY INPATIENT UNIT

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
~~11.3.32~~	~~ADL Kitchen~~	~~0~~	~~13.9~~	~~0.0~~	~~This area may be used for functional assessments addressing cooking skills, safety issues, etc. Will also be used as Nourishment Station after food service hours~~	~~1. Locate adjacent to Dining Area, with ability to lock area when required.~~ ~~2. Provide lockable cupboards for storage, counter surface, double sink and HHS that is barrier free~~ 1. Intentionally deleted
11.3.33	Activity Room, Recreation Therapy	1	60.0	60.0	Accommodate group activities in a comfortable setting. Activities may include board games, ping pong, television, exercise area (treadmill, exercise bike) etc.. The space will accommodate 20 to 30 people	1. Provide a lockable storage room at 5.0 nsm within the room
	Subtotal, Patient Therapy Areas			60.0		
	General Support Area					
11.3.34	Soiled Utility Room	1		12.0		
11.3.35	Clean Supplies Room	1		11.0		
11.3.36	Housekeeping Closet, Distributed	1	7.0	7.0		1. See *Housekeeping & Laundry Services* component
11.3.37	Storage Room, Equipment/Patient Belongings	1	14.0	14.0	Storage for patient personal belongings	
11.3.38	Washroom, Staff	1	4.6	4.6		~~1. Locate near Staff Lounge/Lockers~~ Intentionally deleted 2. 2 pc washroom 3. Provide enclosed shelf @1.0 lin. mm above/behind toilet 4. Non-gendered
11.3.39	Staff Lounge/Lockers	1		24.7		

1A.11.3 INPATIENT UNITS: PSYCHIATRY INPATIENT UNIT

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
01	*locker*	*12*	*0.4*			
02	*table area*	*1*	*7.4*			
03	*reclining chairs*	*4*	*2.3*			
04	*kitchenette*	*1*	*3.7*			1. Provide double sink ~~HHS~~ with 2100 mm counter, lockable millwork storage
	Alcove, Crash Cart	1	0.0	0.0		1. Will share with adjacent clinical component
	Subtotal, General Support Area			73.3		
	Outdoor Therapy Space				Quiet retreat as well as therapy with access only from component. Must be secure and safe with little or no supervision.	1. Provide electronically controlled doors that open from both inside and outside 2. Area will be enclosed with restricted access only
	Outdoor Therapy Space	1	0.0	0.0		1. This area will be at grade. 2. Accessed from Dining Area or Lounge/TV Area 3. Provide outdoor gazebo for 10 people
	Smoking Area	1	0.0	0.0		1. Provide covered space sheltered from wind and elements 2. Locate away from any air intakes for the Facility
	Total, Psychiatry Inpatient Unit			989.5	Component Area = 1,484 CGSM at 1.50 grossing factor	

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1A.12 LABORATORY SERVICES (including MORGUE)

This specification outlines the functional, operational, and physical requirements for the Laboratory Services (LS) component including the Morgue.

1A.12.1 FUNCTIONAL DESCRIPTION

1A.12.1.1 Statement of Purpose

1A.12.1.1(1) Serving an inpatient and outpatient population with a referral ("hub") role for certain tests, LS will provide analysis of blood, body fluids and tissues to be used in the diagnosis and evaluation of disease.

1A.12.1.1(2) The Morgue will receive bodies for the performance of post-mortem examinations. A Viewing Room will be provided.

1A.12.1.2 Scope of Services

1A.12.1.2(1) Functional Content

1A.12.1.2(1)(a) The following list specifies the minimum set of functions that must be accommodated within the component:

1A.12.1.2(1)(a)(i) **Accessioning**: pre-analytical functions, specimen receiving, specimen send-out, collections reconciliation, data entry, and distribution of specimens across all disciplines;

1A.12.1.2(1)(a)(ii) **Biochemistry**: routine chemistry evaluation of electrolytes, enzymes, immunoproteins and hormone levels used in diagnosing the diseases of organs and interactive organ systems: urinalysis as a check on kidney function and disease states: therapeutic drug level testing to evaluate the efficacy of treatment in attaining steady-state therapeutic levels, drugs of abuse testing to identify overdose scenarios and affect suitable course of treatment;

1A.12.1.2(1)(a)(iii) **Haematology**: cell counts and morphological assessment in peripheral blood and body fluids to aid in identification, diagnosis, treatment and follow-up of haematological disorders, leukemia, and other cancers: coagulation testing to aid in the diagnosis of coagulation deficiencies and thrombotic conditions, as well as to monitor anticoagulated patients. Haematology will prepare slides that will be referred-out for bone marrow investigation;

1A.12.1.2(1)(a)(iv) **Microbiology:** Identification of pathogenic organisms, antimicrobial susceptibility testing based on recognized Laboratory guidelines, rapid antigen testing, Clostridium Difficile toxin detection, microscopy and serology;

1A.12.1.2(1)(a)(v) **Transfusion Medicine:** pre-transfusion testing to provide serologically compatible blood products to patients based on currently accepted practice and serological testing for diagnosis of immune disorders. Blood grouping, antibody screening, cross matching and plasma/blood products storage;

1A.12.1.2(1)(a)(vi) **Pathology**: surgical pathology and cytology services including routine surgical tissue processing, embedding, microtomy, slide staining. Autopsies will be performed on-site. Special staining including immunochemistry processing and staining of gynaecological and non-gynaecological cytology specimens will continue to be referred to Vancouver; and

1A.12.1.2(1)(a)(vii) **Specimen Collection**: including inpatient and outpatient clinic specimen collections.

1A.12.1.2(1)(b) The Morgue will accommodate autopsy related activities such as portable x-ray, gross-benching activities, procurement of cornea and other eye tissue for the BC Eye Bank, equipment storage, and administrative activities, including transient accommodation of RCMP and Coroner.

1A.12.1.2(1)(c) The scope of services will include body storage, release, and autopsy services. Toxicology Services will be prepared by LS Pathologist Attendants for processing by the Provincial Laboratory. Forensic cases will be shipped to Vancouver with chain of custody maintained.

1A.12.1.2(2) Planning Assumptions

1A.12.1.2(2)(a) The current test menu will be continued for the 2036/37 planning horizon. The consolidation of inpatient orthopaedics to the Facility, the designation as a trauma centre, and the ageing population will impact the volume of tests processed by LS.

1A.12.1.2(2)(b) Further regionalization of LS at the Facility for the NWHSDA will be explored.

1A.12.1.2(2)(c) Implementation of more automated equipment and more molecular testing technology will occur in Microbiology.

1A.12.1.2(2)(d) Outpatient registration of LS patients will occur in the Outpatient Specimen Collection area of this component.

1A.12.1.2(2)(e) A scheduling and queue management system will be implemented for Outpatient Specimen Collection to allow patients to book appointments and view their results online.

1A.12.1.2(2)(f) More Pathology diagnoses will be performed via imaging of gross anatomy.

1A.12.1.2(2)(g) More LS equipment will be monitored for calibration and troubleshooting remotely.

1A.12.1.2(3) Scope of Education Functions

1A.12.1.2(3)(a) There will be two full time MLT student placements from start of June to end of April with two to three more on three to five-week rotations, mostly from the College of New Caledonia. LS will host MLA students for their four to six-week practicums as needed. There will also four students for a five-week period on-site for Pathology training.

1A.12.1.2(4) Excluded

1A.12.1.2(4)(a) Forensic body holding or forensic autopsy services will not be available in this component.

1A.12.1.2(4)(b) ECGs and Holter monitoring will be shifted to Cardiopulmonary Services in the *Ambulatory Care Centre* component. There will be two ECG machines in Cardiopulmonary Services (Ambulatory Care), one in Emergency Services (ES), one in ICU, and one in the Medical/Surgical Inpatient Unit.

1A.12.2 OPERATIONAL DESCRIPTION

1A.12.2.1 Hours of Operation

1A.12.2.1(1) LS testing services will operate 24/7 with a laboratory technologist on-site 24-hours and a laboratory assistant on-site from 0630 to 2300. Outpatient specimen collection will be available from 0800 to 1700 weekdays and from 0800 to 1600 on Saturdays. Sunday coverage will also be provided from 1000 to 1400 with priority testing being given to pre-operative testing, oncology, and time sensitive tests.

1A.12.2.1(2) Autopsy services will be available from 0700 to 1600, weekdays. Authorized access to the Body Holding Room will be 24/7.

1A.12.2.2 Organization & Management

1A.12.2.2(1) LS will continue to operate under the leadership of a Manager reporting to the Health Services Administrator. One pathologist will be designated to provide anatomic pathology and a second pathologist will be responsible for overall clinical leadership.

1A.12.2.2(2) Autopsies will be performed by the Pathologist and Pathology Assistant, reporting to either the Coroner or ordering physician.

1A.12.2.3 Workflow

1A.12.2.3(1) *Requisitioning of Tests*

1A.12.2.3(1)(a) Tests will be requisitioned via a health care professional. Whether the order is 'stat' or routine, lab assistants will begin the blood collection process.

1A.12.2.3(1)(b) Outpatients will bring the paper requisition to the Outpatient Specimen Collection area of LS. Eventually all tests will be requisitioned electronically from the physician's location.

1A.12.2.3(2) *Sample Delivery, Dispatch, Preparation and Central Processing*

1A.12.2.3(2)(a) Specimens from ES and inpatient units will be collected by LS staff. All specimens will be delivered to a single receiving point in the Central Processing area. All lab collected specimens will arrive labelled (a high percentage will be bar-coded) and will be logged-in and sorted according to testing site, urgency and the need for pre-processing.

1A.12.2.3(2)(b) Whole blood specimens and other samples that do not require preparatory centrifugation will be passed directly to the appropriate testing station. Other specimens will be spun, divided into aliquots if necessary, labeled and delivered to the test station.

1A.12.2.3(2)(c) Specimens for dispatch to other laboratories will be packed by LS staff and held; refrigerated, frozen or room temperature for courier pick up.

1A.12.2.3(3) *In-Laboratory Sample Flow*

1A.12.2.3(3)(a) Specimens will be passed to the appropriate testing station – blood gas analysis, urinalysis, automated chemistry, haematology cell counter or coagulation, microbiology, pathology and transfusion medicine.

1A.12.2.3(3)(b) Specimens related to forensic cases will be kept in a secured box in a refrigerator with chain of custody maintained.

1A.12.2.3(3)(c) **Chemistry specimens** – will be placed in a rack and the Lab Tech will load the chemistry analyzer for automated processing. All samples remaining after processing will be retained for re-testing for one week. Approximately 90% of samples will be refrigerated with the remaining samples stored in a frozen state for up to six weeks.

1A.12.2.3(3)(d) **Routine haematology samples** – will be loaded into the automated cell counter. Abnormal samples will be flagged for further study by microscope examination. Blood smears will be made on glass slides and stained on an autostainer. Certain slides will be forwarded to the Clinical Pathologist/Medical Director for further review. Routine smears will be retained for one week. Slides for Pathologist review will be retained for three months. Abnormal slides will be retained for

10 years. Routine haematology samples will be retained for five days in refrigeration.

1A.12.2.3(3)(e) **Transfusion Medicine** - samples for blood grouping, antibody screening and crossmatch will be forwarded after centrifugation to Transfusion Medicine for processing. Specimens will be retained for one month in a secured refrigeration unit. Portering/nursing staff requiring access to unmatched blood product during a trauma will present at the lab to pick up the blood products.

1A.12.2.3(3)(f) **Microbiology** – blood culture specimens will be placed directly into the blood culture instrument for automated processing. Positive bottles will be removed from the instrument and manipulated manually in the Biological Safety Cabinet (BSC). Other specimens will be collected from the specimen fridge in Central Processing, entered into the Laboratory Information System (LIS) except serology specimens, which will be entered into LIS upon receipt and processed as appropriate. Specimens from NWHSDA will be delivered to Microbiology for entering receipt of specimens into the LIS and processing. Stat specimens such as body fluids will be delivered to the Microbiology Laboratory after centrifugation (during day hours) or delivered to a Core Laboratory staff member for processing (after-hours).

1A.12.2.3(3)(g) **Pathology** – surgical specimens will be gross dictated by Pathologists and Pathologist Assistants (PA's). The surgical and autopsy specimens will be loaded onto the tissue processor for overnight processing. Once processed, the specimens will be embedded into blocks, the blocks cut, and the tissue sections placed on slides. The slides will be oven dried, routine stained, and cover-slipped and delivered to the Pathologist for diagnosis.

1A.12.2.3(3)(h) Cytology specimens will be processed for slide preparation. Gynaecological and non-gynaecological slides will be routine stained, and cover slipped. Slides will be screened and interpreted by the Pathologist for diagnosis.

1A.12.2.3(3)(i) Specimens related to forensic cases will be kept in a secured box in a refrigerator with the chain of custody maintained.

1A.12.2.3(4) ***Reporting***

1A.12.2.3(4)(a) Most analyzers will have bi-directional communication capability allowing direct download of results into the LIS. A few test results will need to be entered into the system manually.

1A.12.2.3(4)(b) Results will be reported and released by the technologist staff for electronic reporting. Stats will be automatically broadcast to the appropriate location upon release. All results will continue to be reported electronically using appropriate security protocols.

1A.12.2.3(5) *Outpatient Specimen Collection*

1A.12.2.3(5)(a) The family physician or health care professional will order exams and refer the patient to the Facility for testing.

1A.12.2.3(5)(b) Upon arrival patients will have requisitions reviewed, questioned for specific registration and collection information, and asked to sit and wait for collection. Patients will be registered, have their lab work accessioned and called to the Collection Station. Specimens for outpatients will be collected by phlebotomist/technologist staff.

1A.12.2.3(5)(c) All specimens will be delivered to the Central Processing area by phlebotomy staff. Specimens will be processed and delivered according to testing requirements/site. Specimens that will be tested externally will be assembled, stored and then packaged in the Central Processing area for courier pick up and shipping.

1A.12.2.3(6) *Point-of-Care Testing*

1A.12.2.3(6)(a) Point-of-care (PoC) testing will be performed by both Nursing and LS personnel depending on location. PoC results will be interfaced where possible with the LIS, auto-received and auto-released in real time.

1A.12.2.3(7) *Body and Specimen Receiving, Referral and Release*

1A.12.2.3(7)(a) Bodies received into the Morgue either from within the Facility or from outside will be registered and tagged and recorded electronically, through registration into the Coroners Information System. Lockable storage will be used to keep the personal effects of the deceased safe.

1A.12.2.3(7)(b) Bodies from within the Facility will usually be transported to the Morgue by nursing staff. Bodies from the service area are usually delivered by ambulance service or by a body transport service.

1A.12.2.3(7)(c) Bodies will be held in a refrigerated storage unit until required for autopsy or released to the coroner or funeral home. Facility autopsies will be performed after obtaining consent from next-of-kin or authorized individual.

1A.12.2.3(7)(d) Bodies may only be released from the Morgue in accordance with Authority and Provincial policies. Death certificates will be collected at the Morgue. Proper documentation usually accompanies the body that's being delivered to the Facility.

1A.12.2.3(7)(e) Depending on the known or suspected infectious status of the body, additional precautions may also be required and be maintained until the body is enclosed in a body bag of approved construction for transport.

1A.12.2.3(7)(f) Before entering the autopsy suite, staff will change into protective clothing. Gowns, waterproof aprons and boots will be minimum

standards, and the use of surgical scrubs, masks, wrap-around eye protection and heavy-duty gloves will also be required.

1A.12.2.3(7)(g) Morgue staff will clean equipment and workbenches regularly.

1A.12.2.4 Support Activities

1A.12.2.4(1) *Supplies & Disposal*

1A.12.2.4(1)(a) All streams of waste will be stored in bins of various sizes at each work area. LS staff will seal the biomedical waste containers/bags when filled and place the contents in exchange biohazard containers for pick up by Housekeeping. Morgue staff will seal the biomedical waste containers/bags when filled and place the contents in exchange biohazard containers located in the Morgue. Housekeeping staff will remove the filled exchange containers for final, off-site disposal. The Soiled Utility Room will house exchange containers for recycling waste streams, and general black-bag garbage.

1A.12.2.4(2) *Infection Control*

1A.12.2.4(2)(a) All patient specimens will be considered bio-hazardous, and thus universal safety precautions will be followed to ensure employee and patient safety.

1A.12.3 STAFFING

1A.12.3.1 Estimated future staffing for this component is summarized below in terms Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

	Days		Nights
Classification/Position	Headcount	Occupancy	Headcount
Total	22		2
Weekdays			0
Manager	1	Office	0
Technologist	9	Office	1
Lab Assistant[1]	8	Touchdown workstations	1
Pathology Clerk	1	Office	0
Pathologist	2	Office	0
Pathology Attendant	1	Workstation in lab	0

Notes:

1. One Lab Assistant will perform receptionist role on a rotating basis.

- Source: Facility Lab Manager.

- RPG in consultation with Facility staff based on additional coverage and increased workload; projection based on 29,000 tests/FTE.

1A.12.4 DESIGN CRITERIA

1A.12.4.1 External Relationships

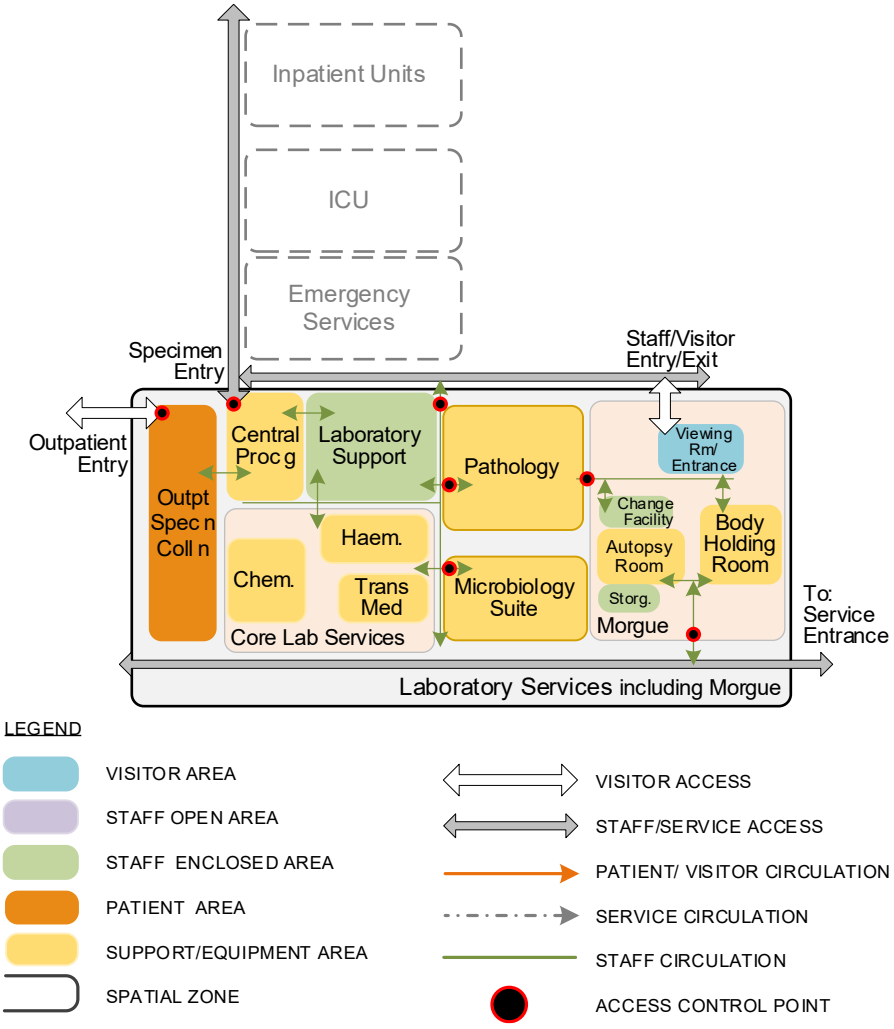
1A.12.4.1(1) The following key external relationships for Laboratory Services will be achieved in the priority order as numbered for the purposes stated:

1	**Emergency Services**	Provide direct access via service circulation to/from ES for the quick specimen collection and movement of staff.
2	**ICU**	Provide convenient access via service circulation to/ from ICU for the quick specimen collection and movement of staff.
3	**Inpatient Units**	Provide convenient access via service circulation to/ from Inpatient Units for the ease of movement of staff for specimen collection.
4	**Main Entry Facilities**	Provide convenient access via general circulation for the ease of movement from the Main Entry Facilities for patients and visitors to the Outpatient Specimen Collection area and to the Morgue Viewing Room/ Entrance.

1A.12 LABORATORY SERVICES (including MORGUE)

1A.12.4.2 Functional Relationship Diagram

1A.12.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.12.4.3 Internal Design Criteria

1A.12.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.12.4.3(2) Service circulation to/from LS must be a minimum of 3000 mm wide x 3000 mm high.

1A.12.4.3(3) The LS areas must be vibration-free.

1A.12.4.3(4) Locate all Testing Stations in an open, flexible workspace (including maximizing column-free space) that can be adjusted easily to accommodate new instruments and adjustments to workflow.

1A.12.4.3(5) Provide glare-free (indirect lighting) task lighting for technical work areas.

1A.12.4.3(6) Lab benches shall be fire and corrosive resistant.

1A.12.4.3(7) Provide a duplicate set of communications connections.

1A.12.4.3(8) The floor surface will be impervious, resistant damage from chemicals and corrosives, be easy to clean, sealed with coving at the edges to the height of benches.

1A.12.4.3(9) Floors will have drains with filtered traps that allow for the entire unit to be hosed down and drain away quickly.

1A.12.4.3(10) Provide a minimum of 500 mm of space around benches to prevent disturbance of equipment and accessibility of equipment for repair.

1A.12.4.3(11) Following is a room-by -room list of spaces for LS showing:

1A.12.4.3(11)(a) Intent of Space; and

1A.12.4.3(11)(b) Specific Design Features.

1A.12.5 SCHEDULE OF ACCOMMODATION

1A.12.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.12 LABORATORY SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
12.01.	Entry/Exit	1		2.4		
01	*lab coat hooks*	*2*	*0.5*			1. Provide hooks on both sides of Entry/Exit to separate clean and dirty lab coats
02	*laundry hamper*	*1*	*0.5*			
03	*HHS*	*1*	*0.9*			
	Subtotal			2.4		
	Central Processing					
12.02.	In-Facility receiving station	1		7.9		
01	*HHS*	*1*	*0.9*			
02	*receiving counter*	*1*	*2.3*			1. Including upper shelving
03	*log-in station*	*1*	*1.9*			
04	*multifunction printer*	*1*	*2.8*			
12.03.	Referred-in/out sample handling	1		6.2		
01	*pick-up counter*	*1*	*1.9*			
02	*packing station/counter*	*1*	*2.3*			
03	*storage packing supplies, hazardous materiel*	*2*	*1.0*			
12.04.	Specimen Accessioning	1		18.0		1. Provide utility sink
01	*accessioning station*	*1*	*3.3*			
02	*centrifuge*	*1*	*0.9*			
03	*refrigerator*	*1*	*1.9*			
04	*freezer*	*1*	*1.4*			
05	*collection carts*	*4*	*0.9*			
06	*utility carts*	*2*	*1.2*			
07	*BSC, 1200 mm*	*1*	*4.5*			

1A.12 LABORATORY SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Subtotal, Central Processing			32.1		
	Chemistry					1. Cluster Chemistry with Haematology and Transfusion Medicine for a "Core Lab" 2. Provide a paper shredding area in the Core Lab from circulation space
12.05.	Automated Workstation	1		16.3		
01	*set-up and receiving*	*2*	*1.9*			1. Provide 100 mm open overhead shelving for manuals, etc.
02	*printer*	*1*	*0.9*			
03	*computers*	*2*	*0.9*			
04	*centrifuge*	*1*	*1.4*			1. Refrigerated
05	*floor analyzer*	*3*	*2.8*			
12.06.	Blood Gas Workstation	1		2.8		
01	*set-up counter*	*1*	*1.9*			
02	*analyzer*	*1*	*0.9*			
12.07.	Urinalysis Station	1		6.0		
01	*set-up*	*1*	*1.9*			
02	*analyzer*	*1*	*0.9*			
03	*microscope and set-up*	*1*	*0.9*			
04	*centrifuge*	*1*	*1.4*			
05	*utility sink*	*1*	*0.9*			1. Provide venting for pour-offs
12.08.	Support Area	1		21.5		
01	*refrigerator, double door*	*2*	*2.3*			
02	*freezer (-30c)*	*1*	*1.4*			
03	*point-of-care testing station*	*1*	*1.9*			
04	*reagent storage*	*1*	*2.3*			

1A.12 LABORATORY SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
05	*safety shower*	*1*	*0.6*			
06	*RO water system*	*1*	*1.4*			
07	*storage*	*1*	*9.3*		Parts and supplies	
12.09.	Senior Technologist Workstation	1		4.6		
	Subtotal, Chemistry			51.2		
	Haematology					
12.10.	Haematology Workstation	1		10.4		
01	*set-up and receiving*	*1*	*1.9*			
02	*computer*	*2*	*0.9*			
03	*analyzers*	*2*	*1.4*			
04	*blood mixer*	*1*	*0.9*			
05	*flammables storage cupboard*	*1*	*0.9*			
06	*clean counter*	*1*	*2.1*			
12.11.	Coagulation Station	1		4.2		
01	*set-up counter*	*1*	*1.9*			
02	*analyzer*	*1*	*1.4*			
03	*centrifuge*	*1*	*0.9*			
12.12.	Slide Stainer Workstation	1		3.2		
01	*slide stainer*	*1*	*0.9*			
02	*utility sink*	*1*	*0.9*			
03	*set-up*	*1*	*1.4*			
12.14.	Microscopy Workstation	1		3.3		
01	*set-up*	*1*	*1.9*			
02	*slide storage*	*1*	*0.5*		Countertop storage for slides	
03	*microscope, double head*	*1*	*0.9*			

1A.12 LABORATORY SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
12.15.	Senior Technologist Workstation	1		2.8		
12.16.	Support Area	1		7.8		
01	*eyewash sink*	*1*	*0.9*			
02	*double-door refrigerator*	*1*	*2.3*			
03	*storage, slides*	*1*	*2.3*		Long-term storage for slides	
04	*storage, parts and supplies*	*1*	*2.3*			
	Subtotal, Haematology			31.7		
	Transfusion Medicine					
12.17.	Receiving Area / Issuing Area	1		12.1		1. Locate along a staff/service corridor to allow drop-offs without entering the Transfusion Medicine area
01	*drop off*	*1*	*1.4*			1. Provide 1200 lin mm x 450 mm deep transaction counter
02	*send out blood product area, packaging stn.*	*1*	*1.9*			
03	*bar code scanner, label printer*	*1*	*1.4*			
04	*work area*	*1*	*1.8*			
05	*fax/phone*	*1*	*0.5*			3. Shared with other LS areas
06	*storage racks*	*1*	*0.9*			
07	*storage records, manuals and file cabinet*	*1*	*1.4*			
08	*laser printer*	*1*	*0.9*			
09	*room temperature product storage*	*1*	*1.9*			
12.18.	Blood Products Refrigerated Storage	1		3.7		
01	*refrigerators*	*1*	*2.3*			
02	*freezers, plasma*	*1*	*1.4*			

1A.12 LABORATORY SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
~~03~~	~~plasma thawer and incubator~~	~~0~~	~~0.9~~			
04	Routine Cross Match	1		6.5		
05	*HHS*	*1*	*0.9*			
~~06~~	~~eyewash sink~~	~~0~~	~~0.9~~			
07	*counter*	*1*	*1.4*			1. Counter to be minimum 600 mm wide
08	*centrifuge (Sero-Fuge)*	*1*	*0.9*			
09	*incubator & centrifuge*	*1*	*0.5*			
10	*microscope*	*1*	*0.9*			
11	*cell washer with sink*	*1*	*1.4*			
12	*waterbath*	*1*	*0.5*			
12.19.	Senior Technologist Workstation	1		4.6		
	Subtotal, Transfusion Medicine			26.9		
	Microbiology Suite					1.This suite is Containment Level 2 (CL2) 2. Provide a paper shredding area in the Core Lab from circulation space
12.20.	Entry/Exit	1		6.1		
01	*lab coat hooks (clean + soiled separated)*	*2*	*0.5*			1. Provide hooks on both sides of Entry/Exit Anteroom to separate clean and dirty lab coats
02	*laundry hamper*	*1*	*0.5*			
03	*HHS*	*2*	*0.9*			
04	*eyewash sink*	*1*	*0.9*			
05	*shower with drain and privacy curtain*	*1*	*1.9*			
12.21.	Receiving, Log-in Area	1		9.7		
01	*receiving*	*1*	*3.7*			
02	*computer*	*2*	*0.9*			

1A.12 LABORATORY SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
03	*printer, bar code label, aliquot*	*3*	*1.4*			
12.22.	Plating	1		18.9		
01	*BSC, 1200 mm*	*1*	*4.5*			1. Provide direct venting to exterior
02	*media bench/warming*	*2*	*0.9*			
03	*primary plate incubators Air/CO2*	*6*	*1.4*			
04	*centrifuge*	*1*	*0.9*			
05	*CO2 tanks*	*3*	*0.5*			
06	*anaerobic jar setup*	*2*	*0.9*			
12.23.	Gram Staining	1		6.1		
01	*bench*	*2*	*1.9*			
02	*utility sink*	*1*	*0.9*			
03	~~*stainer*~~ *centrifuge*	*1*	*1.4*			
12.24.	Microscope Bench	1		5.5		
01	*microscope, double head*	*1*	*2.3*			
02	*microscope, single head*	*1*	*1.4*			
03	*computer*	*2*	*0.9*			
12.25.	Blood Cultures	1		5.5		
01	*Bact Alert*	*2*	*1.4*			
02	*set-up*	*1*	*0.9*			
03	*clerical*	*1*	*0.9*			
04	*printer, Bact Alert*	*1*	*0.9*			
12.26.	PCR Room	1		13.5		
01	*setup area with BSC (1800 mm)*	*1*	*6.5*			1. Provide direct venting to exterior

1A.12 LABORATORY SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
02	*GeneXpert*	*1*	*1.9*			1. Includes computer, set-up area
03	*~~microscope - double head~~ computer station*	*1*	*1.4*		1. Accommodates set up	1. Microscope deemed not required. Space reallocated to computer station that was a **new ask**
04	*bench*	*1*	*2.8*			
05	*computer*	*1*	*0.9*			
12.27.	Mass Spectrometry Bench	1		16.5		
01	*set-up*	*1*	*2.3*			
02	*plate reading stations*	*4*	*2.8*			
03	*mass spectrometry (MALDI-TOF)*	*1*	*3.0*			
12.28.	Support	1		18.1		
01	*safety shower*	*1*	*0.6*			
02	*walk-in refrigerator 4c*	*1*	*7.4*			
03	*freezer -20c*	*1*	*1.4*			
04	*freezer -70c*	*1*	*1.4*			
06	*storage reagents room temp*	*1*	*2.8*			
07	*old plate storage*	*5*	*0.9*			
	Subtotal, Microbiology			99.9		
	<u>Pathology</u>					1. Provide direct venting to exterior
12.29.	Entry/Exit	1		3.3		
01	*lab coat hooks*	*2*	*0.5*			1. Provide hooks on both sides of Entry/Exit to separate clean and dirty lab coats
02	*laundry hamper*	*1*	*0.5*			
03	*HHS*	*2*	*0.9*			
12.30.	Receiving, Log-in Area	1		10.6		
01	*receiving & set-up work counter*	*1*	*4.6*		5 places	

1A.12 LABORATORY SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
02	*computer*	*1*	*0.9*			
03	*printer, bar code label*	*3*	*0.9*			
04	*utility sink*	*1*	*1.0*			
05	*refrigerator/freezer*	*1*	*1.4*			
	Grossing Room					1. Provide direct venting to exterior
12.31.	Gross Cutting	1		9.3		
01	*cutting bench*	*1*	*3.7*			1. Provide utility sink, hood & garburator, scales
02	*gross supply area*	*1*	*0.5*			
03	*sharps removal containers*	*1*	*0.5*			
04	*dictaphone/video image system*	*1*	*0.5*			
05	*specimen cart*	*1*	*0.9*			
06	*computer*	*2*	*0.9*			
08	*cassette label printer*	*1*	*1.4*			
12.32.	Support	1		18.8		
01	*storage supplies*	*1*	*4.6*			
02	*storage specimens*	*6*	*0.9*			1. Provide cabinets vented directly outside
03	*short term blocks/slides storage*	*1*	*7.4*			
05	*slide tray storage area*	*1*	*0.9*			
06	*paper shredding and recycling box*	*1*	*0.5*			
12.33	Specimen/Tissue Processing	1		10.7		
01	*tissue processing*	*1*	*1.4*			
02	*set-up & dispenser*	*1*	*1.4*			
03	*utility sink*	*1*	*0.9*			
04	*storage, supplies*	*1*	*0.9*			
05	*flammables storage*	*2*	*1.9*			1. Above counter storage

1A.12 LABORATORY SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
06	*decal bench*	*1*	*1.4*			
07	*reagent cart*	*1*	*0.9*			
12.34.	Recycling Room	1		12.1		1. Requires venting
01	*formalin cubes and ethanol drums*	*1*	*0.9*			
02	*alcohol recycling system*	*1*	*1.9*			
03	*alcohol/xylene waste, xyline recycler*	*1*	*0.9*			
04	*processor*	*1*	*0.9*			
05	*flammables storage, double cabinet*	*2*	*1.4*			
06	*reagent cart*	*1*	*0.9*			
07	*shower*	*1*	*1.9*			1. Provide eyewash station
08	*double sink*	*1*	*1.9*			
09	*fire blanket & extinguisher*	*2*	*0.0*			
12.35.	Embedding Stations	1		6.2		
01	*set-up work area incl computer & label printer*	*1*	*1.9*			
02	*embedding stations*	*2*	*1.9*			
03	*cold plate*	*1*	*0.5*			
12.36.	Microtome Area	1		10.3		1. Ensure minimum air disturbances within this room 2. Provide adjustable height benches for microtome stations
01	*set-up*	*1*	*1.9*			
02	*microtome, floatation bath*	*3*	*1.4*			
03	*slide labelling area*	*1*	*1.9*			
04	*storage, shelves*	*1*	*2.3*			
12.37.	Routine Staining	1		15.0		

1A.12 LABORATORY SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
01	*set-up*	*1*	*0.9*			
02	*stainers*	*2*	*1.9*			
03	*microscope*	*1*	*1.2*			
04	*utility sink*	*1*	*0.9*			
05	*FN slide staining preparation & centrifuge*	*1*	*1.9*			
06	*slide drying oven*	*1*	*0.9*			
07	*storage cabinets*	*1*	*0.9*			
08	*fume hood, 1500 mm*	*1*	*4.5*			1. Provide flammables storage below 2. Provide Labelled Slide storage below
12.38.	Frozen Section Staining (Lab)	1		4.2		
01	*set-up and staining*	*1*	*1.9*			
02	*cryostat*	*1*	*1.4*			
03	*storage supplies*	*1*	*0.9*			
12.39.	Clean up area	1		9.8		1. Provide access to distilled water
01	*double sink*	*1*	*1.9*			
02	*glass dishwasher*	*1*	*2.3*			
03	*storage/supplies*	*4*	*1.4*			
12.40.	Safety Area	1				
02	*fire extinguisher*	*3*	*0.0*			1. Wall mounted
12.41	Office: Pathologist	2	11.2	22.4		
12.42	Office: Pathology Clerk	1		9.3		
	Subtotal, Pathology			142.0		
	<u>Laboratory Support</u>					1. Locate close to the LS entrance to be reached without passing through any testing areas
12.43.	Wash-Up Room	1		5.6		

1A.12 LABORATORY SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
01	*utility sink*	*1*	*1.9*			
02	*set-up station*	*1*	*1.4*			
04	*dishwasher*	*1*	*2.3*			
12.44.	Staff Room	1		13.4		
01	*lab coats & cart*	*1*	*3.7*			
02	*washroom*	*2*	*4.6*			1. 2 pc
03	*purse lockers*	*3*	*0.2*			
12.45.	Staff Lounge	1		23.0		
01	*seats*	*8*	*2.3*			
02	*nourishment station*	*1*	*4.6*			
12.46	Clean Supplies Room	1		4.6		
12.47	Soiled Utility Room	1		6.0		
12.48	Paper Products Storeroom	1		4.6		
12.49	Office: Manager	1		9.3		
12.50	Office: Regional Tech	1		9.3		
12.51	Office: Tech III	1		9.3		
	Subtotal, Laboratory Support			85.1		
	Outpatient Specimen Collection					
12.52	Clean Lab Coats	1	0.5	0.5		
12.53.	Reception	1		22.6		1. Provide infrastructure and services for 45" monitor for patient status/information
01	*waiting, seats*	*6*	*1.9*			
02	*'at risk' patient waiting seats*	*2*	*1.9*			
03	*barrier free, seat*	*1*	*2.8*			

1A.12 LABORATORY SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
04	*reception counter/data entry staff*	*1*	*4.6*			1. Provide glazing/transaction window to Waiting, Seats 2. Provide access to a multifunction copier 3. Provide dual monitor, computer, ipad 4. Provide open shelf for binders, etc. w/ counter below, storage below counter 5. Provide large and small label printer
12.54.	Collections	1		30.2		
01	*washroom, patient, barrier free*	*1*	*7.7*			1. Provide pass-through to Specimen Holding
02	*collection stations, standard*	*3*	*7.5*			1. Provide HHS 2. Provide coat hook 3. Provide mobile storage for phlebotomy supplies 4. Provide shelf for supplies 5. Provide privacy curtains for each station 6. Provide wall mtd sharps container
~~*03*~~	~~*collection station, stretcher*~~	~~*0*~~	~~*9.5*~~			~~1. Provide HHS~~
12.55.	Specimen Preparation Area	1		23.2		
01	*HHS*	*1*	*0.9*			1. Provide eyewash
02	*clean linen storage*	*1*	*1.9*			
03	*supplies storage and counter*	*1*	*2.3*			10-
04	*waste holding*	*1*	*1.9*			
05	*sorting/dispatch counter*	*1*	*2.8*			
06	*specimen holding*	*1*	*0.9*			
07	*sample refrigerator*	*1*	*1.4*			
08	*order entry/data entry computer*	*3*	*2.8*			
09	*multi-function printer*	*1*	*0.9*			
10	*file storage*	*1*	*0.9*			

1A.12 LABORATORY SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
11	*label printer & scanner*	*1*	*0.9*			
3.33	ECG/Holter Room	2	12.0	24.0		1. Provide data 2. Provide emergency call and code blue
	Subtotal, Outpatient Specimen Collection			100.5		
	Morgue					1. Space will be organized to allow clearances for movement of stackable morgue stretchers
12.56.	Viewing Suite/Entrance	1		23.1		
01	*HHS*	*1*	*0.9*			
02	*stretcher alcove*	*1*	*3.7*			
03	*washroom*	*1*	*4.6*			1. 2 pc
04	*viewing/observation room*	*1*	*13.9*			
12.57.	Body Holding Room	1		23.4		1. Power supply outlets must be protected from wet 2. Provide emergency back-up power supply for refrigeration and lighting
01	*HHS*	*1*	*0.9*			1. Provide eyewash
02	*crypts, standard*	*3*	*3.0*			
03	*crypts, bariatric*	*2*	*4.0*			
04	*personal effects storage*	*1*	*1.9*			
05	*workstation*	*1*	*3.6*			
12.58.	Autopsy Room	1		26.4		1. Provide 2 entrances. 1 will be through the Change Facilities (clean). The other will be from the general internal corridor (dirty) i.e., the path from the Body Holding Room 2. Ensure minimal noise within this room to allow dictation at the Autopsy Table 3. Surfaces shall be glare-free at eye level
01	*autopsy table*	*1*	*13.0*			1. Provide drain below table

1A.12 LABORATORY SERVICES

Ref		Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	02	*cart*	*1*	*2.3*			
	03	*counter*	*1*	*4.6*			1. Stainless steel
	04	*PACS viewing stn*	*1*	*2.3*			
	05	*emergency shower*	*1*	*1.9*			1. Provide drain
	06	*scrub sink*	*1*	*2.3*			
12.59.		Supplies Storage	1	5.6	5.6		
12.60.		Change Facilities	1		8.9		
	01	*washroom*	*1*	*4.6*			1. 2 pc
	02	*gowning/lockers*	*4*	*0.4*			
	03	*shower*	*1*	*2.8*			
		Subtotal, Morgue			87.4		
		Total, Laboratory Services incl. Morgue			**659.1**	**Component Area = 636.0 CGSM at 1.35 grossing factor, Laboratory** **Component Area = 131.0 CGSM at 1.30 grossing factor, Outpatient Collect'n** **Component Area = 109.0 CGSM @ 1.25 grossing factor, Morgue**	

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1A.13 MAIN ENTRY FACILITIES

This specification outlines the functional, operational, and physical requirements for the Main Entry Facilities component which will include Hospital Auxiliary (HA), Patient Registration (PR), REM Lee Foundation, Spiritual Care & Family Gathering, and Volunteer Services (VS) elements.

1A.13.1 FUNCTIONAL DESCRIPTION

1A.13.1.1 Statement of Purpose

1A.13.1.1(1) The Main Entry Facilities environment shall support the principles of patient and family centred care.

1A.13.1.1(2) Each element named above will have specific purposes contributing to the welcoming of visitors, patients, and families to the Facility.

1A.13.1.1(3) Registration is the act of entering a patient's health card number into the electronic patient record system and confirming demographics (name, birthdate, and health card number). Registration will be the initial contributor to the health system and will be the "front door" to the Facility's clinical resources.

1A.13.1.1(4) The REM Lee Hospital Foundation is a charitable autonomous organization (fundraising) that has its own Board structure.

1A.13.1.1(5) Spiritual Care & Family Gathering will assist in the total care of patients, families, staff and volunteers in the areas of spiritual and religious support, liturgy, education, community, spiritual triage and crisis care.

1A.13.1.1(6) VS will provide space for volunteers, including HA volunteers, to secure their belongings, check a message board, prepare for activities, and communicate with other volunteers.

1A.13.1.2 Scope of Services

1A.13.1.2(1) Functional Content

1A.13.1.2(1)(a) The following list specifies the minimum set of functions that must be accommodated within the component:

1A.13.1.2(1)(a)(i) the component will accommodate the Lobby which will be the focal point of the Facility. As such, it will function as the centre from which all activity will be directed. The Lobby will be the main point of entry and first contact for visitors, patients, staff.

1A.13.1.2(1)(a)(ii) the HA will provide essential support in fundraising for new/ upgraded equipment in support of recruitment and patient care through on-site and off-site retail services, as well as special events. The team will:

1A.13.1.2(1)(a)(ii)(A) raise funds for bursaries for high school students pursuing health related post-secondary studies,

1A.13.1.2(1)(a)(ii)(B) coordinate the vending machines in the building and will have display areas in the main lobby of the Facility,

1A.13.1.2(1)(a)(ii)(C) coordinate and run a Craft Fair within this component,

1A.13.1.2(1)(a)(ii)(D) the HA Gift Shop will sell gift items, personal care items and toiletries, infant clothing/accessories, books, as well as a selection of everyday convenience items, and

1A.13.1.2(1)(a)(ii)(E) HA volunteers will 'man' the Information/ Wayfinding Kiosk.

1A.13.1.2(1)(b) PR on-site services will include:

1A.13.1.2(1)(b)(i) centralized reception at the Main Registration Centre. Switchboard and overhead paging functions, cashier functions, and management of patient valuables will be at this location. It is assumed that cashless transactions will increase. Paging will also occur from Team Care Stations in the Facility;

1A.13.1.2(1)(b)(ii) after a first-time visit during which the patient is registered at the Main Registration Centre, the following patient groups will by-pass the Centre on subsequent visits and present directly to their care area: Renal Services, Cancer Care Clinic, Rehabilitation Services, Birthing Unit, Medical Imaging, and recurring Laboratory Services patients;

1A.13.1.2(1)(b)(iii) prearranged direct admissions to inpatient beds from referrals in the community or a physician office; and

1A.13.1.2(1)(b)(iv) management of general mail and couriers.

1A.13.1.2(1)(c) Spiritual Care will be offered, as requested, by local pastoral caregivers in the community. Multi-faith sacred spaces will be available to patients, families and visitors, and staff, to gather, to pray, and to conduct services/ceremonies and private rituals. While the spiritual care facilities will be designed as "all-faith friendly", specific attention to Indigenous considerations is assumed.

1A.13.1.2(1)(d) Volunteers may have a role in helping patients/visitors with wayfinding at the main entrance to the Facility in addition to their role of operating the HA Gift Shop.

1A.13.1.2(2) Planning Assumptions

1A.13.1.2(2)(a) The design of Main Entry Facilities shall characterize the spirit and cultural uniqueness of the North West to provide a comfortable, and familiar setting for patients, families and visitors.

1A.13.1.2(2)(b) It will be designed to be warm and welcoming, provide clear cues and directions to the Information/Wayfinding Kiosk, other Lobby features, and other parts of the Facility. The area shall be open and have natural light.

1A.13.1.2(2)(c) Large flat screen monitors for static and interactive patient and visitor information and wayfinding will be easily visible in the Lobby.

1A.13.1.2(2)(d) The Lobby will be a space that can be used as a “destination”. Facility news, events and displays will be updated and changed regularly to ensure the Lobby is an engaging destination.

1A.13.1.2(2)(e) The Lobby will serve as an attraction away from other areas for patients, families and staff, e.g., to provide a positive diversion for family members who are awaiting a patient receiving treatment or to give respite to visitors who are spending lengthy amounts of time at the bedside.

1A.13.1.2(2)(f) As a means of increasing the participation rate and targeting a wider clientele, the Café will stand alone and will be visible and an accessible area from the Lobby.

1A.13.1.2(2)(g) Potential partnerships with local operators will be explored for the Café, similar to the approach taken at Fort St. John Hospital. As an added incentive, catering business within the Facility will be offered to potential partners.

1A.13.1.2(2)(h) It is assumed that the Foundation will utilize one of the Display Units and maintain a donor wall in a main public corridor of this component.

1A.13.1.2(2)(i) The provision of a large group sacred space, appointed with Indigenous imagery and natural light, will acknowledge these important aspects of local cultural practice. Other cultural groups also have unique practices such as incense burning, which will use the same space.

1A.13.1.2(2)(j) For larger ceremonies, the body may be transported from the Morgue to the Large Group Sacred Space in this component via service circulation.

1A.13.1.2(3) Scope of Education Functions

1A.13.1.2(3)(a) N/A.

1A.13.1.2(4) Excluded

1A.13.1.2(4)(a) It is anticipated that PR will occur at five locations outside of the Main Registration Centre in this component: *ES, Medical Imaging, Laboratory Services Outpatient Specimen Collection, Ambulatory Care Centre (ACC),* and *Surgical Services: PSSC/SDC*.

1A.13.1.2(4)(b) Outside of this component, quiet rooms will be included in the ACC and on the Medical/Surgical Inpatient Units (M/S IPU) and for those

needing private space for quiet reflection. A shared Family Waiting Room will be provided in the ICU and ES, recognizing that large groups, in particular for Indigenous patients, may congregate in these areas while supporting hospitalized family members.

1A.13.2 OPERATIONAL DESCRIPTION

1A.13.2.1 Hours of Operation

1A.13.2.1(1) Main Entry: daily from 0800 to 2000.

1A.13.2.1(2) HA: 1430 to 1630 and 1900 to 2000 weekdays, and 1430 to 1630 on Saturday and Sunday. It is anticipated that an additional shift between 1100 and 1300 may be added.

1A.13.2.1(3) The PR Main Registration Centre will be daily from 0645 to 2245. Outside of these hours the ES registration desk will be operational until 2400. After-hours, patients presenting to ES will be registered electronically by UHNBC Emergency Department Registration staff.

1A.13.2.1(4) Board members may access the workspace for the REM Lee Hospital Foundation at all hours but most typically weekdays from 0800 to 1700 hours.

1A.13.2.1(5) Hours of operation/access for the Spiritual Care & Family Gathering suite will typically be hours when staff are available in the Facility, with use of the Large Group Sacred Space booked through Administration.

1A.13.2.1(6) Volunteer hours will be variable depending on volunteer availability between 0800 and 2000.

1A.13.2.2 Organization & Management

1A.13.2.2(1) Management of PR will be the responsibility of the Coordinator of Health Information Management (HIM) reporting to the Regional Manager of HIM who will act as a resource and provide an overview of standards and policies established by the Authority.

1A.13.2.2(2) Outpatient clerical staff may be pooled for operational flexibility, coordinated by PR. Regardless of location, PR will be centrally managed by HIMS to ensure consistency in the patient experience and quality control of patient records.

1A.13.2.2(3) Ongoing collaboration with programs/services will ensure the assignment of appropriate volunteer resources to meet changing needs.

1A.13.2.2(4) Approximately 10 to 15 volunteers will be high school students on their community placements with the balance being adult volunteers.

1A.13.2.3 Workflow

1A.13.2.3(1) *Patients & Families*

1A.13.2.3(1)(a) If PR staff are busy, graphics will direct the patient to take a number from a machine clearly visible in front of the registration workstations. Seating will be provided in view of the registration workstations and in view of the monitor indicating the current number being served.

1A.13.2.3(1)(b) When a clerk is available, they will initiate the next number in sequence to be displayed on the monitor and the patient will proceed to the registration workstation where the registration process will occur while seated. This flow will minimize standing for the frail or elderly.

1A.13.2.3(1)(c) Electronic Registration Kiosks will be available in the immediate vicinity of the staffed registration cubicles.

1A.13.2.3(1)(d) Conversations with a patient or family member will occur in the office of the Coordinator, as appropriate.

1A.13.2.3(1)(e) Patients, visitors, and staff may be directed to the Sacred Spaces by the Indigenous Patient Liaison Worker, Social Worker, or other staff.

1A.13.2.3(1)(f) Acknowledging the unique cultural practices of the Indigenous population around illness, death and grieving will provide a supportive patient experience for Indigenous patients and families. Some of the cultural practices experienced at the Facility will include:

1A.13.2.3(1)(f)(i) importance of family members being present when a family member is ill. On the day of a family member's passing, there are different roles for different immediate and extended family and community members (undertaker, care providers). Families will wait for out-of-town family members to arrive. It is important for these individuals to be present at the time of death if possible, with some family members present in the inpatient room;

1A.13.2.3(1)(f)(ii) handling of the body is important and may involve the deceased family member being accompanied until time of burial. Traditional families may want to wash the body;

1A.13.2.3(1)(f)(iii) involvement of elders is important; and

1A.13.2.3(1)(f)(iv) rituals may involve gatherings of large groups of people and the desired use of sweet grass/smudging ceremony.

1A.13.2.3(2) *Visitors*

1A.13.2.3(2)(a) Wayfinding and greeting services may be provided during service visiting hours, as volunteers are available. The Wayfinding/ Information Kiosk, or electronic signage, may be utilized to provide access to common information desk inquiries such as wayfinding.

1A.13.2.3(2)(b) After hours, access to the Facility will be via a vestibule connected to ES where there will be a security presence.

1A.13.2.3(3) ***Staff and Contractors***

1A.13.2.3(3)(a) The HA Gift Shop will typically be staffed by one volunteer at a time. HA volunteers may report into VS Workroom prior to their shift.

1A.13.2.3(3)(b) Discharges will be phoned by the Unit Clerk from the Inpatient Units to PR for processing.

1A.13.2.3(3)(c) Foundation members may report to the office to meet, plan activities, fill out grant applications, develop marketing materials, prepare mail-outs, etc. Visitors may drop-in to inquire about donating/learn about Foundation activities or drop off donated items. Less frequently, board meetings of up to 12 people will use bookable space within the Facility.

1A.13.2.3(3)(d) Requests for volunteers by various departments will be coordinated with the assistance of Administration, who will also coordinate the recruiting of volunteers, interviewing/screening potential volunteers, identifying roles and developing service descriptions for volunteers in conjunction with specific components, and educating staff about volunteer roles.

1A.13.2.3(3)(e) Potential volunteers will complete a basic application and be scheduled for an interview with Administration and volunteer representatives. Forms related to required immunizations, police check and any other necessary approvals will be provided to the candidate for completion.

1A.13.2.3(3)(f) Once the police check forms have been received, a second interview will be scheduled to complete any outstanding information and to discuss the candidate's interest, and to determine which area(s) of VS they will serve.

1A.13.2.3(3)(g) VS general operations will be as follows:

1A.13.2.3(3)(g)(i) volunteers will be decentralized to services/ programs. The component in which the volunteers are working will provide supervision on a day-to-day basis; and

1A.13.2.3(3)(g)(ii) volunteers will sign-in in the VS Workroom area upon arrival. After sign-in, volunteers will proceed to the area of the Facility where they are assigned to provide services.

1A.13.2.3(3)(h) All members of the interdisciplinary teams, patients, or family and friends may refer to the services of community Spiritual Care providers who will be available on-site as needed. Staff may also seek advice or counselling from the visiting chaplains, both on a formal or an informal basis.

1A.13.2.3(4) ***Equipment, Merchandise***

1A.13.2.3(4)(a) Gift Shop merchandise will be direct ordered by HA volunteers, and delivered from the loading dock directly to the Gift Shop.

1A.13.2.3(4)(b) Boxed items will be stored in the Storeroom, unpacked with packing materials removed from the area by volunteer staff.

1A.13.2.3(4)(c) Pallets of books (History of Terrace sold as a fundraiser) and other bulk items will be stored in Materiel Management. (see *Back of House: Materiel Management* component).

1A.13.2.4 Support Activities

1A.13.2.4(1) The Lobby will be a high traffic area and will require more frequent cleaning (e.g., mopping, vacuuming, garbage collecting, etc.) than other areas of the Facility.

1A.13.3 STAFFING

1A.13.3.1 Estimated future staffing for this component is summarized below in terms of Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

	Days		Nights
Classification/Position	Headcount	Occupancy	Headcount
Total	14-16		8-10
Weekdays	0		0
Foundation Staff (headcount)	1	Office	0
Hospital Auxiliary – Volunteers	1		0
Patient Registration	2	Workstation	0
Spiritual Care & Family Gathering	4-6		4-6
Volunteers (Headcount)	6		4

Notes:

- Other Patient Registration staffing resources are distributed to other components as follows:
  - 1-person Laboratory Services, 3 people Medical Imaging, 1 person ES, 1 person ACC.
- RPG in consultation with staff.

1A.13.4 DESIGN CRITERIA

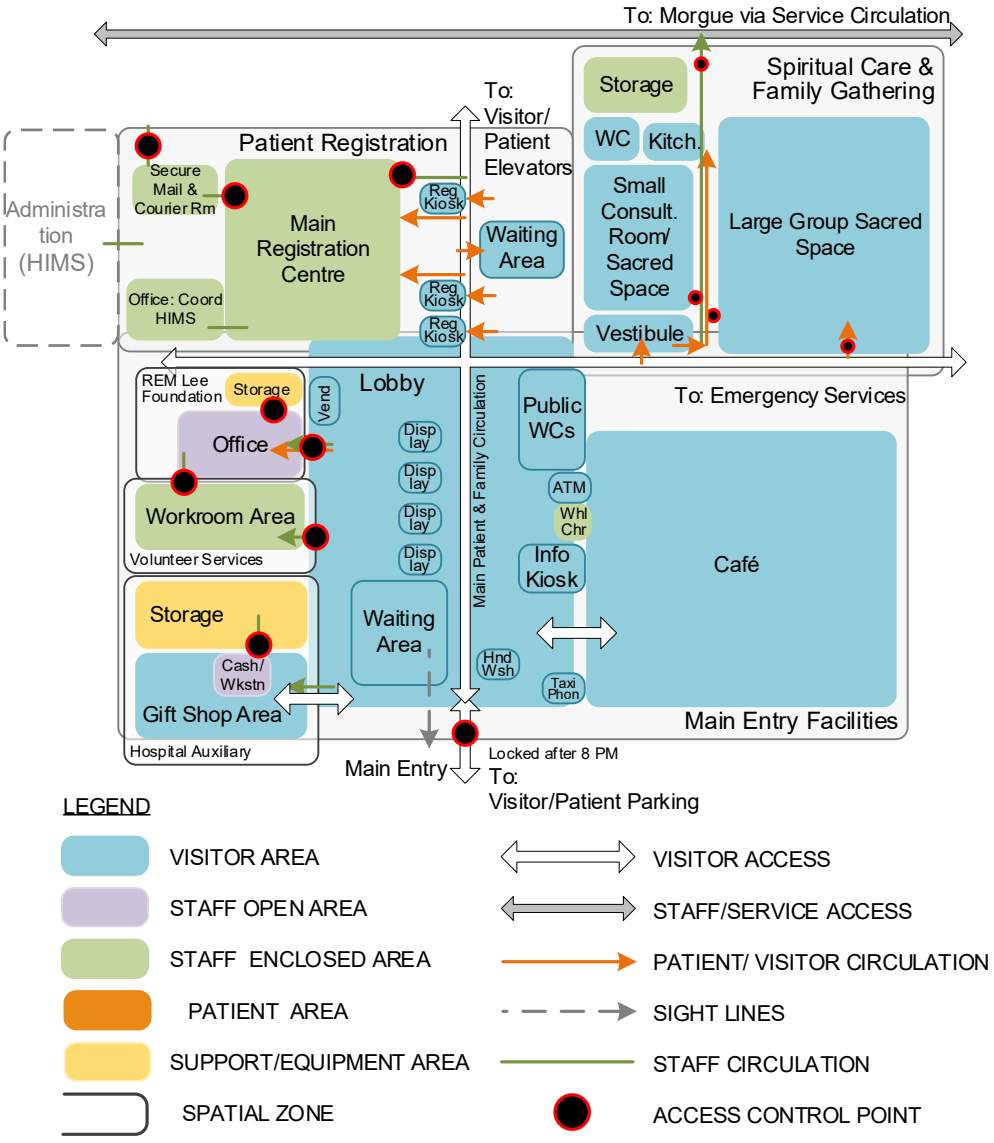
1A.13.4.1 External Relationships

1A.13.4.1(1) The following key external relationships for the Main Entry Facilities will be achieved in the priority order as numbered for the purposes stated:

1	**Main Entrance to Facility**	Provide convenient access via general circulation to/ from the Main Entrance into the Facility for ease of movement for patients and visitors.
2	**Emergency Services**	Provide convenient access via general circulation to Emergency Services for the ease of movement of patients and families.
3	**Medical/Surgical Inpatient Units**	Provide convenient access via general circulation to the Medical/Surgical Inpatient Units for the ease of movement of patients and families.
4	**Morgue**	Provide convenient access via general circulation to the Morgue for the ease of movement of families.

1A.13.4.2 Functional Relationship Diagram

1A.13.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.13.4.3 Internal Design Criteria

1A.13.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.13.4.3(2) Ensure external access to this area is restricted overnight while allowing Main Entry Facilities spaces to remain accessible internally as a route to other areas of the Facility.

1A.13.4.3(3) It is mandatory to provide private vehicle drop-off in the immediate vicinity of the Main Entry and Emergency Services (ES) walk-in entrance.

1A.13.4.3(4) Provide a visible profile for the Foundation office through use of signage, electronic signage.

1A.13.4.3(5) Following is a room-by-room list of spaces for Main Entry Facilities showing:

1A.13.4.3(5)(a) Intent of Space; and

1A.13.4.3(5)(b) Specific Design Features.

1A.13.5 SCHEDULE OF ACCOMMODATION

1A.13.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.13 MAIN ENTRY FACILITIES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Exterior Amenities					
	Drop-Off Lanes	3		0.0		1. Provide a minimum of 3 lanes 2. Provide covered portion closest to the Main Entry Vestibule to allow covered disembarking from vehicles 3. Assume Northern Health Connections bus will be using one lane
	Taxi Holding Alcove	1		0.0		1. Provide a parking alcove away from the Main Entry Vestibule
	Flag Poles	3		0.0	To fly flags, accreditation banners, etc.	
	Electric Vehicle Parking	2		0.0	Assumes no public access after hours	1. Provide a minimum of 2 EV/PHEV parking spaces on the site
	Public Bicycle Parking	4		0.0		
	Subtotal, Exterior Amenities			0.0		
	Public Amenities					
13.01	Main Entry Vestibule			0.0		1. To be provided from base building gross up 2. Provide means of passively cleaning footwear before entering Facility 3. The Main Entry Vestibule must face either east or south
	Lobby			0.0	Will accommodate wall mounted donor recognition, cultural artwork, etc.	1. To be provided from base building gross up

1A.13 MAIN ENTRY FACILITIES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
13.02	Information/Wayfinding Kiosk	1		7.4	Station manned by volunteers as an information booth	1. Provide static and interactive electronic maps for wayfinding within the Facility and surrounding community
13.03.	Waiting Area	1		34.0	For those waiting for transit/pick up	1. Locate near the Main Entry Vestibule with visibility to the exterior
01	*seats*	*12*	*1.9*			1. Cluster seating in groups of 2 to 4
02	*seats, barrier-free*	*4*	*2.8*			
13.04	Alcove, Wheelchair	*4*	*0.9*	3.6		1. Locate to ensure ease of access from the Main Entry Vestibule
13.05	Hand Sanitizing Station	1		1.8		1. Locate near the Main Entry Vestibule 2. Must not obstruct circulation routes
13.06	ATM	1		0.9		1. Locate at the perimeter of the main Lobby 2. Must not obstruct circulation routes
13.07	Taxi Telephone	1		0.9		1. Locate at the perimeter of the main Lobby 2. Must not obstruct circulation routes 3. Must have direct line to local taxi
13.08	Display Areas (allowance)	6	*1.5*	9.0	One of the Display Areas will include a display of artifacts gathered over the time of the existing Facility. One Display Area will accommodate the Donor Wall for the REM Lee Foundation	1. Provide displays with recessed, glazed, enclosed sections, wall mounted displays, and/or free-standing display units 2. Provide 1.2 nsm for free-standing displays 3. Circulation must be a minimum of 1200 mm space in front of displays
13.09	Vending Machines	3	*0.9*	2.7		1. Locate at the perimeter of the main lobby to be visible and not obstruct circulation routes

1A.13 MAIN ENTRY FACILITIES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
13.10	Washrooms, Public, Male	2	*4.6*	9.2		1. Locate 1 near the main entry 2. Locate 1 near the public elevators
13.11	Washrooms, Public, Female	2	*4.6*	9.2		1. Locate 1 near the main entry 2. Locate 1 near the public elevators
13.12	Washrooms, Public, Family	2	*7.7*	15.4		1. Non-gendered 2. 2 pc 3. Locate 1 near the main entry 4. Locate 1 r near the public elevators
13.13	Café (allowance)	1		150.0		1. Must be accessible to, and visible from the main public circulation 2. Must have convenient access to/from ES and ACC 3. Provide space and utilities to support dedicated refrigeration/freezers, coffee machines, panini grille, holding area, water hook up and warewashing as an example
	Subtotal, Public Amenities			244.1	306	1.25 grossing factor
	<u>Patient Registration</u>					
13.14	Registration Kiosks	3	2.3	6.9		1. Locate in the immediate vicinity of Main Registration Centre
13.15.	Main Registration Centre	1		35.8		1. Must be easily visible from the Main Entry Vestibule 2. Provide a positive airflow from the clerks towards the patient 3. Provide an HHS for staff 4. Provide hand hygiene stations for patients near the Registration Workstations

1A.13 MAIN ENTRY FACILITIES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
						5. Provide clearly marked location for face masks for patient use
01	*workstations, registration*	*2*	*7.4*			1. Configure to provide privacy for the patient during discussions with the clerk 2. Provide emergency alarm button at each workstation that annunciates at the local RCMP station 3. Provide bullet proof glazing with a document transfer system 4. Identify 1 workstation as “Information” as well as Registration. This workstation must be clearly visible from the Main Entry Vestibule
02	*supplies/label-maker/ printer zone*	*1*	*7.4*			
03	*chart assembly area*	*1*	*9.3*			1. Locate directly behind, and accessible from Registration Workstations
04	*switchboard*	*1*	*2.8*			
05	*secure till*	*1*	*0.5*			
06	*safe for valuables*	*1*	*1.0*			
13.16	Waiting	1		8.4		1. Locate within immediate view of the Patient Registration staff 2. Provide space and infrastructure for a 1092 mm/43” information display monitor
01	*seats, standard*	*2*	*1.4*			
02	*seats, barrier-free*	*2*	*2.8*			

1A.13 MAIN ENTRY FACILITIES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
13.17	Secure Mail & Courier Room	1	7.4			1. Controlled electronic access from Main Registration Centre 2. Accessible from staff circulation
13.18	Office: Coordinator HIMS	1	11.2		Will be used for HIMS, PR staff mtgs, staff discussions	1. Provide emergency alarm button that annunciates at the local RCMP station 2. Will be accessible from Main Registration Centre
	Subtotal, Patient Registration		69.7	87		1.25 grossing factor
	Hospital Auxiliary Gift Shop					
13.19	Cash Register/Workstation	1	4.0			1. Provide power and communications connections for a phone, debit machine, cash register 2. Provide an emergency button
13.20	Gift Shop Area	1	16.0			1. Provide natural light and good visibility from main Lobby 2. Provide 2 doors into the Shop Area; a main entry, and a back door from the Cash Register/ Workstation for movement of supplies into the Storage Room
13.21	Storage Room	1	9.3		For boxes of flats of pop, merchandise	1. Provide open for space unpacking of items/inventory control 2. Must be accessible directly from the Cash Register/ Workstation area 3. Provide roughed-in plumbing for a sink
	Subtotal, Hospital Auxiliary Gift Shop		29.3	37		1.25 grossing factor

1A.13 MAIN ENTRY FACILITIES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	<u>REM Lee Foundation</u>					
13.22.	Office	1		14.1		1. Ensure the wall facing the main public corridor is privacy-capable 2. The entryway from the public corridor shall be a minimum of 1800 mm wide clear x 2400 mm high clear 3. Provide direct access to VS Workroom
01	*workstation*	*2*	*4.6*			
02	*printer/scanner*	*1*	*0.9*			1. May be shared with the Hospital Auxiliary
03	*waiting area*	*2*	*2.0*			1. Provide means to display printed and electronic displays
13.23	Storage Room	1		5.0		1. Must be directly adjacent to the Office 2. The entryway shall be a minimum of 1800 mm wide clear x 2400 mm high clear
	Subtotal, REM Lee Foundation			19.1	26	1.35 grossing factor
	<u>Spiritual Care & Family Gathering</u>				Themes of nature, skylights, calming colours, textures, and sounds shall be used in the design of the rooms, along with northwestern imagery/art	1. Shall be accessible from a public corridor away from the Main Entry or ES. 2. Entry to ensure mourners and family members do not impede the flows of the Main Entry or ES 3. Locate on an outside wall 4. Provide access to a secured outdoor space
13.31	Washroom, Public	1		7.7		1. 2 pc 2. Non-gendered 3. Barrier-free 4. Can be accessible from public corridor

1A.13 MAIN ENTRY FACILITIES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
						5. Must be directly adjacent to Ref No13.27 Small Consultation Room/Sacred Space 6. Provide infrastructure for infant change table
13.24	Vestibule	1		5.5	Will provide access to Small and Large Sacred Spaces	1. Ensure there is no visibility directly into the Large Group Sacred Space or Small Consultation Room/ Sacred Space
13.25.	Large Group Sacred Space	1		72.0	Electronic access will be provided by staff	1. Provide infrastructure to support AV system/multi-media systems 2. Provide adjustable lighting controls 3. Must be directly adjacent to the Small Consultation Room/Sacred Space ~~to facilitate the opening of a wall between the two rooms for a larger service~~ 4. Provide solid partition between the 2 rooms 5. Locate adjacent to Ref No 13.26 Storage 6. Provide access to pwr 1.0 m AFFL at passthrough from Kitchenette Ref No13.28
01	*seats*	*35*	*1.9*			
02	*smudging area*	*1*	*5.5*			
13.26	Storage	1		7.5	For storage of religious symbols when not in use	1. Must be easily accessible to both Sacred Spaces 2. Entryway must be a minimum of 1800 mm wide clear x 2400 mm high clear 3. Must be directly adjacent to Ref No 13.31 Vestibule
13.27	Small Consultation Room/Sacred Space	1		12.0	This space could also serve as a quiet/ consultation room for meetings with community chaplains and other staff.	1. Provide infrastructure to support AV system/multi-media systems 2. Provide adjustable lighting

1A.13 MAIN ENTRY FACILITIES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
					Electronic access will be provided by staff	~~3.~~ Must be directly adjacent to the Large Group Sacred Space ~~to facilitate the opening of a wall between the two rooms for a larger service~~ 4. Must be directly adjacent to Ref No 13.28 Kitchenette 5. Must be directly adjacent to Ref No 13.31 Public Washroom
13.28	Kitchenette	1		3.7	Assumes all surfaces will be easily cleanable	1. Provide 1800 mm counter with drop-in stainless-steel single sink, millwork (no uppers) 2. Provide minimum 3 GFI duplex outlets 3. Provide serving window between this room and Ref No 13.25 Large Group Sacred Space 4. 4. Must be located directly adjacent to Ref No 13.25 Large Group Sacred Space
13.29	Waste Holding Alcove	1		1.0		
	Subtotal, Spiritual Care & Family Gathering			109.4	126	1.15 grossing factor
	Volunteer Services					
13.30.	Workroom	1		23.2	Shared with the REM Lee Foundation	1. The entryway shall be a minimum of 1200 mm wide clear 2. Provide high levels of lighting 3. Provide secured direct access to REM Foundation Office area
01	*table area*	*1*	*7.4*			
02	*lockers*	*10*	*0.4*			
03	*workstation, sign-in*	*1*	*1.8*			

1A.13 MAIN ENTRY FACILITIES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
04	*storage cabinets, lockable*	*1*	*2.2*			
05	*cart*	*1*	*1.9*			
06	*under counter fridge*	*1*	*1.0*			
07	*internal circulation @ 27%*	*1*	*4.9*			
	Subtotal, Volunteer Services			23.2	26	1.10 grossing factor
	Total Main Entry Facilities			494.8	606	Component Gross, Various Factors as shown

1A.14 MEDICAL IMAGING

This specification outlines the functional, operational, and physical requirements for the Medical Imaging (MI) component.

1A.14.1 FUNCTIONAL DESCRIPTION

1A.14.1.1 Statement of Purpose

1A.14.1.1(1) The MI component will accommodate different imaging modalities used for diagnostic, and interventional purposes. MI operation will support both scheduled and unscheduled visits from Emergency Services (ES), inpatient areas, and outpatient areas.

1A.14.1.2 Scope of Services

1A.14.1.2(1) Functional Content

1A.14.1.2(1)(a) Serving an inpatient and outpatient population for most modalities, the following list specifies the minimum set of functions that must be accommodated within the component:

1A.14.1.2(1)(a)(i) X-ray, including general radiology, minor fluoroscopy and portable x-ray;

1A.14.1.2(1)(a)(ii) Mammography, diagnostic and screening services (ancillary site for the Provincial Breast Screening Program);

1A.14.1.2(1)(a)(iii) Ultrasound, including abdomen/pelvic exams, cardiac, small parts, vascular, portable exam, and others as appropriate;

1A.14.1.2(1)(a)(iv) Computed Tomography (CT scanning) for full body systems including abdomen, head, chest and some CT angiography;

1A.14.1.2(1)(a)(v) MRI;

1A.14.1.2(1)(a)(vi) Nuclear Medicine (SPECT); and

1A.14.1.2(1)(a)(vii) Echocardiography.

1A.14.1.2(1)(b) Minimal interventional work will be done on-site and will be limited to minor fluoroscopy, upper GIs, soft tissue, breast, prostate, and thyroid biopsies, drainages, and stereotactic guided ultrasound.

1A.14.1.2(2) Planning Assumptions

1A.14.1.2(2)(a) Several concepts are important for the future organization and allocation of space, as follows:

1A.14.1.2(2)(a)(i) MI will be located in close proximity with easy access to the ES;

1A.14.1.2(2)(a)(ii) Bone Mineral Densitometry (BMD) will be an added modality;

1A.14.1.2(2)(a)(iii) Inpatient orthopaedics will be repatriated from Kitimat and Prince Rupert and added to the scope of clinical services offered at the Facility;

1A.14.1.2(2)(a)(iv) the registration for MI outpatients will be shifted from Patient Registration to MI. Booking of all appointments will continue to be done by MI staff;

1A.14.1.2(2)(a)(v) A formally designated CPS suite will be developed; and

1A.14.1.2(2)(a)(vi) a Nuclear Medicine Cluster will be included.

1A.14.1.2(3) Scope of Education Functions

1A.14.1.2(3)(a) There will be student placements for three terms per year from various institutions including the College of New Caledonia (two radiography students plus two ultrasound clinical students).

1A.14.1.2(3)(b) The component will accommodate one Nuclear Medicine student from BCIT.

1A.14.2 OPERATIONAL DESCRIPTION

1A.14.2.1 Hours of Operation

1A.14.2.1(1) Regular business hours of operation for specific modalities will vary, as follows:

1A.14.2.1(1)(a) BMD – 0800 to 1600 two to three days/week;

1A.14.2.1(1)(b) CT scanning – 0800 to 1600 weekdays;

1A.14.2.1(1)(c) Echocardiography – 0745 to 1745 weekdays;

1A.14.2.1(1)(d) General Radiography/Fluoroscopy – 0700 to 2400 weekdays and 0700 to 2400 weekends;

1A.14.2.1(1)(e) Mammography/Breast Screening – 0800 to 1600, weekdays with the potential to increase hours should demand require it;

1A.14.2.1(1)(f) MRI – 0800 to 2000 weekdays;

1A.14.2.1(1)(g) Nuclear Medicine – 0730 to 1700 weekdays;

1A.14.2.1(1)(h) Ultrasound – 0700 to 1700 weekdays;

1A.14.2.1(1)(i) Cardiopulmonary Services - 0800 to 1600 weekdays; and

1A.14.2.1(1)(j) Administrative Office – 0730 to 1700, weekdays.

1A.14.2.1(2) Call back coverage for General Radiography and CT will be provided 24/7. Acceptable waiting times will be defined. There will be two Radiologists on-site eight hours a day, five days a week.

1A.14.2.2 Organization & Management

1A.14.2.2(1) MI will operate under the leadership of a Site Manager, reporting to Health Service Administrator. There is also a relationship with the Regional Director of Diagnostic Services for systems standardization, quality reporting and long-term planning.

1A.14.2.2(2) Clinical coverage will eventually be supported by three Radiologists.

1A.14.2.3 Workflow

1A.14.2.3(1) The family physician will order an exam and refer the patient to MI for testing. The order will be faxed or sent electronically for booked exams. MI booking staff, in consultation with the patient, will book the exam appointment. A scheduling module will be available on the system.

1A.14.2.3(2) Patients will arrive directly from ES or Medical Day Care (MDC) in the *Ambulatory Care Centre* component, from the inpatient units by a nursing porter, or with a procedure requisition from a community physician referral. An itinerary will be printed that shows all services to be received, including scheduled time of service.

1A.14.2.3(3) Outpatients, along with family members/escorts, will be directed to the Entrance & Reception area. Functions performed at MI reception will include:

1A.14.2.3(3)(a) check patient identification and determine scheduled procedures;

1A.14.2.3(3)(b) screen patients with known or suspected communicable illnesses;

1A.14.2.3(3)(c) determine if proper preparations have been performed. If not, follow defined protocols for rescheduling with proper instructions; and

1A.14.2.3(3)(d) notify staff in the appropriate modality that the patient has arrived and direct the patient to the sub-waiting area. Intra-departmental staff will escort patients to the proper locations.

1A.14.2.3(4) Modalities will be clustered to share waiting areas. Waiting areas will have seating to accommodate patients and escorts for a brief time. Most patients will change into a gown. Patients will keep valuables with them. When the imaging room is ready, the technologist will call the patient and escort them into the room.

1A.14.2.3(5) Patients may require IV contrast in preparation for a CT or MRI exam and will recover in the MDC of ES.

1A.14.2.3(6) Upon completion of a procedure, the technologist will discuss the next steps with the patient. The patient will be instructed to wait for release (e.g. if a radiologist must first review the image). Once released, the patient will change into street clothes and exit the Facility.

1A.14.2.3(7) MI staff will be responsible for incidental cleaning and for putting clean linen on the stretchers.

1A.14.2.3(8) *Consent*

1A.14.2.3(8)(a) Many procedures will require the patient to sign an informed consent agreement. This agreement will be explained to the patient by appropriate personnel (radiologist, resident, nurse, or technologist). Shared Interview/Exam Rooms will be located near the patient sub-waiting areas for obtaining consent.

1A.14.2.3(9) *Preparation*

1A.14.2.3(9)(a) Some procedures will require administration of a contrast material or pharmaceutical agent prior to or during the exam. Imaging staff will perform most preparations.

1A.14.2.3(10) *Procedure Completion and Quality Assurance*

1A.14.2.3(10)(a) All modalities will be fully digital, and thus images will be captured electronically. Technologists will be able to quickly review images for adequacy at a monitor that is integral to the imaging equipment or a nearby review terminal. As necessary, radiologists will review images before the patient is released. In most cases this will be done from the radiologist's PACS reading workstation.

1A.14.2.3(11) *Reporting*

1A.14.2.3(11)(a) All images will be captured digitally and will be available on PACS reading stations. Reading areas will accommodate up to two individuals for consultations.

1A.14.2.3(12) *Transcription/Voice Recognition*

1A.14.2.3(12)(a) Reports will be dictated using a voice recognition system, which allows the radiologist to make immediate corrections and release the report.

1A.14.2.3(13) *Image Management*

1A.14.2.3(13)(a) The PACS system will serve as a central repository for all Facility exams. It will also include exams performed by other providers on Authority patients. The system provides redundancy and back-ups through servers located at off-site at UHNBC.

1A.14.2.3(13)(b) Image review workstations will be available throughout the patient care areas.

1A.14.2.4 Support Activities

1A.14.2.4(1) *Supplies & Disposal*

1A.14.2.4(1)(a) Clean linen supplies will be kept stocked in designated holding rooms of the department, including gowns and blankets.

1A.14.2.4(1)(b) Soiled linen, and all waste streams including the separated Nuclear Medicine decay waste will be bagged and coded as necessary for removal, treatment, storage, and disposal. MM porters will remove

soiled linen. Waste will be separated into general waste, biomedical waste, sharps, recyclables, and confidential paper by MI staff in a Soiled Utility Room before pick up by Housekeeping staff. Only staff trained in moving hazardous materials will move decay waste.

1A.14.2.4(1)(c) Ultrasound probes will be reprocessed in MI.

1A.14.2.4(2) *Cleaning*

1A.14.2.4(2)(a) Housekeeping staff will provide regular general cleaning services, including cleaning stretchers on a scheduled basis

1A.14.2.4(3) *Pharmaceutical Services*

1A.14.2.4(3)(a) Radiopharmaceuticals will be stored in the Hot Lab of the Nuclear Medicine Cluster. Medication stock will be replenished by Pharmacy staff as requested.

1A.14.3 STAFFING

1A.14.3.1 Estimated future staffing for this component is summarized below in terms of Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

	Days		Nights (1900 to 2200)
Classification/Position	Headcount	Occupancy	Headcount
Total	29		5
Weekdays			0
Manager	1	Office	0
Intake Clerk	2	Workstation	0
Booking Clerk	3	Shared Office	1
Assistant	1	Workstation	0
Technologists – X-Ray/CT	6	Workstation	2
Technologists – Mammography	1	Workstation	0
Technologists – Echocardiography	2	Workstation	0
Technologists – Ultrasound	3	Workstation	0
Technologists – PACS/QA	1	Workstation	0
Technologists – Nuclear Medicine *(incl. Chief Technologist/Supervisor)*	3	Workstation	0
Technologists – MRI	4	Workstation	0
Radiologist	2	Office	1
After Hours Coverage			1

Notes:

- Source: Authority Decision Support/Finance Department.
- RPG in consultation with staff.

1A.14.4 DESIGN CRITERIA

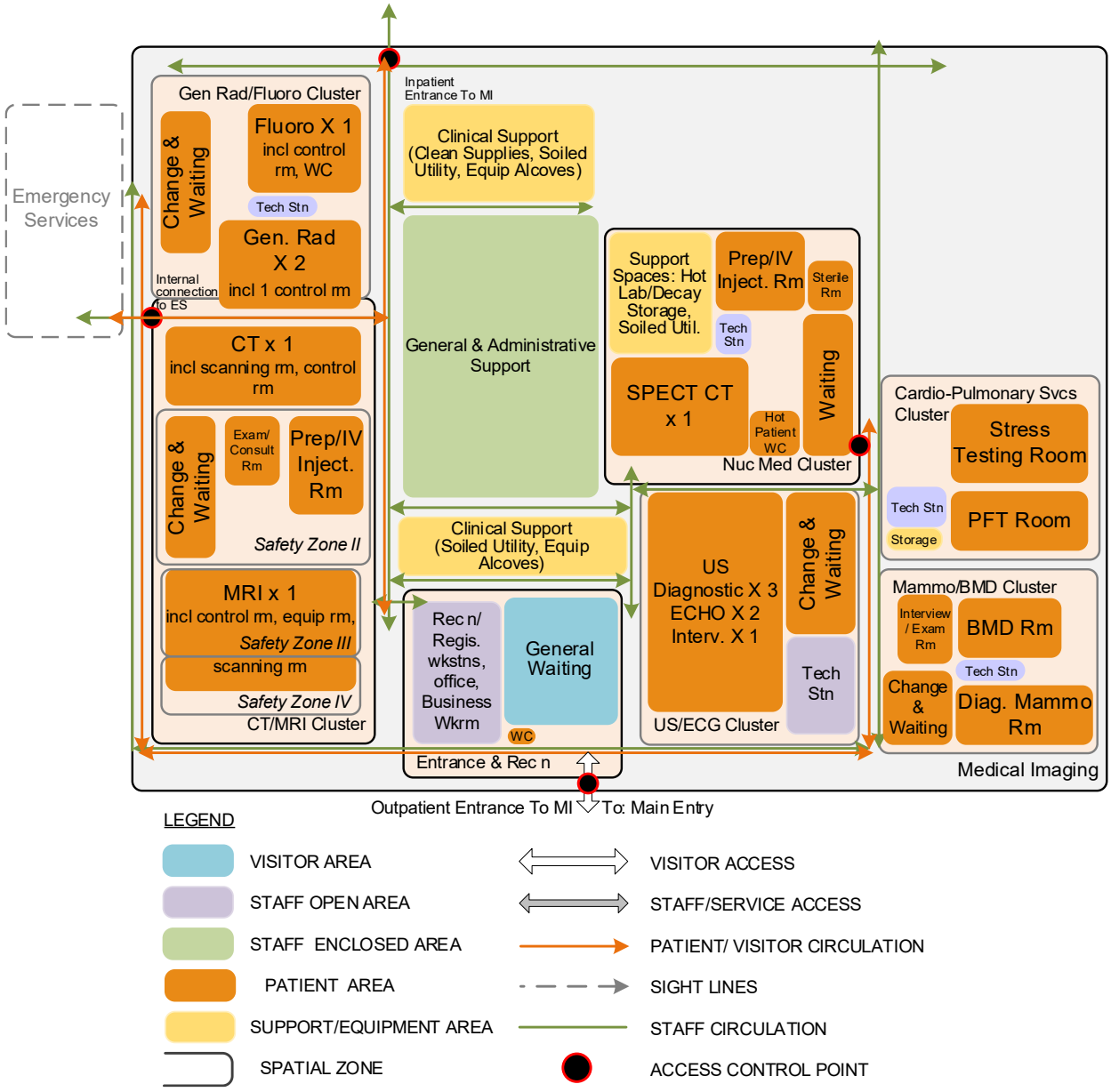
1A.14.4.1 External Relationships

1A.2.5.14.4.1(1) The following key external relationships for MI will be achieved in the priority order as numbered for the purposes stated:

1	**Emergency Services**	Provide direct access via internal circulation to/from Emergency Services for the quick movement of patients and collaboration of staff.
2	**Ambulatory Care Centre**	Provide direct access via internal circulation to/from the Ambulatory Care Centre for the movement of patients and collaboration of staff in the MDC and the Stress Testing Room.
3	**Main Entry Facilities**	Provide convenient access via general circulation to/from Main Entry Facilities for the ease of movement of patients, visitors, and staff.

1A.14.4.2 Functional Relationship Diagram

1A.14.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.14.4.3 Internal Design Criteria

1A.14.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.14.4.3(2) To protect patient privacy and dignity, access to procedure/examination rooms shall be simple and direct.

1A.14.4.3(3) Patient positions in an exam room shall be such that there is no patient view to the next exam room through a Shared Control Room.

1A.14.4.3(4) The MRI suite must be placed on an exterior wall for ease of replacement of equipment.

1A.14.4.3(5) Floor load capability in camera rooms and all corridors leading to camera rooms from the Service Entrance of the Facility, must exceed minimum requirements as suggested by equipment manufacturers.

1A.14.4.3(6) The route between ES Trauma/Resus Room and the CT Suite and one GenRad room in the MI component must be a straight run, no turns, no slopes, and no stairs.

1A.14.4.3(7) Ensure minimum of turns to exam rooms.

1A.14.4.3(8) Provide hands-free entry at all doors along circulation routes.

1A.14.4.3(9) Provide a minimum door width opening of 1.2 m wide clear into all MI exam rooms.

1A.14.4.3(10) Medical gases including oxygen, air, and suction shall be included in all therapeutic and diagnostic areas (two outlets each). These outlets shall be near the testing equipment.

1A.14.4.3(11) All imaging and reading rooms will have dimmable lighting.

1A.14.4.3(12) Natural light shall be maximized wherever possible, except in General Radiology Rooms, CT Suite, MRI Suite, Nuclear Medicine Cluster, BMD Room, and Mammogram Diagnostic Screening/Biopsy Room.

1A.14.4.3(13) Following is a room-by-room list of spaces for MI showing:

1A.14.4.3(13)(a) Intent of Space; and

1A.14.4.3(13)(b) Specific Design Features.

1A.14.5 SCHEDULE OF ACCOMMODATION

1A.14.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.14 MEDICAL IMAGING

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Entrance & Reception					
14.01.	Reception/Registration	1		38.4		
01	*hand-hygiene station*	*1*	*0.9*		For clients	1. Wall mounted
02	*workstation*	*2*	*4.6*		For clerical MI intake staff	1. Ensure 1 workstation is no more than 3660 mm from *Safety Zone II* security door of the MRI Suite
03	*booking office, shared*	*1*	*13.5*		Booking will primarily be via phone. Shared by all modalities	1. Ensure 1 workstation has face to face capability for patients. 2. This access must block visibility into the Booking Office when closed
04	*business workroom*	*1*	*14.8*		Supplies storage	1. Includes 1800 mm layout surface with enclosed, lockable, millwork storage below
14.02.	General Waiting	1		32.2		1. Provide infrastructure and utilities for a 1092 mm/43" information display monitor
01	*seats*	*14*	*1.9*			
02	*seats, barrier free*	*2*	*2.8*			
14.03	Washroom, Public	1		7.7		1. 2 pc 2. Barrier Free 3. Non gendered 4. Provide infant change table
	Subtotal, Entrance & Reception			78.3		
	General Radiography/ Fluoroscopy Cluster					1. Must have direct access to Emergency Services through service circulation
14.04.	General Radiography	1		65.4		1. May be multi-use
01	*examination room*	*2*	*29.0*			1. Provide HHS 2. Provide wall mtd rack to hang lead aprons

1A.14 MEDICAL IMAGING

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
02	*control room*	*1*	*7.4*			1. Shared 2. Provide direct access to each Examination Room (Ref No 14.04.01) 3. Control Room wall to be no more than 2130 mm high
14.05.	Tech Review Station	1		7.4		
01	*workstation*	*1*	*4.6*			
02	*hand-hygiene station*	*1*	*0.9*			1. Wall mounted
03	*supplies*	*1*	*1.9*			1. Provide linen shelf below 1200 lin m counter
14.06.	Fluoroscopy/Multi-Purpose	1		41.0		
01	*examination room*	*1*	*29.0*			1. Provide HHS 2. Provide wall mounted lockable cabinet for medications 3. Provide wall mtd rack to hang lead aprons
02	*control room*	*1*	*7.4*			
03	*washroom*	*1*	*4.6*			1. 2 pc 2. Non-gendered
14.07.	Change and Waiting	1		18.0		1. Accessible from internal patient circulation 2. Ensure no visibility from General Waiting or general circulation areas
01	*sub-waiting*	*4*	*1.9*			
02	*stretcher waiting*	~~*1*~~	~~*5.0*~~			1. Intentionally deleted - reallocation of space not indicated at the time
03	*change cubicle*	*3*	*1.4*			
04	*change cubicle, barrier free*	*1*	*4.7*			
05	*lockers*	*4*	*0.4*			
14.08	Clean Supplies Room	1		18.2		
14.10	Mobile X-Ray Alcove	2	1.9	3.8		1. Provide power, communications at 1000 mm AFFL 2. Provide rack to hang lead aprons

1A.14 MEDICAL IMAGING

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Subtotal, General Radiography/Fluoroscopy Cluster			153.8		
	CT/MRI Cluster					
14.17.	CT Suite	1		51.1		1. Must have direct access to Emergency Services through service circulation
01	*scanning room*	*1*	*40.0*			1. Provide utility sink 2. Provide infrastructure for ceiling mounted monitor 3. Provide 2 lin m of upper/lower millwork. 1 upper cabinet must be lockable
02	*control room*	*1*	*11.1*			1. Ensure sightline from Control Room to patient's face 2. Provide direct access to Scanning Room (Ref No 14.17.01) 3. Provide visibility to Stretcher (Ref No 14.11.01) and Sub-Waiting Stretcher (Ref No 14.13.03)
	Safety Zone II					1. Provide door separating Safety Zone II from other Zones in this cluster
14.11.	Preparation/IV Injection Area	1		21.3		1. Recovery will be in Medical Day Care within the *Ambulatory Care Ctr* component
01	*stretcher*	*2*	*7.4*		**Adding IV Chair?? Or cluster w/ sub-waiting, stretcher Ref No 14.13.03?**	1. Cluster with Sub-Waiting, Stretcher (Ref No 14.13.03) 2. Provide oxygen, suction
02	*supplies storage/sink station*	*1*	*6.5*			1. Provide HHS
14.12.	Exam/Consult Room	1		9.3	Also used for interviews. Shared	1. Provide HHS 2. Provide intercom to Control Rooms of CT and MRI
14.13.	Change and Waiting	1		31.2		1. Accessible from internal patient circulation 2. Provide visibility from MRI reception stn
01	*sub-waiting*	*4*	*1.9*			
02	*sub-waiting, barrier free*	*1*	*2.8*			1. Intentionally deleted

1A.14 MEDICAL IMAGING

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
03	*sub-waiting, stretcher*	*1*	*5.0*			1. Cluster w/ Stretcher (Ref No 14.11.01) 2. Provide oxygen, suction 3. Provide lockable cabinet for medications
04	*change cubicles*	*0*	*1.4*			1. Intentionally deleted - space (2.8 nsm) reallocated toa counter with storage for supplies (as per HDR dwg 11/24/20)
05	*change cubicle, barrier free*	*1*	*4.7*			
06	*lockers, patient*	*4*	*0.4*			
07	*alcove, gown cart*	*1*	*1.9*			
08	*washroom, barrier free*	*1*	*7.7*			1. Locate directly adjacent to CT Suite
14.16	Washroom, Staff	1	4.6	4.6		1. 2 pc 2. Provide enclosed 1000 lin mm shelf above/behind toilet
	Safety Zone III					1. Restricted access 2. Provide HHS outside of door to Zone III
14.18.	MRI Suite	1		31.6		
02	*MRI control room*	*1*	*13.9*			1. Provide sightline from MRI Control Room to Sub-Waiting, Stretcher in Zone III
03	*MRI equipment room*	*1*	*17.7*		MRI computer equipment	
	Safety Zone IV					
01	*MRI scanning room*	*1*	*50.0*	50.0		
	Subtotal, CT/MRI Cluster			199.1		
	Ultrasound Cluster					1. Each US room will have enclosed 1800 lin mm millwork linen storage, 1000 lin mm counter with shelving below

1A.14 MEDICAL IMAGING

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
14.19	Ultrasound Diagnostic Room	3	13.0	39.0		1. Provide HHS 1. One Diagnostic US Room must be adjacent to the Mammography Diagnostic Screening/Biopsy Room 3. Provide oxygen, suction 4. Provide patient call/staff assist buttons 5. Provide dimmable lights 6. Room must be lockable
14.20	Washroom, Patient	1		4.6		1. Must be accessible from US Diagnostic Rooms
14.21	Ultrasound Echocardiography	2	13.0	26.0		1. Provide HHS 2. Provide oxygen, suction 3. Room must be lockable
14.22	Ultrasound Interventional Room	1	14.9	14.9		1. Provide HHS, space for biopsy equipment 2. Must be Telehealth capable 3. Provide infrastructure for enclosed, lockable cabinet for medications, wall mounted 4. Provide oxygen, suction 5. Provide patient call/staff assist buttons 6. Room must be lockable
14.23.	Change and Waiting	1		40.7		1. Accessible from internal patient circulation
01	*sub-waiting*	*9*	*1.9*			
02	*sub-waiting, stretcher*	*1*	*5.0*			
03	*change cubicle*	*2*	*1.4*			
04	*change cubicle, barrier free*	*1*	*4.7*			
05	*lockers, patient*	*4*	*0.4*			
06	*alcove, gown cart*	*1*	*1.9*			
07	*washroom, barrier free*	*1*	*7.7*			
~~14.24~~	~~Clean Supplies Room~~	~~0~~		~~0.0~~	Intentionally deleted	~~1. Provide HHS~~ ~~2. Shared with Mammography~~

1A.14 MEDICAL IMAGING

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
~~14.25~~	~~US Scope Cleaning Alcove~~	~~0~~	~~3.7~~	~~0.0~~	~~For sterilizing all scopes, probes~~ Intentionally deleted	~~1. Provide utility sink, 1800 mm counter with 1800 mm of open storage below~~ ~~2. Locate centrally to all US Rooms~~
14.26	Alcove, US ECHO machine	1	1.4	1.4		1.Provide power & communications at 1.0 m AFFL to charge and update equipment
14.27.	Tech Work Area	1		19.4		1. Place 1 Tech Workstation between 2 US Rooms
01	*workstation*	*3*	*4.6*		1 will be for echocardiography measurements/off-cart processing	
02	*supplies*	*3*	*0.6*			
03	*US Scope Cleaning Alcove*	*1*	*2.0*		For sterilizing all scopes used in US Cluster	1. Provide utility sink 2. Provide 1800 lin mm of counter w/1800 lin mm of open storage below 3. Locate centrally to all US Rooms
04	*alcove, access to Ref No 14.01*	*1*	*1.7*			1. Provide access to Reception/Registration (Ref No 14.01) from Tech Work Area
14.52	Washroom, Staff	1		4.6		1. 2 pc 2. Provide enclosed 1000 lin mm shelf above/behind toilet
	Subtotal, Ultrasound Cluster			150.6		
	<u>Mammography/BSP & BMD Cluster</u>					
14.28	Diagnostic Screening / Biopsy Room	1	*16.7*	16.7	**End users saying room is too small – no justification for more space yet**	1. Provide 1200 lin mm counter with enclosed lockable cabinets below 2. Provide wall mounted brackets for hanging paddles 3. Provide power and communications access for Trident equipment alcove within this room 4. Must be adjacent to one Diagnostic US Room
14.29	Bone Mineral Densitometry Room	1	*13.0*	13.0		

1A.14 MEDICAL IMAGING

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
14.30	Interview / Exam Room	1		13.0	Will be used for post-exam paperwork for patient	
14.31.	Change and Waiting	1		8.6		1. Accessible from internal patient circulation
01	*sub-waiting*	*3*	*1.9*			1. Immediately adjacent to Diagnostic Screening/Biopsy Room
~~*02*~~	~~*stretcher waiting*~~	~~*0*~~	~~*5.0*~~			1. Intentionally deleted
03	*change cubicle*	*1*	*1.4*			
~~*04*~~	~~*change cubicle, barrier free*~~	~~*0*~~	~~*4.7*~~			1. Intentionally deleted
05	*lockers, patient*	*4*	*0.4*			
14.32.	Tech Work Area	1		6.5		
01	*workstation*	*1*	*4.6*			
02	*supplies*	*1*	*1.9*			
	Subtotal, Mammography/ BSP & BMD Cluster			57.8		
	Nuclear Medicine Cluster					1. Must be segregated with restricted access only
14.34.	SPECT-CT Suite	1		52.8		1. Must have convenient access to the Stress Testing Room in the Ambulatory Care Centre component
01	*camera room*	*1*	*39.5*			1. Must be adjacent to the Hot Lab/Decay Storage room 2. Provide two points of access 3. Provide access to Washroom, Barrier-Free from this room
02	*control room*	*1*	*13.3*		3 monitors will be part of the camera system. Waiting patients will be monitored from the Control Room	1. Provide two points of access 2. Provide 1200 lin mm of counter space for each workstation with 1200 lin mm of enclosed storage below 3. Provide vision panel in door from corridor into Control Room
14.35	Prep/Injection/Set-Up Room	1	16.7	16.7		1. Must be adjacent to the SPECT-CT Scanning Room 2. Provide lockable cabinet for medications

1A.14 MEDICAL IMAGING

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
14.36	Sterile Room	1	7.4	7.4		1. Provide 1200 lin mm millwork counter with open storage below, adjacent to laminar flow hood
14.37.	Hot Lab/Decay Storage	1		27.5		1. Must be adjacent to the SPECT-CT Camera Room and Prep/Injection/Set-Up Room
01	*gowning vestibule*	*1*	*2.8*			
~~*02*~~	~~*BSC Class IIA, 1200 mm*~~	~~*0*~~	~~*4.5*~~			1. Intentionally deleted
03	*fume hood, ~~1200 mm~~*	*1*	*4.5*			
04	*storage, decay*	*1*	*10.6*			1. Provide HHS
05	*housekeeping room, distributed*	*1*	*3.7*			1. See *Housekeeping & Laundry Services* component for description
06	*emergency shower*	*1*	*1.4*			
07	*workstation*	*1*	*1.5*		Area reallocated from deleted BSC	
08	*sink, hot, cold*	*2*	*1.5*		Area reallocated from deleted BSC	1. Provide 1 hot sink, 1 cold sink
14.38	Washroom, Hot Patients	0		0.0		Removed
14.39.	~~Change and~~ Waiting	1		26.0		1. Must be immediately adjacent to the SPECT-CT Scanning Room
01	*sub-waiting*	*7*	*1.9*			
02	*stretcher waiting*	*1*	*5.0*			
~~*03*~~	~~*change cubicle*~~	~~*0*~~	~~*1.4*~~			1. Intentionally deleted
~~*04*~~	~~*change cubicle, barrier free*~~	~~*0*~~	~~*4.7*~~			
~~*05*~~	~~*lockers, patient*~~	~~*0*~~	~~*0.4*~~			
06	*washroom, barrier free*	*1*	*7.7*			1. 2 pc 2. Must be accessible from SPECT-CT Suite Camera Room

1A.14 MEDICAL IMAGING

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
14.40	Tech Workstation	1	4.6	4.6	Reallocation will allow 2 wkstns at entry to MRI Suite	1. Locate adjacent to Ref No 14.01.02 Registration/Reception (1) Workstation (4.6 nsm) designated to MRI Suite
~~14.41~~	~~Clean Supplies Room~~	~~0~~	~~5.7~~	~~0.0~~		
14.42	Alcove, Soiled Utility	1	2.0	2.0	For linen hamper, etc.	
	Subtotal, Nuclear Medicine Cluster			137.0		
	General & Administrative Support					
14.43	Office, Manager	1	11.2	11.2		1. Locate in close proximity to Office, Senior Technologist
14.44	Office, Senior Technologist	1	9.3	9.3		1. Provide convenient access to US and Mammography/BSP Clusters
14.45	Office/Consult, Radiologist	3	9.3	27.9		1. Locate near Office, Senior Technologist 2. Provide power, communications to support 4 monitors
14.46	Office, PACS/Transcription	1	9.3	9.3		1. Provide convenient access to US Cluster
14.47	Alcove, Crash Cart	1	1.4	1.4		1. Locate central to component
14.09	Soiled Utility Room	2	12.0	24.0	Reduce enough to allow staff WC ??	1. Provide HHS 2. Locate central to all modalities
14.48.	Conference Room	1		26.9		
01	*seats*	*10*	*2.0*			
02	*equipment*	*1*	*1.5*			
03	*circulation - 25%*	*1*	*5.4*			
14.49.	Staff Lounge/Break Room	1		27.1		1. Shared with Laboratory Services 2. Provide door to Conference Room (Ref No 14.48)
01	*purse lockers*	*25*	*0.2*			
02	*seats*	*8*	*2.3*			
03	*kitchenette*	*1*	*4.9*			1. Provide 1800 mm counter with single stainless steel sink, upper/lower millwork

1A.14 MEDICAL IMAGING

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
14.50.	Student Work Area	1		9.2		
01	*workstation*	*2*	*2.8*			
~~*02*~~	~~*storage/reference materiel*~~	~~*0*~~	~~*4.6*~~			1. Intentionally deleted
03	*workstation, student coordinator*	*1*	*3.6*			
14.51	Housekeeping Closet, Distributed	1		7.0		1. See *Housekeeping & Laundry Services* component for description
14.53	Washroom, Staff	1		4.6		1. 2 pc 2. Provide enclosed 1000 lin mm shelf above/behind toilet
	Subtotal, General & Administrative Support			157.8		
	Cardio Pulmonary Services (CPS)					
3.31	Workstation	2	4.6	9.2		1. Accessed from the ACC Waiting Area
3.32	Stress Testing Room	1		29.2	Emergency and non-emergency medications will be stored in this room	1. Provide emergency power, code blue button, nurse call, data 2. Provide medical gases (oxygen, air and suction) 3. Will accommodate 1 treadmill, 1 stretcher with sufficient space around it for the Code Team, when necessary 4. Provide alcove for changing 5. Provide supplies millwork and staff HHS
3.36	PF & Spirometry Testing Room	1		20.0		1. Provide medical gases (oxygen, air and suction) 2. Provide supplies millwork, including secure wall mounted medications cabinet, staff HHS 3. Provide emergency call and code blue 4. Provide storage for lung diffusion mixture K-type tanks, secured to wall or in a portable cart 5. Provide storage for gas calibration, e-size tanks

1A.14 MEDICAL IMAGING

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
3.35	Storage Room	1		3.7		1. Locate central to all rooms 2. Provide storage for extra portable tanks
	Subtotal CPS			62.1		
	Total, Medical Imaging			**996.4**	**Component Area = 1,495 CGSM at 1.50 grossing factor**	

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1A.15 PHARMACY

This specification outlines the functional, operational, and physical requirements for the Pharmacy component.

1A.15.1 FUNCTIONAL DESCRIPTION

1A.15.1.1 Statement of Purpose

1A.15.1.1(1) The Pharmacy will procure, control inventories, prepare and distribute medications and narcotics, teach patients and other health care providers about medications, train new pharmacists and pharmacy technicians, apply medication knowledge collaboratively with physicians and other health care providers, deliver drug order review and therapeutic drug therapy management decisions within scope of practice criteria defined by the College of Pharmacists of BC and Health Authority Policy.

1A.15.1.1(2) This Pharmacy will be a procurement hub for the Northwest Health Service Delivery Area (NWHSDA).

1A.15.1.2 Scope of Services

1A.15.1.2(1) Functional Content

1A.15.1.2(1)(a) The following list specifies the minimum set of functions that must be accommodated within the component:

1A.15.1.2(1)(a)(i) the preparation and storage of medications for off-site delivery to residential, hospital/acute care, and health centres in the NWHSDA;

1A.15.1.2(1)(a)(ii) patient specific dispensing will be limited to medications not stocked in the automated dispensing cabinets (ADCs);

1A.15.1.2(1)(a)(iii) managing and replenishing the ward stock distribution system daily for designated treatment areas of the Facility;

1A.15.1.2(1)(a)(iv) preparation of central intravenous admixtures (CIVA) select products: e.g. narcotic syringes, epidural bags, sterile eye products, antibiotics for home IV therapy and parenteral nutrition. This service will be extended to supply the NWHSDA;

1A.15.1.2(1)(a)(v) provision of transplant medications to outpatients;

1A.15.1.2(1)(a)(vi) chemotherapy and hazardous drug preparation for outpatient administration;[1]

1A.15.1.2(1)(a)(vii) specialized compounding of solutions, ointments, etc.;

[1] IV preparations for Terrace and Kitimat. Oral preparations for patients in all communities in the NW HSDA.

1A.15.1.2(1)(a)(viii) remote verification of orders using telepharmacy technology for other regional sites; and

1A.15.1.2(1)(a)(ix) full pharmaceutical care provided by clinical pharmacists in all patient care areas by an on-site or regional pharmacist.

1A.15.1.2(2) Planning Assumptions

1A.15.1.2(2)(a) The Pharmacy will develop a plan that will result in changes to its methods of operation. The plan will include:

1A.15.1.2(2)(a)(i) support of all facilities consistent with Terrace evolving its role to a "hub" centre for NWHSDA. In addition to clinical support, this will include distribution of medication on a scheduled basis reflective of demand;

1A.15.1.2(2)(a)(ii) implementation of a new 24-hour unit dose point-of-use drug distribution system. This will include ADCs with a closed-loop barcoding system in patient care areas for all medication requirements. Note: as technology continues to evolve the Pharmacy will respond accordingly, subject to capital and operating funding;

1A.15.1.2(2)(a)(iii) an automated packager and verifier to support the unit dose system. Ward stock medications will be used for departments with limited medication stock requirements such as Renal Services, Medical Imaging, etc.;

1A.15.1.2(2)(a)(iv) expansion of the CIVA program to support the growing oncology program as well as the addition of inpatient orthopaedic surgery;

1A.15.1.2(2)(a)(v) a computerized physician order-entry (CPOE) will be introduced for medication orders;

1A.15.1.2(2)(a)(vi) the implementation of electronic Medication Administration Record (eMAR) linked to the electronic medical record (EMR) for the patient care areas;

1A.15.1.2(2)(a)(vii) shifting to unit-based clinical services, thereby having the pharmacists clinically assess orders on the unit and the technicians filling orders in the dispensary; and

1A.15.1.2(2)(a)(viii) the use of telehealth to support the patients' clinical pharmacy needs.

1A.15.1.2(2)(b) The Pharmacy will be connected to the integrated Clinical Information System (CIS) for order entry, review and record keeping. Applications available will include eMAR, order entry, ADT/CPI, formulary management, purchasing and administrative/managerial applications, and other clinical applications. Oncology and home IV therapy will continue to be a separate module. The system will have connections to PharmaCare and Provincial databases.

1A.15.1.2(2)(c) It is anticipated that the CIS will accommodate order entry and order verification to occur in all patient care areas. Fixed and mobile computers/tablets will be used for processing orders, accessing the eMAR and reviewing drug information literature from downloaded or external sources.

1A.15.1.2(2)(d) Staff will require the ability to communicate with the other areas of the department if needed.

1A.15.1.2(3) Excluded

1A.15.1.2(3)(a) N/A.

1A.15.2 OPERATIONAL DESCRIPTION

1A.15.2.1 Hours of Operation

1A.15.2.1(1) 0700 to 1900 weekdays and 0800 to 1600 weekends. On-call coverage will be provided by the Facility pharmacist supported by the UHNBC pharmacist on-call or an in-house/local rotation for the NWHSDA.

1A.15.2.2 Organization & Management

1A.15.2.2(1) Pharmacy Services will continue to operate on a day-to-day basis under the leadership of the Pharmacy Manager for NWHSDA with the assistance of the Pharmacy Technician Supervisor and reporting to the Regional Director of Pharmacy for the Authority.

1A.15.2.3 Workflow

1A.15.2.3(1) ***Purchasing***

1A.15.2.3(1)(a) Most orders will be communicated electronically i.e. uploaded to wholesalers. Shipments will be received in the *Back of House: Materiel Management* (MM) component with an MM porter delivering orders to the Pharmacy. A Pharmacy Technician will verify stock and move to the appropriate storage area.

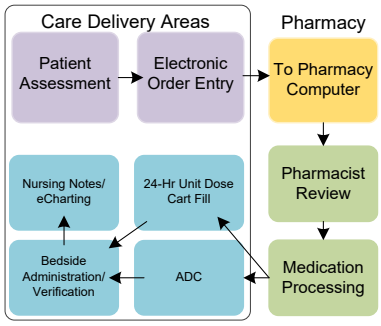
1A.15.2.3(1)(b) All expired medications will be returned from NWHSDA sites to Terrace for review, processing and delivery to vendors for credit where applicable.

1A.15.2.3(2) ***Medication Order Processing & Administration***

1A.15.2.3(2)(a) The medication management system will be designed to support the implementation of closed-loop barcoding that will be used by physicians, nurses and the Pharmacy at the point-of-care.

1A.15.2.3(2)(b) There are several steps to the order processing and administration functions for acute care sites as shown in *Figure 1*:

Figure 1: Medication Order Processing



1A.15.2.3(3) ***ADC Replenishment***

1A.15.2.3(3)(a) Most medications stocked on the Units will be stored in an ADC. Medications will be filled with fill lists generated through the POU Information System and distributed to the ADCs using master replenishment cart or a bin/tote. The Pharmacy Technicians will fill all medications with a record of dispensing, using bar coding technology.

1A.15.2.3(4) ***Chemotherapy and IV Medication Preparation***

1A.15.2.3(4)(a) Preparation of IV medications will be performed in the Sterile Compounding Area. Oral cancer medications will be performed in the Hazardous Drug Storage room or the hazardous drug area of the IV Staging & Prep/Checking (ISO 8) room. Both will be dispensed to patients in the Counselling Room of the Pharmacy and in the *Cancer Care Centre* component.

1A.15.2.3(4)(b) Computer order entry, medication preparation and medication dispensing will be done using safe handling techniques for cytotoxic agents according to current standards.

1A.15.2.3(4)(c) Non-sterile and sterile hazardous drug compounding will be done in a Containment Primary Engineering Control (C-PEC) ventilated device such as a class II Biosafety Cabinet (BSC). Non-hazardous sterile drugs will be prepared in a PEC. All preparations will be independently double checked by a Pharmacist or Technician. All IV compounding will occur in a separate dedicated area with the appropriate physical environment and equipment.

1A.15.2.3(4)(d) Pharmacy staff will deliver chemotherapy drugs to the *Cancer Care Clinic* component. Other preparations will be delivered to the Medications Preparation Room of the appropriate component if immediately needed or stored in the appropriate medication storage area in the Pharmacy.

1A.15.2.4 Support Activities

1A.15.2.4(1) *Linen Services*

1A.15.2.4(1)(a) Pharmacy staff will use facility supplied gowns, scrubs and lab coats.

1A.15.2.4(2) *Cleaning Services*

1A.15.2.4(2)(a) Cleaning will be a joint responsibility between Pharmacy staff and Housekeeping Services. Cleaning of the Sterile Compounding Area must be done daily and meet clean room requirements outlined by NAPRA model standards.

1A.15.2.4(3) *Waste Collection*

1A.15.2.4(3)(a) Housekeeping will collect Pharmacy waste (including hazardous drug waste) on a scheduled basis.

1A.15.3 STAFFING

1A.15.3.1 Estimated future staffing for this component is summarized below in terms of Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

	Days		Nights
Classification/Position	Headcount	Occupancy	Headcount
Total	19		4
Weekdays			0
Pharmacy Manager	1	Office	0
Technician Supervisor	1	Office	0
Pharmacist (distribution & clinical)[1]	7[2]	Workstation	2
Academic Detailing Pharmacist	1	Office	0
Technician Purchaser	1	Workstation	0
Technicians/Assistants[2]	8	Workstations	2

Notes:

1. Assumes two distribution pharmacists with workstations in the component, five clinical pharmacists to support inpatient areas, ES, and the Ambulatory Care Centre.
2. Assumes one technician/assistant will be assigned to Shipping/Receiving position.

- Source: Authority Decision Support/Finance Department.
- RPG in consultation with Facility staff.
- Assumes CPOE; excludes a full service CIVA program (estimated at an additional 3.00-4.00 FTEs).

1A.15.4 DESIGN CRITERIA

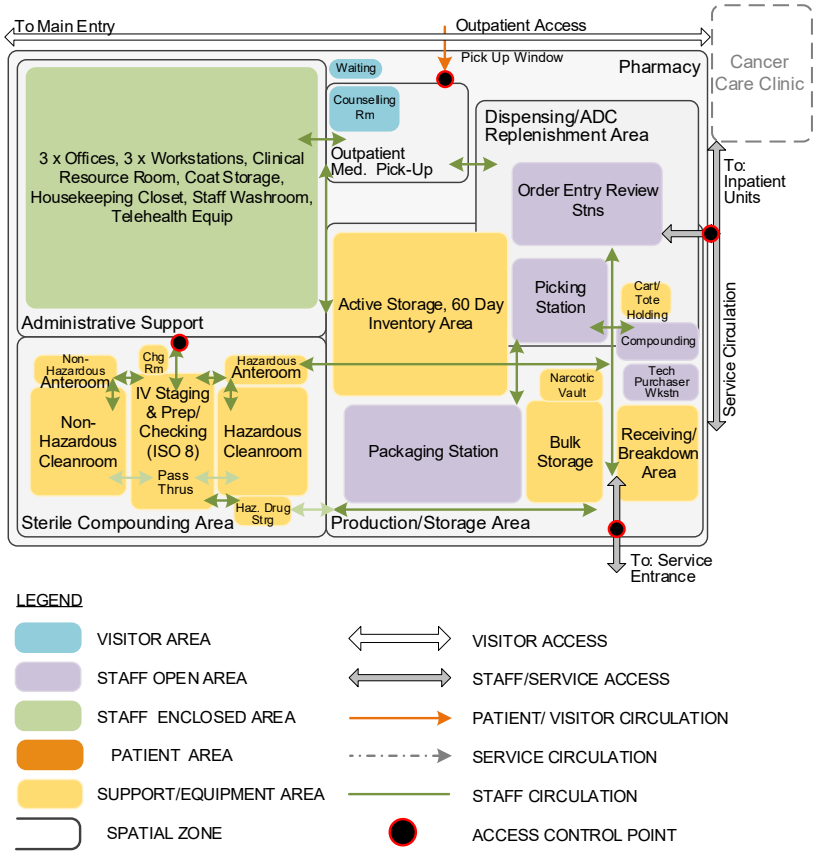
1A.15.4.1 External Relationships

1A.15.4.1(1) The following key external relationships for Pharmacy will be achieved in the priority order as numbered for the purposes stated:

1	**Cancer Care Clinic**	Provide direct access via service circulation to the Cancer Care Clinic for the safe movement of chemotherapy medications.
2	**Inpatient Units**	Provide convenient access via service circulation to/ from the Inpatient Units for the ease of movement of medications and staff.
3	**Service Entrance**	Provide convenient access via service circulation to/ from the service entrance for the movement of medication in support of the NWHSDA distribution hub.

1A.15.4.2 Functional Relationship Diagram

1A.15.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.15.4.3 Internal Design Criteria

1A.15.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.15.4.3(2) ~~The Pharmacy component must be located near the Cancer Care Clinic component to ensure a short distance for the movement of cytotoxic medications.~~

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1A.15.4.3(3) The Pharmacy must have convenient access from the Main Entry for patients picking up prescriptions at the Pick Up Window.

1A.15.4.3(4) All refrigerators and medication freezers must be alarmed and monitored externally 24/7 to monitor temperature levels to established tolerances.

1A.15.4.3(5) Minimum 600 mm of clearance shall be provided around equipment such as BSCs and laminar flow hoods for housekeeping to effectively clean around the cabinets.

1A.15.4.3(6) All pass-throughs must be able to maintain the appropriate air pressure between the two rooms it serves while in use.

1A.15.4.3(7) All pass-throughs must not compromise the air quality or ISO integrity of the Cleanrooms.

1A.15.4.3(8) Provide a panic alarm built into each workstation, the Counselling Room, and all storage areas within the Pharmacy that will communicate directly with Security Services.

1A.15.4.3(9) The Narcotics Vault shall not be located on an exterior wall of the building.

1A.15.4.3(10) The Narcotics Vault and all entry/exit points in the Pharmacy will have video surveillance.

1A.15.4.3(11) Entry doors within the Sterile Compounding Area and the door between the Counselling Room and Waiting must have glazing.

1A.15.4.3(12) Where natural lighting is provided it shall not compromise security or damage inventory.

1A.15.4.3(13) All lighting in the Pharmacy must suited to the tasks accommodated in a specific space.

1A.15.4.3(14) Following is a room-by -room list of spaces for Pharmacy showing:

1A.15.4.3(14)(a) Intent of Space; and

1A.15.4.3(14)(b) Specific Design Features.

1A.15.5 SCHEDULE OF ACCOMMODATION

1A.15.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.15 PHARMACY

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Production/Storage Area					1. All entries/exits to the Pharmacy must have access restricted to authorized personnel only 2. This entry and connecting routes within the Pharmacy must be a minimum of 1800 mm wide x 2400 mm high
15.01.	Receiving/Breakdown Area	1		12.5		
01	*decasing area*	*1*	*2.8*			
02	*decasing hazardous medications*	*1*	*1.9*			1. Provide eyewash station ~~2. Locate adjacent to Hazardous Drug Storage room with direct cart pass-through (minimum 500 mm wide clear x 900 mm high clear) between the 2 spaces~~ ~~3. The design of the pass-through must be able to maintain air pressure in the Hazardous Drug Storage room while in use~~ 4. Must be clearly identifiable as a separate space from the decasing area
03	*shipper/receiver station*	*1*	*3.6*			1. Provide convenient access to a freezer that stores ice packs 2. The Shipper/Receiver Station will have convenient access to Mobile Carts
04	*waste holding, hazardous drugs*	*1*	*2.3*			1. Must be maintained at less than 25 degrees Celsius
05	*waste holding*	*1*	*1.9*			1. Must be maintained at less than 25 degrees Celsius
15.02	Technician Purchaser Workstation	1		7.4		1. Enclosed
15.03.	Bulk Storage Area	1		14.4		1. Must be maintained at less than 25 degrees Celsius

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1A.15 PHARMACY

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
						2. Provide ability to easily move product from the Bulk Storage Area to the Packaging Station to the Active Storage, 60-Days Inventory Area 3. Ensure no access to direct sunlight 4. Must have convenient access to Receiving/Breakdown Area
01	*non-refrigerated storage*	*1*	*7.4*			
02	*refrigerated storage, 0.7 cu meters*	*3*	*1.4*			
03	*freezer storage, 0.7 cu meters*	*1*	*2.8*			
15.04.	Active Storage, 60 Days Inventory Area	1		33.4		1. Must be maintained at less than 25 degrees Celsius 2. Provide ability to easily move product from the Bulk Storage Area to the Packaging Station to the Active Storage, 60-Days Inventory Area 3. Ceiling ht. must be a minimum of 3660 mm to accommodate box picker or carousel equipment 4. Ensure no access to direct sunlight 5. Must have convenient access to Receiving/Breakdown Area 6. Requires convenient access to the Picking Station
01	*mobile shelving*	*8*	*2.3*			1. Provide pharmacy-specific double-sided mobile shelving units to accommodate 58 lineal m. of storage at 2100 mm high
02	*workstation, ward stock technician*	*2*	*2.8*			1. Locate workstations between the Active Storage, 60 Days Inventory Area and the Picking Station
03	*mobile carts*	*3*	*0.9*			1.
04	*circulation - 25%*	*1*	*6.7*			

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1A.15 PHARMACY

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
15.05.	Narcotic Vault	1		9.7		1. Must be continuously secured, event monitored and recorded on a minimum of 1 month loop, and alarmed on all six sides with alarm ringing to staff, RCMP 2. Must be maintained at less than 25 degrees Celsius 3. Ensure no access to direct sunlight
01	*controlled substance storage*	*1*	*5.5*			
02	*refrigerated storage, 0.7 cu meters*	*1*	*1.4*		smaller fridge being considered here (undercounter??) any 'extra' space would be reallocated to storage in this room	
03	*workstation*	*1*	*2.8*		Will be used for entries into narcotic book, etc.	1. Configuration of workstation must be linear 2. Provide open overhead shelf across length of worksurface 3. Provide minimum 45 cm wide open shelving unit below worksurface
15.06.	Compounding	1		7.5		
01	*work counter*	*1*	*3.7*			1. Provide access to electrical outlets above worksurface level
02	*supplies, PPE clothing*	*1*	*1.9*			
03	*utility sink station*	*1*	*1.9*			1. Provide 1000 lin mm of wall and counter space for drying washed equipment 2. Provide eyewash
15.07.	Packaging Station	1		27.8		1. Ensure configuration and location allows easy movement of product from the Bulk Storage Area to

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1A.15 PHARMACY

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
						the Packaging Station to the Active Storage, 60-Days Inventory Area 2. Ensure configuration and location contain noise of robotic packaging machines to avoid disruption to the rest of the Pharmacy
01	*robotic packaging machines*	*1*	*7.4*			
02	*ltc packaging*	*1*	*3.7*			
03	*liquid packaging station*	*1*	*1.9*			
04	*checking counter*	*1*	*3.7*			1. Provide HHS sink
05	*computer workstation*	*1*	*3.6*			
06	*supplies storage*	*1*	*1.9*			1. Must be clean and secure
07	*circulation - 25%*	*1*	*5.6*			
15.08	Outpatient Medication Storage	1		1.9		1. Must be maintained at less than 25 degrees Celsius 2. Must be adjacent to Pick Up Window in Outpatient Medication Pick Up
	Subtotal, Production/Storage Area			114.5		
	Dispensing/ADC Replenishment Area					
15.09.	Order Entry Review Stations	1		19.1		1. Provide view to Pick Up Window Ref No 15.12
01	*order entry workstations*	*2*	*3.6*			1. Provide acoustic privacy between workstations
02	*order verification workstations*	*2*	*3.6*			1. Provide acoustic privacy between workstations
03	*multi-function printer*	*1*	*1.9*			1. Provide acoustic barrier to prevent sound from travelling to adjacent workstations
04	*stationary supplies*	*1*	*2.8*			

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1A.15 PHARMACY

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
15.10	Picking Station	1		12.9	For orals, liquids and injectables	1. Provide convenient access to Active Storage, 60 Days Inventory Area 2. Configuration to include a mobile island for optimal workflow
15.11	Cart/Totes Holding Area	4	1.4	5.6		
	Subtotal, Dispensing/ADC Replenishment Area			37.6		
	Outpatient Medication Pick Up					
15.12	Pick Up Window	1		2.3		1. Must be adjacent to Outpatient Medication Storage 2. Lockable. Ensure configuration allows communication between staff and patient 3. Provide shelving below Pick Up Window for storage of medications for pickup
15.13	Waiting, Seats	3	1.9	5.7		1. Provide staff access to the Waiting Seats are
15.14	Counselling Room	1		9.3		1. Provide viewing window with security glass into an area of the component that will be routinely staffed such as the Order Entry/Order Verification Workstations 2. Provide infrastructure and services for telehealth and mobile computer equipment
	Subtotal, Outpatient Medication Pick Up			17.3		
	Sterile Compounding Area					1. Temperature controls for this area must be separate from other areas of the Pharmacy and must be able to be adjusted by staff
15.15	Change Room	1		5.0		1. Provide hooks on wall for clothing

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1A.15 PHARMACY

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
15.16.	IV Staging & Prep/Checking (ISO 8)	1		15.8		1. Provide pass to Non-Hazardous Cleanroom and Hazardous Cleanroom 2. Provide windows from IV Staging & Prep/Checking to both the Non-Hazardous Cleanroom and Hazardous Cleanroom
01	*HHS*	*1*	*0.9*			
02	*workstations*	*1*	*7.4*			1. Workstations must be separate to delineate between hazardous and non-hazardous preparation/checking areas to avoid contamination
03	*utility sink*	*2*	*1.2*			
04	*waste receptacles*	*1*	*0.5*			
05	*supplies storage*	*1*	*4.6*			1. Pharmaceutical-specific shelving must be easily cleaned
15.17.	Non-Hazardous Anteroom	1		4.7		1. Ensure entryway can accommodate loaded carts
01	*HHS*	*1*	*2.8*			1. Provide 100 lin mm of counterspace directly adjacent to HHS at 100 mm AFFL
02	*PPE storage*	*1*	*0.9*			
03	*Waste Receptacle*	*1*	*0.5*			
04	*~~soiled gowns~~/waste*	*1*	*0.5*		For soiled gowns	
15.18.	Non-Hazardous Cleanroom	1		13.9		1. Provide access to power, communications
01	*clean field cabinet (PEC) - large (ISO 5), 1800 mm*	*2*	*6.5*			
02	*pass-through/circulation*	*1*	*0.9*			1. To IV Staging & Prep/Checking (ISO 8)
15.19.	Anteroom for Hazardous Cleanroom	1		7.0		1. Provide access to power, communications

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1A.15 PHARMACY

Ref	Space	Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
						2. Ensure all finishes in this room are impermeable to liquids and corrosives
01	*HHS*	*1*	*2.8*			1. Provide 100 lin mm of counterspace directly adjacent to HHS at 100 mm AFFL
02	*PPE storage*	*1*	*0.9*			
03	*eyewash, emergency shower*	*1*	*2.3*			1. Ensure no water from emergency shower can migrate into adjacent spaces
04	*waste receptacle*	*1*	*0.5*			
05	*~~soiled gowns~~/waste*	*1*	*0.5*		For soiled gowns	
15.20.	Hazardous Cleanroom	1		13.9		
01	*class II Type B2 BSC (ISO 5), 1800 mm*	*2*	*6.5*			1. Must be directly vented to exterior of Facility away from areas where people may gather or pass by
02	*pass-through/circulation*	*1*	*0.9*			1. To the IV Staging & Prep/Checking Area (ISO 8)
15.21.	Hazardous Drug Storage	1		6.9	will take storage needs back for discussion	1. Must have air-locked cart pass-through to the ~~Decasing Hazardous Medications area~~ outside of room ~~with the ability to maintain the pressure of each space~~
01	*work counter*	*1*	*2.3*			
02	*medication storage w/ fridge*	*1*	*4.6*			
	Subtotal, Sterile Compounding Area			68.1		
	Administrative Support					
15.22	Office, Manager	1		11.2	reduce to 9.3?	
15.23	Telehealth Equipment	1		9.3		
15.24	Office, Academic Detailing Pharmacist	1		9.3		

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1A.15 PHARMACY

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
15.25	Office, Technician Supervisor	1		9.3		
15.26.	Clinical Resource Room	1		18.6		1. Provide access to power, communications around room 2. Ensure convenient access to Order Entry/Order Verification Workstations 3. Provide infrastructure for telehealth capability
01	*meeting table, seats 6*	*1*	*11.2*			
02	*journal storage*	*1*	*2.8*		will take storage needs back for discussion.	
03	*staff/student carrel space*	*2*	*2.3*			
15.27	Pharmacists Workstations	3	3.6	10.8		1. Provide access to extra power/communications connections for future growth 2. Must be adjacent to Clinical Resource Room
15.28	Housekeeping Closet, Distributed	1		7.0	Will accommodate equipment that is dedicated to hazardous drug preparation areas that will be kept separate from equipment used to clean other areas within the Pharmacy	1. Provide convenient access to Sterile Compounding Area
15.29.	Coat Storage	1		5.3		
01	*purse lockers*	*20*	*0.2*			
02	*coat/boot rack*	*1*	*2.3*			
15.30	Washroom, Staff	1		4.6		1. 2 pc 2. Provide enclosed shelf @ 1.0 lin. m. above/behind toilet

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1A.15 PHARMACY

Ref	Space	Proposed Area Units_nsm/unit_nsm	i. Intent of Space	ii. Specific Design Features
				3. Non-gendered
	Subtotal, Administrative Support	85.4		
	Total, Pharmacy	322.9	Component Area = 404 CGSM at 1.25 grossing factor	

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1A.16 REHABILITATION SERVICES

This specification outlines the functional, operational, and physical requirements for the Rehabilitation Services component.

1A.16.1 FUNCTIONAL DESCRIPTION

1A.16.1.1 Statement of Purpose

1A.16.1.1(1) Rehabilitation Services will provide Physiotherapy (PT) and Occupational Therapy (OT) consultation, assessment, and treatment on both an inpatient and outpatient basis; offered in various treatment formats including private and group activities.

1A.16.1.1(2) For the inpatient population, the intent is to encourage early intervention during the acute episode and strengthen re-integration into the community.

1A.16.1.1(3) Rehabilitation care will also address the physical, cognitive, psychosocial, and communicative challenges which often result from serious disabling injury or disease and develop strategies for achieving maximum functional capacity in all domains as well as adjustments to lifestyle changes.

1A.16.1.1(4) PT will be directed primarily at the prevention or alleviation of movement dysfunction which may be due to pain, congenital anomalies, disease processes, accident or injury, enforced inactivity, problems secondary to aging, or psychological or social distress. The dysfunction may manifest in actual or potential impairment related to neuromuscular, musculoskeletal, respiratory, or cardiovascular systems.

1A.16.1.1(5) OT will be directed toward analysis and application of activities specifically related to occupational performance in the areas of self-care, productivity, and leisure. Through assessment, interpretation, and intervention, OT will address problems impeding functional or adaptive behaviour in persons whose occupational performance is impaired by illness or injury, emotional disorder, developmental disorder, social disadvantage, or the aging process.

1A.16.1.2 Scope of Services

1A.16.1.2(1) Functional Content

1A.16.1.2(1)(a) The following list specifies the minimum set of functions that must be accommodated within the component:

1A.16.1.2(1)(a)(i) musculoskeletal injury prevention including back education for staff;

1A.16.1.2(1)(a)(ii) respiratory education and treatment;

1A.16.1.2(1)(a)(iii) neurological rehabilitation;

1A.16.1.2(1)(a)(iv) walking aid, balance assessment and screening;

1A.16.1.2(1)(a)(v) mobility assessment and education; and

1A.16.1.2(1)(a)(vi) orthopaedic assessment.

1A.16.1.2(1)(b) The goal of OT will be to prevent disability and to promote, maintain or restore occupational performance, health and spiritual well-being, as well as to facilitate the discharge to alternate level of care and/or home.

1A.16.1.2(1)(c) OT services will include:

1A.16.1.2(1)(c)(i) assessment and retraining to maximize functional independence in all areas of ADL/IADL (activities of daily living/independent activities of daily living);

1A.16.1.2(1)(c)(ii) cognitive and perceptual assessment and training;

1A.16.1.2(1)(c)(iii) dysphasia assessment;

1A.16.1.2(1)(c)(iv) hand therapy, including splint consults and custom fabrication;

1A.16.1.2(1)(c)(v) expertise in specialized equipment for patient needs;

1A.16.1.2(1)(c)(vi) wheelchair, seating and mobility equipment assessments;

1A.16.1.2(1)(c)(vii) equipment needs for safe discharge;

1A.16.1.2(1)(c)(viii) patient education; and

1A.16.1.2(1)(c)(ix) consultation with family and community resources.

1A.16.1.2(1)(d) Acute care therapy services will be provided to both inpatients and outpatients with priority given to inpatients. Inpatients may also be transported to this component for treatment. Services/activities accommodated in this component will include:

1A.16.1.2(1)(d)(i) individual assessments;

1A.16.1.2(1)(d)(ii) pre-op conditioning (“pre-hab”);

1A.16.1.2(1)(d)(iii) General and specialized therapy treatments including lympha press and ultraviolet booth;

1A.16.1.2(1)(d)(iv) mobility aid support (e.g., wheelchair adjustments); and

1A.16.1.2(1)(d)(v) administrative activities.

1A.16.1.2(1)(e) Follow-up gait training will be provided.

1A.16.1.2(2) Planning Assumptions

1A.16.1.2(2)(a) It is expected that there will be an increased demand for services based on increased number of beds, aging population, and the introduction of enhanced orthopaedic services at the Facility.

1A.16.1.2(2)(b) Patient privacy will be respected when accessing Rehabilitation Services.

1A.16.1.2(2)(c) The PT treatment cubicles may be used for temporary accommodation in the event of a disaster

1A.16.1.2(3) Scope of Education Functions

1A.16.1.2(3)(a) There will be at least three PT students and one to two OT students on a four to six-week rotation from UBC. Placements will occur one student at a time.

1A.16.1.2(4) Excluded

1A.16.1.2(4)(a) Speech Language Pathology (SLP)[1] is not included in the scope of service.

1A.16.1.2(4)(b) Prosthetic services and gait training, both will be provided at UHNBC.

1A.16.2 OPERATIONAL DESCRIPTION

1A.16.2.1 Hours of Operation

1A.16.2.1(1) Rehabilitation Services will operate from 0800 to 1600, Monday to Saturday.

1A.16.2.2 Organization & Management

1A.16.2.2(1) Rehabilitation Therapy will operate under the leadership of the Manager reporting to the Health Services Administrator.

1A.16.2.3 Workflow

1A.16.2.3(1) ***Patients***

1A.16.2.3(1)(a) For the initial visit, outpatients will register at the Main Registration Centre located in the *Main Entry Facilities* component. They will proceed to Rehabilitation Services for their appointment, where they will wait in the adjacent Waiting Room. The treatment session will be completed with the therapist(s) seeing the patient in the treatment area.

1A.16.2.3(1)(b) Patient and family may wait in the waiting area within the component until the provider is available to begin the patient's session/meeting. Changing room facilities, with patient lockers for storage of belongings, will be available as required.

1A.16.2.3(1)(c) Patients with known, or suspected airborne infectious diseases will not be cared for in this component; communicable disease screening will occur prior to patient attendance in the component.

[1] A children's speech program is offered by Public Health. SLP consults may be done by telehealth within the component.

1A.16.2.3(2) ***Staff***

1A.16.2.3(2)(a) Physicians and other health care professionals will refer patients. Defined access criteria will be followed for outpatient services. Appointments will be scheduled by Rehabilitation Services.

1A.16.2.3(2)(b) Services will be provided based on the individual needs of each patient and according to the care plans/pathways that are in place for them.

1A.16.2.3(2)(c) Individually designed rehabilitation programs, including patient stated functional goals, will be developed to help patients and their families remain as independent as possible within the limitations of their disease.

1A.16.2.3(2)(d) If an outpatient follow-up visit is required, the patient will be directed to the reception area within the component where Rehab staff will set-up the appointment utilizing a central booking system or central registration. The patient will receive a reminder of their follow-up appointment a few days prior, via either phone call or electronically, as preferred by the patient.

1A.16.2.3(2)(e) For inpatients that are unable to access Rehabilitation Services, treatments will be provided within their patient rooms.

1A.16.2.3(2)(f) Based on patient status and need, discharge planning will be considered at the initial visit with further evaluation and development throughout the time of treatment. For inpatients, at point of discharge, if ongoing rehabilitation services are required, the patient will be transitioned to the outpatient Rehabilitation Services as appropriate.

1A.16.2.3(2)(g) The short-term loan of small equipment and assistive devices from Red Cross to facilitate discharge will be approved by a therapist. The clerk in Rehabilitation Services will assist the patient in arranging for such loans.

1A.16.2.3(2)(h) Rehabilitation staff will be responsible for cleaning of equipment and treatment rooms between patients.

1A.16.2.4 Support Activities

1A.16.2.4(1) N/A.

1A.16.3 STAFFING

1A.16.3.1 Estimated future staffing for this component is summarized below in terms Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

	Days		Nights
Classification/Position	Headcount	Occupancy	Headcount
Total	8		0
Weekdays	0		0
Manager PT	1	Workstation	0
Physiotherapist	2	Shared Office	0
Occupational Therapist	2	Shared Office	0
Rehabilitation Aide	1	Shared Office	0
Community Rehab Physiotherapist	1	Workstation	0
Community Rehab Occupational Therapist	1	Workstation	0

Notes:

- Source: Authority Decision Support/Finance Department.
- RPG in consultation with Facility staff; excludes community rehab staff which are separately funded at present.

1A.16.4 DESIGN CRITERIA

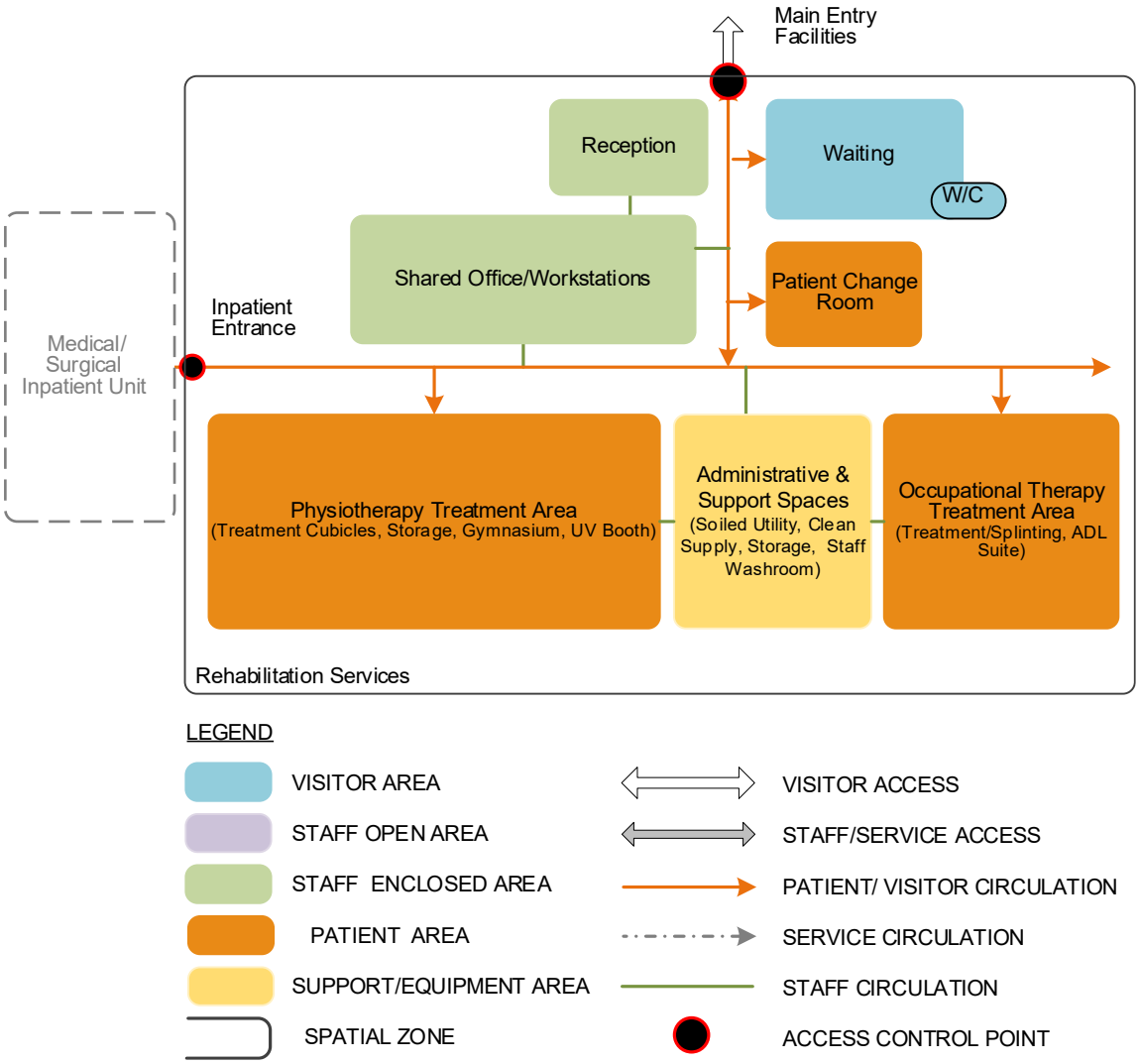
1A.16.4.1 External Relationships

1A.16.4.1(1) The following key external relationships for Rehabilitation Services will be achieved in the priority order as numbered for the purposes stated:

1	**Medical/Surgical Inpatient Unit**	Provide direct access via internal circulation to/from Inpatient Units: Medical/Surgical IPU for the movement of patients and staff.
2	**Main Entry Facilities**	Provide convenient access via general circulation to/ from Main Entry Facilities for the movement of outpatients.

1A.16.4.2 Functional Relationship Diagram

1A.16.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.16.4.3 Internal Design Criteria

1A.16.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.16.4.3(2) Both the PT and OT treatment areas shall be distinct.

1A.16.4.3(3) PPE will be available to staff for care of patients with infections such as wounds, at every HHS.

1A.16.4.3(4) Provide the ability to adjust temperature.

1A.16.4.3(5) Following is a room-by-room list of spaces for Rehabilitation Services showing:

1A.16.4.3(5)(a) Intent of Space; and

1A.16.4.3(5)(b) Specific Design Features.

1A.16.5 SCHEDULE OF ACCOMMODATION

1A.16.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.16 REHABILITATION SERVICES

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1A.16 REHABILITATION SERVICES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Reception & Waiting Area					
16.01.	Reception	1		11.1		1. Counter must be barrier free height 2. Have one section at standing height
01	*workstation*	*1*	*4.6*			
02	*charts & associated storage*	*1*	*4.6*			
03	*supplies & office-type equipment*	*1*	*1.9*			
16.02.	Waiting	1		18.4		1. Provide backing board for monitor and power and communications connections
02	*seats, regular*	*3*	*1.9*			
03	*seat, barrier free*	*2*	*2.8*			
04	*visitor coat ~~closet~~ & boot rack*	*1*	*1.5*			
05	*washroom, barrier free*	*1*	*5.6*			1. 2 pc 2. Non-gendered 3. Must be accessible from Waiting Area
16.03.	Patient Change Room	1		1.7		
~~01~~	*~~change cubicle, barrier free~~*	*~~0~~*	*~~4.7~~*			1. Intentionally deleted
02	*alcove, waste cubicle*	*1*	*0.5*			
03	*locker storage*	*6*	*0.2*			
	Subtotal, Reception & Waiting Area			31.2		
	Physiotherapy Treatment Area					
16.04.	Treatment Cubicles	1		32.4	The physiotherapy treatment cubicles may be used for temporary accommodation in the event of a disaster	

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
01	*single treatment table*	*1*	*8.4*			1. Provide medical gases (oxygen, air and suction) 2. Provide patient call and code button
02	*hi-lo double treatment table*	*2*	*12.0*			1. Provide medical gases (oxygen, air and suction) 2. Provide patient call and code button 3. Provide infrastructure for ceiling mounted patient lift
16.05	Storage	1	*6.5*	6.5		1. Located adjacent to Treatment Cubicles 2. Must open directly to Ref No 16.06 Gymnasium
16.06.	Gymnasium	1		94.6		1. Provide code button 2. Must open directly to Ref No 16.06 Storage 3. Provide good visibility from Shared Office/Workroom Ref No 16.16 to the Gymnasium
01	*HHS*	*2*	*0.9*			
02	*patient weigh scale, barrier-free*	*1*	*2.3*			1.. Flush mount to the floor 2. Provide built-in floor scale
03	*parallel bars*	*1*	*7.4*			
04	*stairs with handrail*	*1*	*3.7*			
05	*"nu step"*	*3*	*1.9*			
06	*recumbent bikes*	*2*	*1.9*			
07	*treadmill*	*1*	*3.7*			
08	*ultrasound cart*	*1*	*2.8*			
09	*weights and pulleys area*	*1*	*5.6*			
10	*mobile mirror area*	*1*	*1.4*			
11	*shoulder ladder - wall space*	*1*	*1.4*			
12	*arm ergometer*	*1*	*1.4*			

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
13	*internal circulation (25%)*	*1*	*10.3*			
14	*miscellaneous items*	*1*	*43.3*			
16.07	UV Booth	1	7.4	7.4		1. Provide power, communications 2. Must be in close proximity to Waiting Ref No 16.02
~~16.08.~~	~~Group Room/Private Assessment~~	~~1~~		~~0.0~~	Intentionally deleted	~~1. Provide code button~~
~~*01*~~	~~*seats, regular*~~	~~*6*~~	~~*1.9*~~			
~~*02*~~	~~*seats, barrier free*~~	~~*2*~~	~~*2.8*~~			
~~*03*~~	~~*storage*~~	~~*1*~~	~~*4.6*~~			
	Subtotal, Physiotherapy Treatment Area			140.9		
	Occupational Therapy Treatment Area					
16.09.	ADL Suite	1		32.8		1. Provide code button
01	*kitchen*	*1*	*7.4*			1. Counters etc. shall be barrier-free 2. Provide double sink with 1800 mm millwork counter, lockable storage
02	*washroom, barrier free*	*1*	*7.7*		Non-functioning tub for assessments	1. 2 pc 2. Non-gendered
03	*storage*	*1*	*9.2*			
04	*internal circulation (35%)*	*1*	*8.5*			
16.10.	Treatment/Splinting	1		11.2		1. Provide HHS
01	*treatment table*	*1*	*5.6*			
02	*splinting area*	*1*	*3.7*			1. Provide 1200 lin mm millwork worksurface counter
03	*storage*	*1*	*1.9*			
	Subtotal, Occupational Therapy Treatment Area			44.0		
	Administrative & Support Spaces					
~~16.11~~	~~Clean Supplies Room~~	~~0~~		~~0.0~~		1. Intentionally deleted

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
~~16.12~~	~~Soiled Utility Room~~	~~1~~		~~0.0~~		1. Intentionally deleted
16.13	Housekeeping	1	0.0	0.0		1. Will share Housekeeping Closet with Medical/Surgical Inpatient Unit
16.14	Washroom, Staff	1	4.6	4.6		1. 2 pc washroom 2. Provide enclosed shelf @1.0 lin. mm above/behind toilet 3. Non-gendered
16.15.	Equipment Storage	1		23.1		
01	*wheelchairs, walkers*	*1*	*7.4*			
02	*raised toilet seats, cushions, etc.*	*1*	*2.8*			
03	*miscellaneous items*	*1*	*12.9*			
16.16.	Shared Office/Workroom	1		42.5		1. Task lighting and design shall minimize or mitigate glare on computer screen 2. Must be central to PT and OT treatment areas 2. Provide good visibility to the Gymnasium Ref No 16.06
07	*alcove, purse lockers*	*1*	*1.5*			
01	*charting station*	*6*	*3.6*			
02	*workstation*	*1*	*4.6*		For Manager	1. Must have line of sight to the Reception workstation
03	*printer equipment, reference materiel*	*1*	*1.9*			
04	*file cabinet*	*4*	*0.9*			
06	*internal circulation (28%)*	*1*	*9.3*			
	Subtotal, Administrative & Support Spaces			70.2		
	Total, Rehabilitation Services			286.3	Component Area = 372.0 CGSM at 1.30 grossing factor	

1A.17 RENAL SERVICES

This specification outlines the functional, operational, and physical requirements for the Renal Services component.

1A.17.1 FUNCTIONAL DESCRIPTION

1A.17.1.1 Statement of Purpose

1A.17.1.1(1) Staff in the Renal Services component will provide dialysis services to outpatients 19 years and older.

1A.17.1.2 Scope of Services

1A.17.1.2(1) Functional Content

1A.17.1.2(1)(a) In addition to haemodialysis, the following list specifies the minimum set of functions that must be accommodated within the component:

- 1A.17.1.2(1)(a)(i) haemodialysis patient follow-up with nephrologist via telehealth every eight weeks as required;
- 1A.17.1.2(1)(a)(ii) monitoring of access integrity and patient status, including review of blood work;
- 1A.17.1.2(1)(a)(iii) pre-dialysis Renal Health Clinic for patients with stage-III kidney disease;
- 1A.17.1.2(1)(a)(iv) interdisciplinary team “rounds” via videoconference with Prince George Renal Services once/month;
- 1A.17.1.2(1)(a)(v) patient/family education;
- 1A.17.1.2(1)(a)(vi) biomedical maintenance and minor repair of haemodialysis equipment; and
- 1A.17.1.2(1)(a)(vii) administrative activities.

1A.17.1.2(1)(b) Twice a year, patients attending Renal Services will attend multidisciplinary team clinics at the University of Northern BC (UHNBC) led by a nephrologist by videoconference or face-to-face at which time they are:

- 1A.17.1.2(1)(b)(i) seen by the renal nurse in conjunction with the nephrologist;
- 1A.17.1.2(1)(b)(ii) have a complete physical assessment performed by the nephrologist if present in person;
- 1A.17.1.2(1)(b)(iii) have a medications review performed by the renal pharmacist located at UHNBC;

1A.17.1.2(1)(b)(iv) have a consultation with the renal dietitian, generally by videoconference; and

1A.17.1.2(1)(b)(v) have a consultation with the renal social worker, if necessary, by videoconference.

1A.17.1.2(2) Planning Assumptions

1A.17.1.2(2)(a) Inpatients will only be dialyzed in the outpatient unit if, after review by the nephrologist consultant and dialysis nurse, it is felt that the haemodialysis treatment can be safely carried out despite the medical condition requiring admission to the Facility.

1A.17.1.2(2)(b) Care will be provided by a multidisciplinary team comprised of RN, dietitian, social worker, and clinical pharmacist, the latter three being resident in UHNBC and available via telehealth. A nephrologist from UNHBC is available by phone from 0800 to 1700 for consultations. At other times, a nephrologist is on-call. In addition, the Emergency Services (ES) on-call family physician in Terrace is available to address any medical conditions of patients while on dialysis.

1A.17.1.2(2)(c) Follow-up care will be provided by the patient's family physician. Dialysis patients will be supported to manage their own treatment to the extent that they are willing and able.

1A.17.1.2(2)(d) All members of the team will participate in patient and family education and educational material will be available in the Unit.

1A.17.1.2(3) Scope of Education Functions

1A.17.1.2(3)(a) The Renal Services will be an environment for education and training of numerous individuals including medical students and residents, nursing students (generally one at a time), and students in the various allied health professions.

1A.17.1.2(4) Excluded

1A.17.1.2(4)(a) Patients will not be admitted with a prime diagnosis of renal failure. Such patients in the northwest will be admitted to the UHNBC.

1A.17.1.2(4)(b) Peritoneal dialysis will be centralized at the UHNBC.

1A.17.2 OPERATIONAL DESCRIPTION

1A.17.2.1 Hours of Operation

1A.17.2.1(1) Hours of operation are from 0700 to 1730, six days/week. There will be no on-call available. There is capacity to perform evening dialysis.

1A.17.2.2 Organization & Management

1A.17.2.2(1) Renal Services will function as a satellite of the program at UHNBC which, in turn, functions within the provincial program. The Program Lead will be responsible for day-to-day activities within the Facility and will report to the Regional Renal Program Manager at UHNBC. The Medical Director will reside at UHNBC.

1A.17.2.2(2) Clerical support to be provided to Renal Services.

1A.17.2.2(3) Biomedical Engineering support will be available to perform equipment maintenance, quality assurance, and repairs, including water treatment maintenance and water quality management.

1A.17.2.3 Workflow

1A.17.2.3(1) ***Staff***

1A.17.2.3(1)(a) A Pre-Dialysis Clinic focusing on wellness is operated out of UHNBC (Facility staff attend via telehealth), the objective of which is to delay haemodialysis as long as possible. On a patient-by-patient basis, the Clinic will be multidisciplinary in nature involving:

1A.17.2.3(1)(a)(i) the dialysis nurse;

1A.17.2.3(1)(a)(ii) dietitian (by telehealth);

1A.17.2.3(1)(a)(iii) pharmacist (by telehealth);

1A.17.2.3(1)(a)(iv) social worker (by telehealth);

1A.17.2.3(1)(a)(v) liaison with the nephrologists; and

1A.17.2.3(1)(a)(vi) links with family physicians.

1A.17.2.3(1)(b) The dietitian, pharmacist, and social worker are dedicated to the Authority Kidney Care Program.

1A.17.2.3(1)(c) As well as its focus on patient and family education, the Pre-Dialysis Clinic will be a resource for tracking of patient bloodwork and blood pressure. More specifically, attending the Pre-Dialysis Clinic will help patients to:

1A.17.2.3(1)(c)(i) delay progression of the disease;

1A.17.2.3(1)(c)(ii) manage co-morbidities;

1A.17.2.3(1)(c)(iii) engage self-management; and

1A.17.2.3(1)(c)(iv) prepare for renal replacement therapy:

1A.17.2.3(1)(c)(iv)A peritoneal dialysis,

1A.17.2.3(1)(c)(iv)B haemodialysis,

1A.17.2.3(1)(c)(iv)C choice of modality,

1A.17.2.3(1)(c)(iv)D access placement,

1A.17.2.3(1)(c)(iv)E pre-emptive transplant, and

1A.17.2.3(1)(c)(iv)F conservation/palliative care.

1A.17.2.3(1)(d) This Clinic will be operationally linked with the Authority as well as the Provincial Renal Agency with respect to program planning and connection with patients resulting in a continuity of care and creation of a trusting relationship. The number and frequency of visits are based on the level of each individual's kidney disease: some patients are seen yearly, others bi-annually, and others more frequently, if needed.

1A.17.2.3(1)(e) The Team Care Station will be the hub for the internal intercom systems and all relevant emergency systems within the Unit.

1A.17.2.3(1)(f) Lab specimens will be procured by nursing staff and transported to the Laboratory by Renal Services staff. Any specialized testing not available at the Facility will be transported to the appropriate facility by courier, managed by Laboratory Services.

1A.17.2.3(1)(g) A social worker within the UHNBC's Renal Services will serve as a resource to patients attending Renal Services.

1A.17.2.3(1)(h) The Renal Pharmacist will be resident at the UHNBC. Special drugs for patients on dialysis will be provided by the Provincial Renal Pharmacy, with the Facility Pharmacy providing drugs such as antibiotics, as ordered. Although narcotics will not be stored on the Unit, other medications will be.

1A.17.2.3(1)(i) Clinical pharmacist services will be provided through UHNBC via telehealth.

1A.17.2.3(1)(j) Nursing staff will clean the dialysis chairs between turns as well as the dialysis machines.

1A.17.2.3(1)(k) Staff changing will occur in staff locker facilities located in the *Staff and Medical Staff Facilities* component. Purse lockers will be provided within the Unit for the convenience of staff.

1A.17.2.3(2) *Patients*

1A.17.2.3(2)(a) Admission to Renal Services will be via the Pre-Dialysis Clinic. Vascular access will be prepared at UHNBC before the first visit to the Unit at the Facility.

1A.17.2.3(2)(b) First-time visits will begin at Main Registration Centre, with subsequent visits going directly to Renal Services.

1A.17.2.3(2)(c) Patient appointments will be staggered in 30-minute increments in groups of four to allow staff to prepare and manage the workload. Once the first group is finished, they will leave but if the afternoon patients have arrived early or their machines are not yet ready, they may need to wait a short while. Patients are scheduled in four-hour blocks of time.

1A.17.2.3(2)(d) Presenting to the Unit for the first time, the patient will be given a tour of the Unit, then shown to an area with coat hooks and cubbies where they can store personal items. The patient will be weighed and escorted to their assigned machine. During the first dialysis, the patient will be provided with information pertaining to dialysis, lifestyle changes, and related issues; as well as admission instructions.

1A.17.2.3(2)(e) On subsequent visits, the patient will be provided access, will self-weigh, and take a seat in the waiting area until the nurse comes to escort them to the assigned Dialysis Station.

1A.17.2.3(2)(f) Patients will present at the Medical Imaging (MI) for x-rays. The computers in the Unit will be capable of displaying digital x-ray images. MI services will be utilized to check line placement.

1A.17.2.3(2)(g) Specimen collection for dialysis patients will occur at the Dialysis Stations.

1A.17.2.4 Support Activities

1A.17.2.4(1) *Supplies & Linens*

1A.17.2.4(1)(a) All supplies associated with haemodialysis will be ordered directly via the Provincial Renal Agency every three weeks, bypassing Materiel Management. Supplies will be delivered on pallets through the Loading Dock and will be transported directly to the Unit and stored there.

1A.17.2.4(2) *Food*

1A.17.2.4(2)(a) Juice and snacks are not provided by the Facility except for diabetic snacks that are ordered on an as-needed basis from Food Services and stored in a Nourishment Centre within Renal Services. Patients are encouraged to bring their own snacks to the Unit.

1A.17.3 STAFFING

1A.2.5.17.3.1 Estimated future staffing for this component is summarized below in terms of Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

	Days		Nights
Classification/Position	Headcount	Occupancy	Headcount
Total	10		0
Weekdays	0		0
Program Lead	1	Private Office	0
Registered Nurse	7	Shared Office + Shared Workstation	0
Clerk	1	Workstation	0
Renal Biomedical Technician	1	Workstation	0

Notes:

- N/A.

1A.17.4 DESIGN CRITERIA

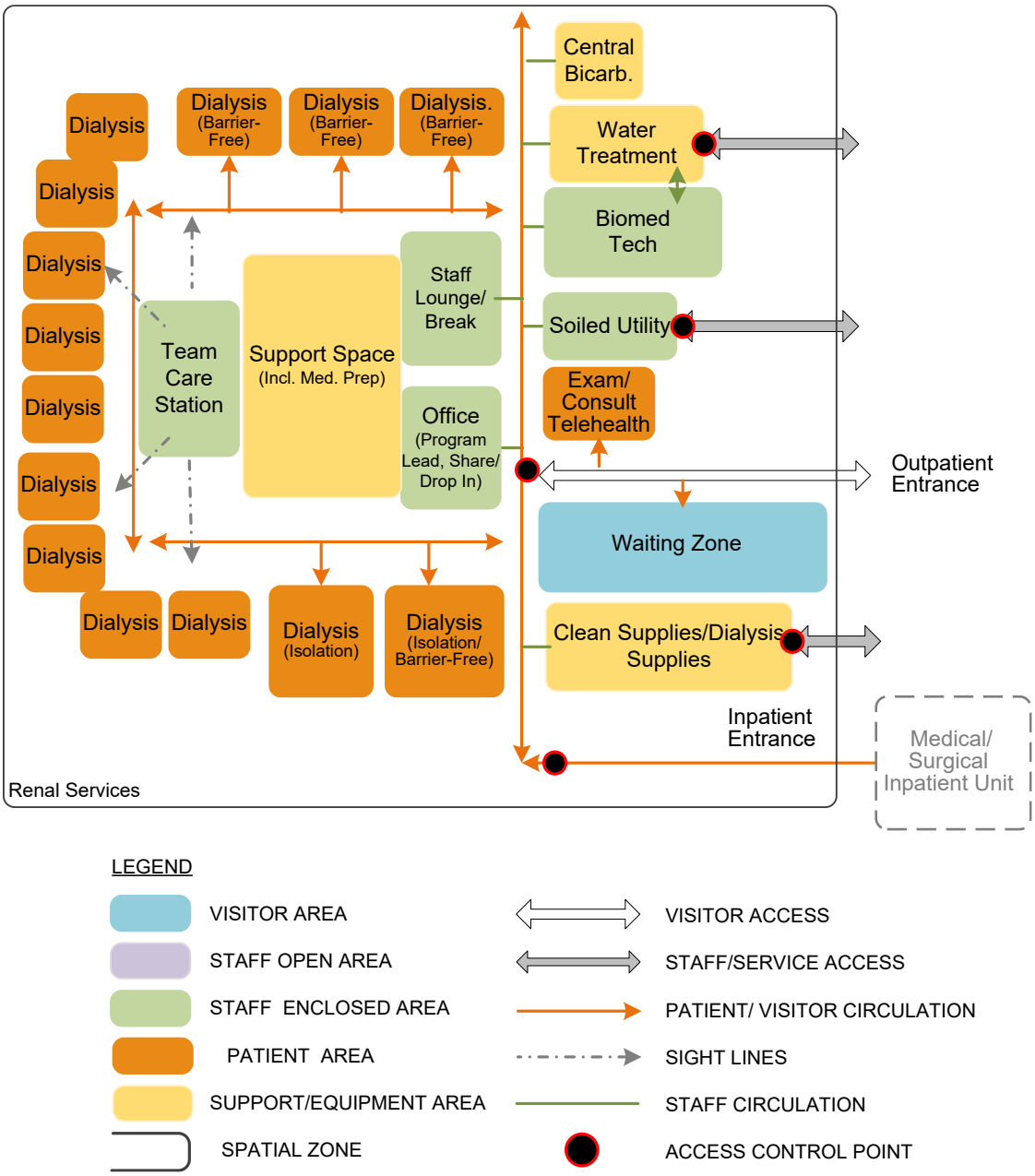
1A.17.4.1 External Relationships

1A.17.4.1(1) The following key external relationships for Renal Services will be achieved in the priority order as numbered for the purposes stated:

1	**Main Entry Facilities**	Provide convenient access via general circulation to/ from Main Entry Facilities for the movement of patients and visitors.
2	**Laboratory Services**	Provide convenient access via general circulation to/ from Laboratory Services for the movement of specimens and staff.
3	**Materiel Management**	Provide convenient access via general circulation to/ from Materiel Management (Receiving Dock) for the movement of supplies and staff.

1A.17.4.2 Functional Relationship Diagram

1A.17.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.17.4.3 Internal Design Criteria

1A.17.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.17.4.3(2) Following is a room-by-room list of spaces for Renal Services showing:

1A.17.4.3(2)(a) Intent of Space; and

1A.17.4.3(2)(b) Specific Design Features.

1A.17.5 SCHEDULE OF ACCOMMODATION

1A.17.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.17 RENAL SERVICES

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
17.01.	Waiting Zone	1		60.7		1. Locate at the entrance to the Unit, away from the patient treatment areas 2. Provide backing board for monitor and power & communications connections
01	*HHS*	*1*	*0.9*	*0*		1. Locate at entrance to Unit
02	*seats, regular*	*10*	*1.9*	*0*		
03	*seats, barrier-free*	*4*	*2.8*	*0*		
04	*alcove, patient belongings*	*1*	*11.5*	*0*		
05	*alcove, patient weigh-scale, barrier-free*	*1*	*2.3*	*0*		1. Located en route into the patient treatment areas 2. Flush mount to the floor 3. Provide built-in floor scale
06	*washroom, patient*	*1*	*4.6*	*0*		1. 2 pc 2. Non-gendered
07	*scooters/wheelchairs parking*	*4*	*2.8*	*0*		
17.02	Office, Program Lead	1		9.3		
17.03	Office, Shared/Drop-In	1		11.2		
17.04.	Team Care Station	1		22.2		1. Locate to allow for maximum visibility of all patient treatment stations 2. Provide glazing for safety around Team Care Station
01	*workstation, clerical*	*1*	*4.6*	*0*		
02	*workstations, staff*	*3*	*2.8*	*0*	Touch-down workstations	
03	*workstation, standing*	*2*	*1.8*	*0*		

1A.17 RENAL SERVICES

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
04	*office supplies & equipment*	*1*	*1.9*	*0*		
05	*patient chart binders*	*1*	*3.7*	*0*		
17.05	Medications Preparation Room (no ADC)	1		9.5		1. Provide utility sink (deep enough to pour IV solution with medication), millwork counter for med preparation 2. Provide space for two medication carts 3. Provide eyewash station 4. Provide HHS 5. Provide secure door with glazing, door opens into room
17.06	Nourishment Station	1		3.7	For patient and staff use	1. Provide 1800 lin mm upper and lower millwork that includes a double sink, HHS and lockable storage
17.07	Dialysis Station, Regular	9	7.5	67.5		1. Provide staff HHS 2. Provide medical gases (oxygen, air and suction) 3. Provide privacy curtain 4. Provide patient call and code blue 5. Provide power 6. Provide infrastructure for patient television/ education system
17.08	Dialysis Station, Barrier-Free	3	10.0	30.0	Will also act as storage location for 3 mobile workstations (WOWs) after hours	1. Provide staff HHS 2. Provide medical gases (oxygen, air and suction) 3. Provide privacy curtain 4. Provide patient call and code blue 5. Provide power

1A.17 RENAL SERVICES

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
						6. Provide infrastructure for patient television/ education system
17.09	Washroom, Patient	1		4.6		1. 2 pc 2. Non-gendered
17.10	Washroom, Patient, Barrier-Free	1		7.7		1. 2 pc 2. Non-gendered
17.11.	Dialysis Room, Isolation	1		24.6		1. Locate adjacent to Dialysis Room: Airborne Isolation/Barrier Free, near the main entrance to the Unit. Must not interfere with viewing of other Dialysis stations from Team Care Station 2. Provide staff HHS 3. Provide medical gases (oxygen, air and suction) 4. Provide privacy curtain 5. Provide patient call and code blue 6. Provide infrastructure for patient television/ education system
01	*patient space*	*1*	*15.0*	*0*		
02	*washroom*	*1*	*4.6*	*0*		1. 2 pc
03	*anteroom*	*1*	*5.0*	*0*		
17.12.	Dialysis Room, Airborne Isolation/ Barrier-Free	1		29.7		1. Locate adjacent to Dialysis Room, Isolation, near the main entrance to the Unit but does not interfere with viewing of other Dialysis stations from Team Care Station 2. Provide staff HHS 3. Provide medical gases (oxygen, air and suction) 4. Provide patient call, and code blue

1A.17 RENAL SERVICES

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
						5. Provide infrastructure for patient television/ education system and ceiling mounted bariatric patient lift
01	*patient space*	*1*	*17.0*	*0*		
02	*washroom*	*1*	*7.7*	*0*		1. 2 pc
03	*anteroom*	*1*	*5.0*	*0*		
17.13	Alcove, PPE	2	1.0	2.0		1. Locate near Isolation Rooms and Dialysis Stations
17.14	Exam/Consult/Telehealth Room	1		13.0		1. Provide patient call/emergency call/code blue
17.15	Clean Supplies Room, Dialysis	1		35.0		1. Provide entrance from public/service corridor for the movement of pallets 2. Doors will accommodate pallet movement 3. Eight pallets will be accommodated
17.16	Soiled Utility Room	1		12.0		1. Provide flushing hopper and floor sink 2. Provide separate storage of hazardous and non-hazardous drug waste 3. Provide back door onto service corridor system to allow for removal of waste
17.17	Storage Room, Equipment	1		11.2		
17.18	Water Treatment Room	1		18.0		1. Locate adjacent to the Central Bicarbonate Room 2. Provide access from the unit as well as from a public/service corridor via a secured door
17.19	Central Bicarbonate Room	1		4.6		

1A.17 RENAL SERVICES

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
17.20.	Biomed Tech Room	1		28.5		1. Provide space for working on 2 machines as well as storing an additional 2 machines 2. Locate adjacent to Water Treatment Room with adjoining door between rooms
01	*machine work area*	*2*	*5.6*	*0*		
02	*Workstation*	*1*	*3.6*	*0*		
03	*work counter*	*1*	*3.3*	*0*		1. Provide 2400 lin mm millwork counter
04	*HHS*	*1*	*0.9*	*0*		
05	*machine storage*	*2*	*1.0*	*0*		
06	*storage cupboards*	*1*	*0.9*	*0*		
07	*internal circulation (30%)*	*1*	*6.5*	*0*		
17.21	Housekeeping Closet, Distributed	1		7.0		1. See *Housekeeping & Laundry Services* component for description 2. Floor sink in this room must be able to accommodate caustic fluids
17.22.	Staff Lounge/Break Room	1		21.5		1. Shared with Cancer Care Clinic staff
01	*seat*	*4*	*2.3*	*0*		
02	*table area*	*1*	*7.4*	*0*		
03	*kitchenette*	*1*	*4.9*	*0*		1. Provide double HHS with 1800 mm millwork counter, lockable storage
17.23	Alcove, Purse Lockers	1		2.3		
17.24	Washroom, Staff	1		4.6		1. 2 pc washroom 2. Provide enclosed shelf @1.0 lin. mm above/behind toilet

1A.17 RENAL SERVICES

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
						3. Non-gendered
	Crash Cart	1		0.0		1. See *Cancer Care Clinic*
	Total, Renal Services			440.4	Component Area = 661 CGSM at 1.50 grossing factor	

1A.18 STAFF FACILITIES AND MEDICAL STAFF FACILITIES

This specification outlines the functional, operational, and physical requirements for the Staff Facilities and Medical Staff Facilities component.

1A.18.1 FUNCTIONAL DESCRIPTION

1A.18.1.1 Statement of Purpose

1A.18.1.1(1) The centralized Staff Facilities will accommodate recreational and non-work-related functions conducted by staff while on-site. The intent of this component will be to support staff personal needs while on and off-duty and to promote their health and wellness.

1A.18.1.1(2) The Medical Staff Facilities will accommodate resources in support of physicians and visiting specialists.[1] The Medical Staff Lounge will be a place for a variety of activities including, but not limited to literature review, meals, and peer support among colleagues.

1A.18.1.2 Scope of Services

1A.18.1.2(1) Functional Content

1A.18.1.2(1)(a) Staff lockers will be managed by Administration and assignment of any permanent lockers will be part of new staff orientation/ termination process.

1A.18.1.2(1)(b) Some lockers may be unassigned/day-use only.

1A.18.1.2(2) Planning Assumptions

1A.18.1.2(2)(a) Not all staff and medical staff will require a locker. It is assumed that 75% of staff and medical staff will utilize a locker at any given time.

1A.18.1.2(2)(b) Students without space in clinical areas will use the dedicated student lockers (not assigned).

1A.18.1.2(3) Scope of Education Functions

1A.18.1.2(3)(a) N/A.

1A.18.1.2(4) Excluded

1A.18.1.2(4)(a) Staff facilities (Staff Lounge/Locker Rooms) will be provided in the following areas for staff who are not able to leave their respective areas:

1A.18.1.2(4)(a)(i) Inpatient Units: Birthing Unit, Medical/Surgical IPU, Psychiatric IPU;

1A.18.1.2(4)(a)(ii) Emergency Services (ES);

1A.18.1.2(4)(a)(iii) Laboratory Services;

[1] Residents will be accommodated within the *UBC FoM Northern Medical Program.*

1A.18.1.2(4)(a)(iv) UBC FoM Northern Medical Program;

1A.18.1.2(4)(a)(v) Medical Imaging (MI);

1A.18.1.2(4)(a)(vi) Renal Services;

1A.18.1.2(4)(a)(vii) Surgical Services (including MDR and PSSC-SDC).

1A.18.1.2(4)(b) On-call rooms will also be provided outside of this component in the following areas:

1A.18.1.2(4)(b)(i) ES;

1A.18.1.2(4)(b)(ii) ICU;

1A.18.1.2(4)(b)(iii) Surgical Services;

1A.18.1.2(4)(b)(iv) Inpatient Units: Birthing Unit; and

1A.18.1.2(4)(b)(v) UBC FoM Northern Medical Program.

1A.18.2 OPERATIONAL DESCRIPTION

1A.18.2.1 Hours of Operation

1A.18.2.1(1) Hours of operation will be 24/7.

1A.18.2.2 Organization & Management

1A.18.2.2(1) N/A.

1A.18.2.3 Workflow

1A.18.2.3(1) Staff and Medical Staff entering the building will “sign-in” by electronic means for their presence to be known.

1A.18.2.4 Support Activities

1A.18.2.4(1) N/A.

1A.18.3 STAFFING

1A.18.3.1 N/A.

1A.18.4 DESIGN CRITERIA

1A.18.4.1 External Relationships

1A.18.4.1(1) The following key external relationships for Staff Facilities and Medical Staff Facilities will be achieved in the priority order as numbered for the purposes stated:

1A.18.4.1(2) Staff Facilities

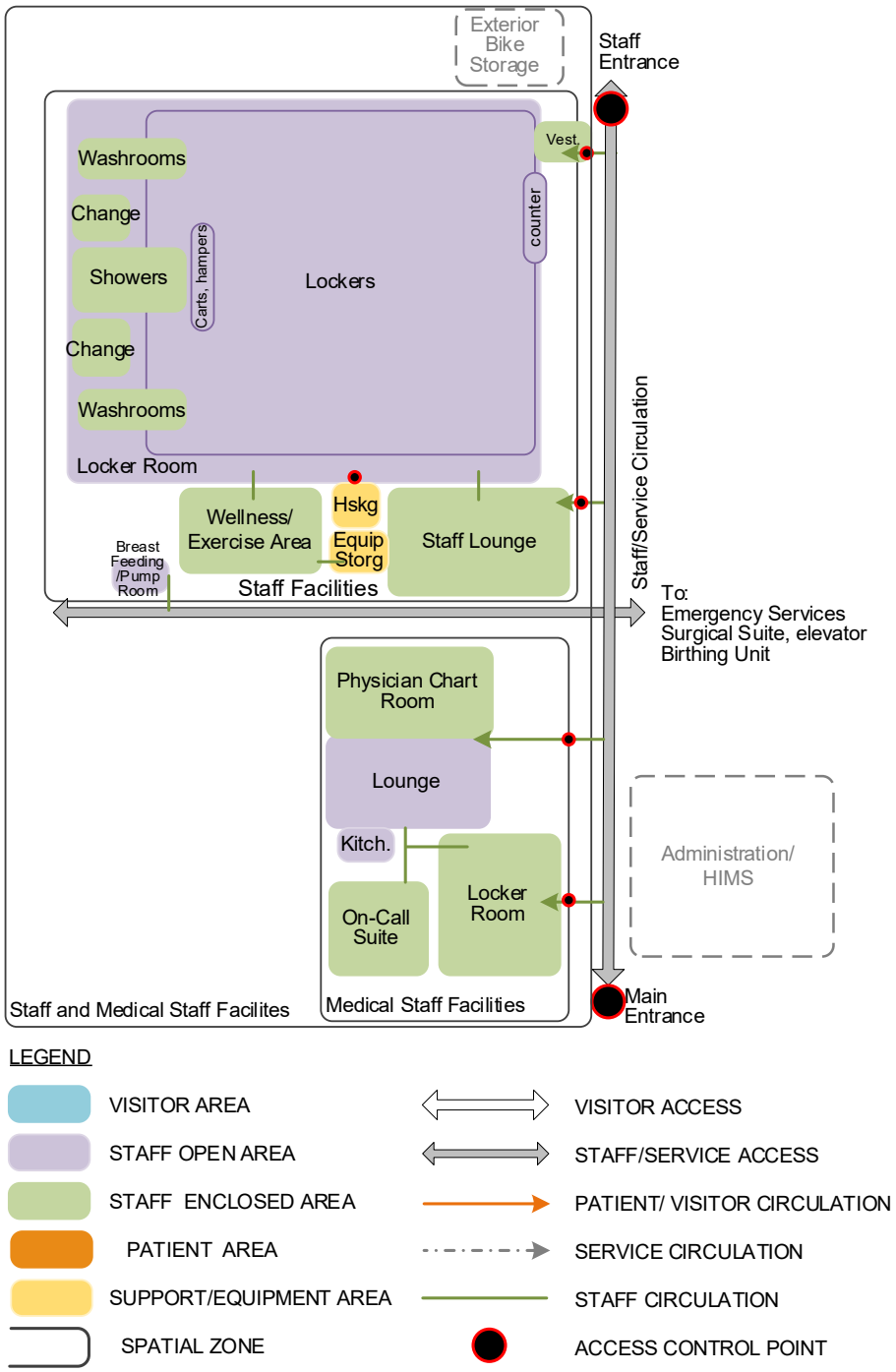
1	**Staff Entry**	Provide convenient access via non-public circulation to/from a Staff Entry for the movement of staff.
2	**Staff/Service Elevators**	Provide convenient access via general circulation to/from staff/service elevators for the movement of staff.

1A.18.4.1(3) Medical Staff Facilities

1	**Administration (HIMS)**	Provide convenient access via general circulation to/from HIMS for physician access to patient charts until such time as the electronic medical record is fully implemented.
2	**Surgical Services: Surgical Suite**	Provide convenient access via general circulation to/from Surgical Services: Surgical Suite for the movement of surgeon/anaesthetist.
3	**Emergency Services**	Provide convenient access via general circulation to/from Emergency Services for the movement of medical staff.
4	**Inpatient Units: Birthing Unit**	Provide convenient access via general circulation to/from Inpatient Units: Birthing Unit for the movement of medical staff.

1A.18.4.2 Functional Relationship Diagram

1A.18.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.18.4.3 Internal Design Criteria

1A.18.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.18.4.3(2) The Staff Facilities will be in close proximity to a staff entry to the Facility.

1A.18.4.3(3) Following is a room-by-room list of spaces for the Staff Facilities and Medical Staff Facilities showing:

1A.18.4.3(3)(a) Intent of Space; and

1A.18.4.3(3)(b) Specific Design Features.

1A.18.5 SCHEDULE OF ACCOMMODATION

1A.18.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.18 STAFF FACILITIES AND MEDICAL STAFF FACILITIES

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1A.18 STAFF FACILITIES & MEDICAL STAFF FACILITIES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Staff Facilities					
	Locker Room and Lounge					1. Provide video surveillance and panic alarms in corridor outside of Locker Room
18.01.	Locker Room	1		181.2	Non-gendered locker room.	1. Shower cubicles and change cubicles shall be clustered and arranged around the perimeter in such a way that there could be segregation by gender 2. Provide video surveillance and panic alarm
01	*vestibule*	*1*	*6.0*		Secure vestibule entry opening to main locker area.	1. Provide video surveillance to monitor those entering and leaving the Facility
02	*lockers, staff*	*300*	*0.4*			
03	*lockers, students*	*30*	*0.4*			
04	*uniform dispenser*	*2*	*1.5*			1. Locate near Change Cubicles and Shower Cubicles
05	*soiled linen hamper*	*3*	*0.5*			1. Locate near the Change Cubicles and Shower Cubicles
06	*washroom*	*5*	*4.6*			1. 2 pc 2. Non-gendered
07	*washroom, barrier-free*	*1*	*7.7*			1. 3 pc with shower 2. Non-gendered
08	*counter, dry area*	*1*	*3.0*			1. Provide a minimum of 1800 lin. mm of millwork counter with mirrors above, open access below 2. Locate near the Vestibule
09	*change cubicle*	*6*	*1.9*			1. Provide full length mirrors

1A.18 STAFF FACILITIES & MEDICAL STAFF FACILITIES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
10	*shower cubicle*	*6*	*3.0*			
11	*shower cubicle, barrier-free*	*1*	*4.0*			
18.02.	Staff Lounge	1		52.3	Use primarily by support staff	1. Provide natural light, views to the outside 2. Provide adjustable lighting 3. Provide infrastructure for wall mounted Smartboard and 3 messaging boards
01	*table area*	*1*	*7.4*			1. End users would like 2 tables/4 chairs if possible
02	*soft seating, chairs*	*15*	*2.3*			
03	*workstation*	*2*	*1.8*			
04	*nourishment station*	*1*	*4.9*			1. Provide 1800 lin mm upper and lower millwork that includes a double sink and lockable storage
05	*HHS*	*1*	*0.9*			
06	*recycling area*	*1*	*1.0*			
	Fitness Area					1. Provide electronic access control 2. Provide plumbed and filtered water 3. Provide video surveillance and panic alarm
18.03.	Wellness/Exercise Area	1		34.1		1. The fitness area shall have a minimum 3100 mm high ceiling 2. Provide natural light and views to the outside 3. Provide mirrors on 1 wall
01	*HHS*	*1*	*0.9*			

1A.18 STAFF FACILITIES & MEDICAL STAFF FACILITIES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
02	*exercise mat/weight area*	*1*	*11.0*		Small counter, cubbies will provide space to set belongings down while in room	1. Provide space for a wall mounted AED device 2. Provide small, shallow counter w/6 open cubbies below
03	*bikes/elliptical machine*	*3*	*3.7*			
04	*treadmill*	*3*	*3.7*			
18.04	Storage, Equipment	1		3.4		
18.14	Breast Feeding/Pumping Room	1		4.0		1. Provide comfortable chair, recliner 2. Provide small fridge under a 0.6 m square side table
18.05	Housekeeping Closet, Distributed	1		7.0		1. See Housekeeping & Laundry Services component
	Bike Storage	1		0.0		1. Provide covered outdoor bike storage for 30 bicycles 2. Secured with open web fencing that has no more than 50 mm openings, minimum height of 1800 mm 3. Must be well-lit 4. Provide access via electronic/card access 5. The entry must be a minimum of 1000 mm wide x 2400 mm high clear 6. Provide access from a bike path or bike compatible roadway and accessible to a staff entrance 7. Assume approximately 35.0 nsm for the covered enclosure, assuming all bicycles are stored on the floor (i.e. none are tipped for vertical storage)
	Subtotal Staff Facilities			282.0	Component Area = 324 CGSM at 1.15 grossing factor	

1A.18 STAFF FACILITIES & MEDICAL STAFF FACILITIES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Medical Staff Facilities					
	Entrance Corridor					
18.13	Washroom, Staff	1		4.6		1. 2 pc washroom 2. Provide enclosed shelf @1.0 lin. mm above/ behind toilet 3. Non-gendered
18.06.	Physician Chart Workroom			28.0		
01	*workstation*	6	*2.8*			
02	~~*chart storage*~~	0	*2.7*			1. Area reallocated for circulation, 2nd fridge in Ref No 18.09
03	*printer*	1	*1.9*			
04	*physician mailbox area*	1	*3.7*			
05	*internal circulation (25%)*	1	*6.4*			
	Lounge Space					
18.07	Lounge	1		34.5		1. Provide natural light, views to the outside 2. Provide infrastructure for wall mounted electronic whiteboard and education/ entertainment system
18.09	Kitchenette	1		7.6	Area reallocated from 18.06.02	1. Provide double sink, 2000 mm counter as well as upper/lower millwork 2. Provide plumbed-in water
18.11.	On-Call Suite	1		10.6		
01	*bed area*	*1*	*6.0*		.	1. See '1.6 Acoustics' section of UBC FoM Design Guidelines and Functional Requirements for On-Call Suite as prepared by UBC Faculty of Medicine

1A.18 STAFF FACILITIES & MEDICAL STAFF FACILITIES

Ref	Space	Proposed Area Units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
02	*washroom*	*1*	*4.6*			1. 3 pc
18.12.	Locker Room (Male & Female)	1		31.4		
01	*locker area*	*60*	*0.4*			
02	*washroom*	*2*	*4.6*			2. 3 pc
	Subtotal, Medical Staff Facilities			116.7	Component Area = 158 CGSM at 1.35 grossing factor	
	Total, Staff Facilities and Medical Staff Facilities			398.7	Component Area = 482 CGSM at 1.50 grossing factor	

1A.19.1 SURGICAL SERVICES: MEDICAL DEVICE REPROCESSING

This specification outlines the functional, operational, and physical requirements for the Surgical Services: Medical Device Reprocessing (MDR) component.

1A.19.1.1 FUNCTIONAL DESCRIPTION

1A.19.1.1.1 Statement of Purpose

1A.19.1.1.1(1) MDR will be responsible for cleaning, disinfection and sterilization of reusable materials (e.g., surgical instruments, patient utensils and basins, mobile patient equipment, etc.) following their use to make them safe for reuse. MDR's clients will include the Surgical Services: Surgical Suite, Inpatient Units: Birthing Unit, Medical/Surgical IPU, Emergency Services (ES), Ambulatory Care Centre (ACC), Medical Imaging (MI), Intensive Care Unit (ICU), and other areas.

1A.19.1.1.2 Scope of Services

1A.19.1.1.2(1) Functional Content

1A.19.1.1.2(1)(a) The following list specifies the minimum set of functions that must be accommodated within the component:

1A.19.1.1.2(1)(a)(i) receiving and staging of soiled instruments, utensils and equipment;

1A.19.1.1.2(1)(a)(ii) decontamination of soiled instruments, utensils and equipment, using a variety of equipment, such as washer/disinfectors, ultrasonic washer and cart washer;

1A.19.1.1.2(1)(a)(iii) inspection, assembly and wrapping of instrument sets and sterile items. For certain surgical cases standardized, pre-assembled packs may be used;

1A.19.1.1.2(1)(a)(iv) sterilization and cooling of instrument sets, and other items using steam sterilization methods;

1A.19.1.1.2(1)(a)(v) assembly of most reprocessed supplies and new supplies that will be used for OR/procedure cases;

1A.19.1.1.2(1)(a)(vi) cart make-up for ES and Birthing Unit supplies that include sterile instruments and reprocessed items; and

1A.19.1.1.2(1)(a)(vii) reusable supplies/pre-packaged product ordering, using the Materiel Management (MM) inventory system.

1A.19.1.1.2(2) Planning Assumptions

1A.19.1.1.2(2)(a) The majority of supplies consumed on the Inpatient Units and in ES will be disposable and will be delivered by MM staff.

1A.19.1.1.2(2)(b) MDR will investigate new technologies and equipment that will improve workflow processes and be safer to staff. Some changes

being proposed to MDR activities include instrument tracking and quality assurance software.

1A.19.1.1.2(2)(c) Pour-off of formalin containers will be done in Laboratory Services under a fume hood.

1A.19.1.1.2(2)(d) Staff facilities including locker and washroom facilities will be shared with the Surgical Services: Surgical Suite.

1A.19.1.1.2(3) Scope of Education Functions

1A.19.1.1.2(3)(a) N/A.

1A.19.1.1.2(4) Excluded

1A.19.1.1.2(4)(a) The collection of soiled materials and distribution of reusable supplies will be done by a centralized Materiel Portering service.

1A.19.1.1.2(4)(b) Storage of OR supplies will occur in the Surgical Suite sterile core.

1A.19.1.1.2(4)(c) Cleaning of Endoscopy scopes used in the ACC will be processed in the Scope Reprocessing Area in the ACC.

1A.19.1.1.2(4)(d) Ultrasound scopes will be processed in the Ultrasound Cluster of MI.

1A.19.1.2 OPERATIONAL DESCRIPTION

1A.19.1.2.1 Hours of Operation

1A.19.1.2.1(1) MDR will operate from 0700 to 1600 weekdays. Hours may be extended to accommodate workload changes or type of procedures performed in the Surgical Suite.

1A.19.1.2.2 Organization & Management

1A.19.1.2.2(1) MDR will operate under the leadership of the Surgical Suite Manager reporting to the Director of Care.

1A.19.1.2.3 Workflow

1A.19.1.2.3(1) MDR staff will gown at the start of the shift in the *Surgical Services: Surgical Suite* Locker Rooms.

1A.19.1.2.3(2) ***Disassembly/Decontamination Processing***

1A.19.1.2.3(2)(a) Following a procedure, the OR nurse will wheel the “back table/ case cart” to the *Surgical Services: Surgical Suite* Soiled Utility Room and dismantle it (disposing of certain items, cleaning off caked instruments, removing sharps, specimens, etc.). MDR’s Soiled Receiving & Decontamination will be adjacent and MDR staff will take over instrument processing from there.

1A.19.1.2.3(2)(b) In the decontamination area of MDR, basins and other steelware destined for re-processing will be separated from the instruments.

Instruments will be disassembled and placed into wash baskets for washing in automatic pass-through washer decontaminator or sonic washers. Respiratory and scope equipment will be processed through liquid sterilizing machines in the Soiled Processing room. Delicate equipment will be processed through ultrasonic machines. Patient contact surfaces and components will be removed from the equipment for disposal or sterilization. The remainder of the equipment will be decontaminated normally by washing and/or disinfection and transferred to the clean equipment assembly/storage area for reassembly and holding.

1A.19.1.2.3(2)(c) Moisture-sensitive and/or delicate items, post cleaning, will be passed to the prep and pack area for sterilization via the Pass-Through Air-Lock Window.

1A.19.1.2.3(2)(d) Following decontamination operations, all items will be unloaded into the Prep & Pack Assembly Area for subsequent processing. Clean racks and similar containers will be returned to decontamination for re-use following the removal of the clean materials. All soiled carts used to transfer soiled materials will be collected following unloading and routed to the cart wash facilities for decontamination. There, the carts/conveyances will be automatically cleaned and dried. They will be transferred after decontamination into the Cart Staging area for re-use or holding. The placement of the cart wash facility shall be contiguous to the final cart unloading area to eliminate needless circulation.

1A.19.1.2.3(3) *Clean Supplies Packaging/Assembly/Sterile Storage*

1A.19.1.2.3(3)(a) Clean and sanitized/sterilized items will arrive in the Prep & Pack Assembly Area following the decontamination process. Small items will be removed from the racks, trays or other containers and placed on sorting tables. Equipment will be reassembled and either stored in the equipment stores/assembly room or returned via dispatch to the department to which it belongs.

1A.19.1.2.3(3)(b) Carts will be routed either to Cart Staging area or to the department to which they belong. Small items will be sorted, instruments placed in the instrument library and items transferred to the set-up/packaging tables for processing. The primary function of packaging and assembly will be to prepare various instruments, utensils and supplies in packs, trays and packages for issue.

1A.19.1.2.3(3)(c) Prep & Pack Assembly Area staff will select items needed, inspect for quality and assemble them into standard and special-order packs, trays or packages. MM will supply disposable supply goods necessary for the assembly of packs, trays or packages such as needles, soft goods, wrappers, drapes, linens, towels, etc.

1A.19.1.2.3(3)(d) All items requiring sterilization will be loaded into sterilizer carts upon completion. Any items not requiring sterilization will be transferred to clean storage.

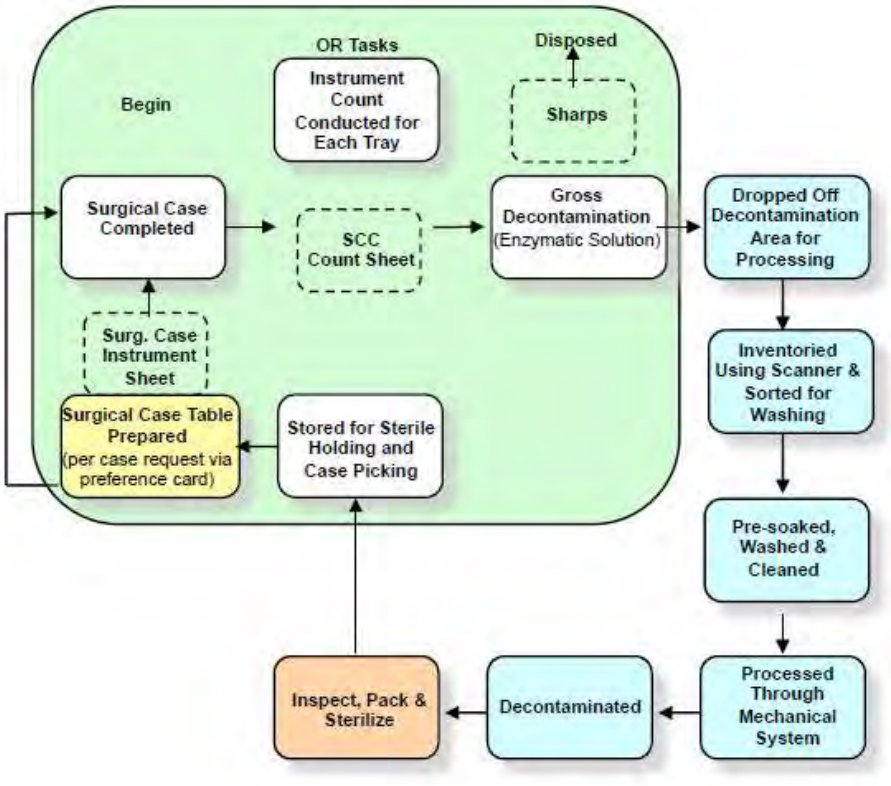
1A.19.1.2.3(3)(e) Processed goods will be loaded on an autoclave cart and held in a loading area near the sterilizers. The steam sterilizers will be loaded and when the cycle is completed (after one hour) goods will be removed and held in a cooling area. After goods have been cooled, they will be placed on mobile shelving in the OR Sterile Supplies, located in the *Surgical Services: Surgical Suite* Clean Core.

1A.19.1.2.3(3)(f) Sterile supplies for use in the *Surgical Services: Surgical Suite* will be picked by Surgical Suite staff, onto trays/case tables in the clean core of the Surgical Suite. MDR staff will deliver all other sterile supplies to the remainder of MDR users for storage and use.

1A.19.1.2.3(3)(g) Cases will be picked by MDR staff prior to each procedure/case.

1A.19.1.2.3(4) A conceptual diagram illustrated the proposed instrument process flow process is shown in Figure 1 below.

1A.19.1.2.3(4)(a) **Figure No. 1 Instrument Flow**



1A.19.1.2.4 Support Activities

1A.19.1.2.4(1) Disposable packs will be delivered by MM staff.

1A.19.1.3 STAFFING

1A.19.1.3.1 Estimated future staffing for this component is summarized below in terms Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

	Days		Nights
Position	Head Count	Occupancy	Head Count
Total	3		0
Weekdays	0		0
MDR Technicians	3	Workstation	0

Notes:

- Other staffing resources are distributed to other components.
- RPG in consultation with Facility staff.

1A.19.1.4 DESIGN CRITERIA

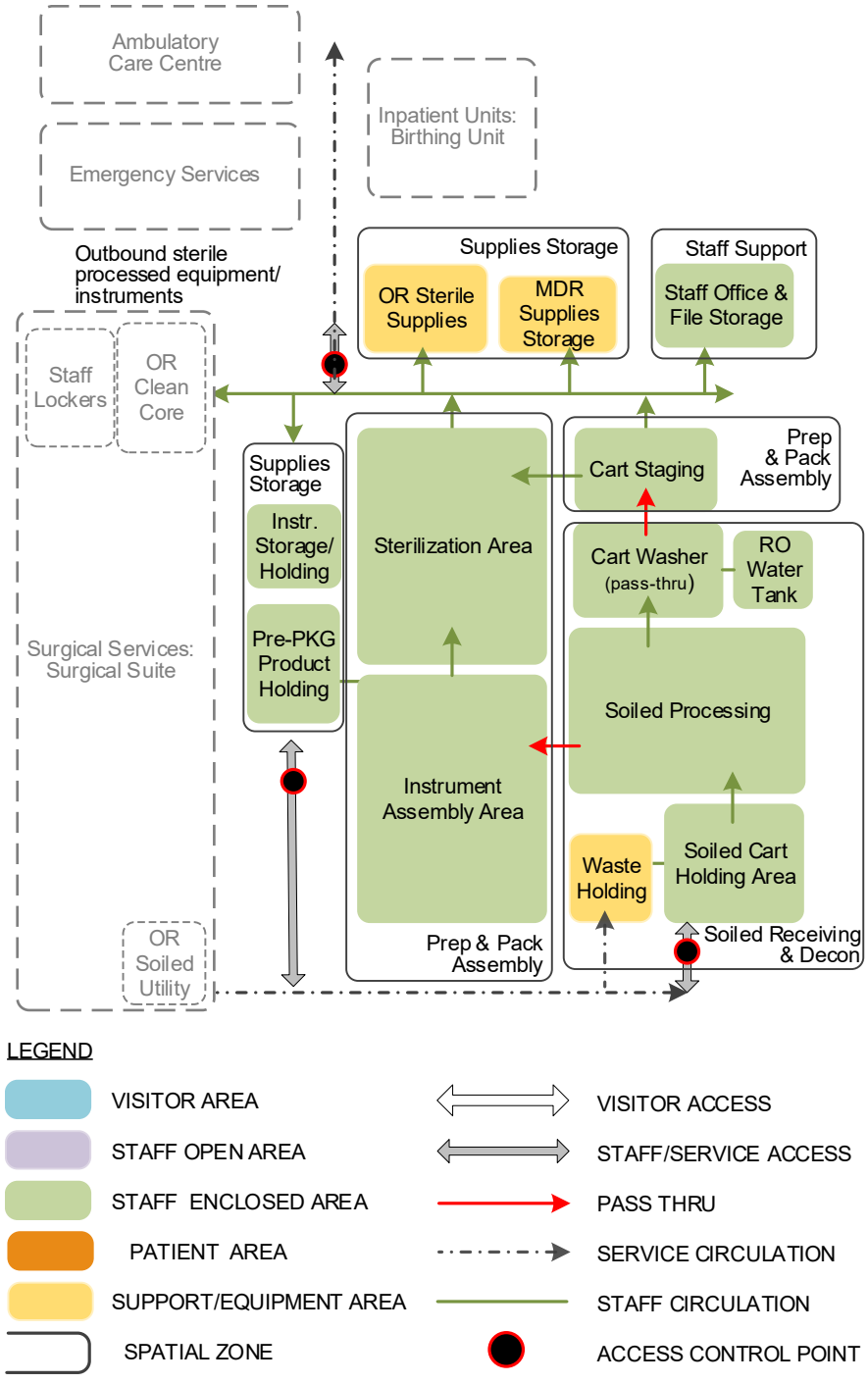
1A.19.1.4.1 External Relationships

1A.19.1.4.1(1) The following key external relationships for MDR will be achieved in the priority order as numbered for the purposes stated:

1	**Surgical Services: Surgical Suite**	Provide direct access via internal circulation to the Surgical Suite component for movement of sterile supplies and removal of soiled supplies.
2	**Ambulatory Care Centre**	Provide convenient access via non-public circulation to/from the Ambulatory Care Centre for the movement of sterile supplies and removal of soiled supplies.
3	**Inpatient Units: Birthing Unit**	Provide convenient access via non-public circulation to/from the Birthing Unit for the movement of sterile supplies and removal of soiled supplies.
4	**Emergency Services**	Provide convenient access via non-public circulation to/from the Emergency Services for the movement of sterile supplies and removal of soiled supplies.

1A.19.1.4.2 Functional Relationship Diagram

1A.19.1.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.19.1.4.3 Internal Design Criteria

1A.19.1.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.19.1.4.3(2) MDR will be co-located with the *Surgical Services: Surgical Suite*, sharing the sterile core for storage of sterile and disposable supplies.

1A.19.1.4.3(3) There will be dual access to MDR from the internal *Surgical Services: Surgical Suite* perimeter corridor system and externally from service circulation.

1A.19.1.4.3(4) Entry and exit doors shall have hands-free operation.

1A.19.1.4.3(5) The MDR will have a unidirectional flow of instruments and equipment from the soiled to clean/sterile areas. All soiled material will arrive in the decontamination area and flow through separate paths to the clean and sterile areas. The staff shall not be able to cross from the soiled to clean area without removing their PPE.

1A.19.1.4.3(6) Washing and sterilization equipment will be connected to emergency power.

1A.19.1.4.3(7) Provide stainless-steel bumpers to all corners and corridors within the component at mobile cart height.

1A.19.1.4.3(8) Areas around sterilizers shall be reinforced with a stainless-steel cove base.

1A.19.1.4.3(9) Provide reinforced concrete under sterilizers to support equipment.

1A.19.1.4.3(10) Full-spectrum fluorescent lighting shall be used throughout MDR with good quality task lighting at each workstation, in the Sterilization Area and in Instrument Assembly.

1A.19.1.4.3(11) Following is a room-by-room list of spaces for MDR showing:

1A.19.1.4.3(11)(a) Intent of Space; and

1A.19.1.4.3(11)(b) Specific Design Features.

1A.19.1.5 SCHEDULE OF ACCOMMODATION

1A.19.1.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.19.1 SURGICAL SERVICES: MEDICAL DEVICE REPROCESSING

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1A.19.1 SURGICAL SERVICES: MEDICAL DEVICE REPROCESSING

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Soiled Receiving & Decontamination					1. Must have negative air pressure to adjacent corridors
19.1.01.	Soiled Cart Holding Area	1		14.4		1. Provide separate entrance accessible from service circulation
01	*HHS*	*1*	*0.9*			
02	*decontam supply cart*	*1*	*1.4*			
03	*case cart staging*	*6*	*1.4*			
04	*hopper sink*	*1*	*3.7*			
19.1.02.	Waste Holding	1		2.5		
01	*waste/glass/biohazard/ recycling container holding*	*3*	*0.5*			
02	*soiled linen hamper*	*2*	*0.5*			
19.1.03.	Soiled Processing	1		42.6		
01	*washer/disinfector w/transfer carts, soap storage*	*4*	*7.4*			
02	*pass-through air-lock window*	*1*	*0.9*			
03	*sonic washer w/ cart*	*1*	*1.9*			
04	*work area including quad sink*	*1*	*5.6*			1. Sink must be height adjustable 2. Provide eyewash 3. Access to RO water
05	*sorting bench*	*1*	*4.6*			
19.1.04	Cart Washer, pass-through to cart staging area	1		15.8		

1A.19.1 SURGICAL SERVICES: MEDICAL DEVICE REPROCESSING

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
19.1.05	Reverse Osmosis Water Tank	1		4.6		
	Subtotal, Soiled Receiving & Decontamination			79.9		
	<u>Prep & Pack Assembly Area</u>					1. Provide pass-through from Decontamination area 2. Provide separate entrance from service circulation 3. Area must be positive pressure to Soiled Receiving & Decontamination Area
19.1.06	HHS	1	0.9	0.9		
19.1.07.	Cart Staging	1		10.3		1. Provide compressed medical air and power
01	*case tables*	*6*	*1.4*			
02	*instrument cart*	*1*	*1.9*			
19.1.08.	Instrument Assembly Area	1		33.2		
01	*set-up/pack tables*	*4*	*7.4*			
02	*supply carts*	*4*	*0.9*			
19.1.09.	Sterilization Area	1		39.0		1. The service area for the sterilizers shall open up to a service corridor external to the component 2. Provide negative air pressure for this area
01	*steam unit medium*	*2*	*7.4*			
02	*Sterrad® unit*	*2*	*5.6*			1. Includes cool down area
03	*steam cool down area*	*1*	*5.6*			
04	*transfer carts*	*2*	*0.9*			

1A.19.1 SURGICAL SERVICES: MEDICAL DEVICE REPROCESSING

Ref	Space	Proposed Area units	Proposed Area nsm/unit	Proposed Area nsm	i. Intent of Space	ii. Specific Design Features
05	*workstation, record keeping*	*1*	*3.7*			
06	*utility sink*	*1*	*1.9*			
19.1.10	Housekeeping Closet, Distributed	1		7.0		1. See *Housekeeping & Laundry Services* component for description
	Subtotal, Prep & Pack Assembly Area			90.4		
	Supplies Storage					1. Areas in the Supplies Storage can be combined as one room
19.1.11	Pre-packaged Product Holding	1		20.4		
19.1.12	MDR Supplies Storage	1		14.9		
19.1.13.	OR Sterile Supplies			30.4		1. Refer to Surgical Services: Surgical Suite - Sterile Core
01	*MDR sterile storage carts*	*1*	15.2			
02	*carts*	*8*	*1.9*			
19.1.16	Instrument Storage/Holding	1		3.5	Short-term storage of instruments from other sites/physician offices	1. Provide access from this room to service circulation 2. Locate buzzer/intercom at outbound sterile processed equipment/instrument access 3. Provide minimum 2 duplex outlets
	Subtotal, Supplies Storage (Short-Term)			65.7		
	Staff Support Room					
19.1.14	Staff Office	1		9.3		
19.1.15	File Storage	2	0.9	1.8		1. ~~Locate near Staff Office~~ Must be integral to Ref NO 19.1.14 Staff Office

1A.19.1 SURGICAL SERVICES: MEDICAL DEVICE REPROCESSING

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Washroom, Staff	1		0.0		1. Will share a staff washroom that is not within the red line with another Surgical Services component
	Subtotal, Staff Support Room			11.1		
	Total, MDR			247.1	Component Area = 321 CGSM at 1.30 grossing factor	

1A.19.2 SURGICAL SERVICES: PRE-SURGERY SCREENING CLINIC, SURGICAL DAY CARE

This specification outlines the functional, operational, and physical requirements for the Surgical Services: Pre-Surgery Screening Clinic (PSSC) and Surgical Day Care (SDC) component.

1A.19.2.1 FUNCTIONAL DESCRIPTION

1A.19.2.1.1 Statement of Purpose

1A.19.2.1.1(1) Staff in this component will support pre-surgical screening, planning, and preparation as well as final stage recovery of those having surgeries or procedures outside of the component.

1A.19.2.1.1(2) Those attending SDC will be adult and paediatric outpatients and will be either SDC patients or same day admissions.

1A.19.2.1.2 Scope of Services

1A.19.2.1.2(1) Functional Content

1A.19.2.1.2(1)(a) PSSC will assure that those having scheduled surgery in the *Surgical Services: Surgical Suite* will be screened prior to surgery to proceed with surgery by providing information to the surgeon and anaesthesiologist regarding potential issues that may arise during surgery.

1A.19.2.1.2(1)(b) Education about the surgery and post-surgery expectations will be an important role of the PSSC.

1A.19.2.1.2(1)(c) SDC will provide pre/post-procedure nursing care to patients having a scheduled surgical procedure in the *Surgical Services: Surgical Suite* component on an outpatient basis or who will be admitted to an inpatient bed following surgery.

1A.19.2.1.2(1)(d) SDC will provide pre and post-operative education to both patient and family.

1A.19.2.1.2(2) Planning Assumptions

1A.19.2.1.2(2)(a) The OR booking clerk and the registration clerk will be cross trained for greater flexibility in human resources.

1A.19.2.1.2(2)(b) It is anticipated 100% of patients receiving surgery will attend the PSSC before their procedure. It is anticipated that of those, approximately 60% will be screened only via phone.

1A.19.2.1.2(2)(c) Emergency orthopaedic cases from Emergency Services (ES) waiting for surgery or a consult will be cared for in SDC or admitted to an inpatient bed after SDC closes.

1A.19.2.1.2(2)(d) It is assumed that 98% of patients requiring an inpatient stay following surgery will be admitted on the day of their surgery and will have their pre-procedure care in SDC.

1A.19.2.1.2(2)(e) Most patients attending SDC will be accompanied by at least one family member or friend.

1A.19.2.1.2(2)(f) It is estimated that approximately 80% of patients will walk to their OR in the *Surgical Services: Surgical Suite* component.

1A.19.2.1.2(2)(g) If a cardiac arrest occurs in SDC, the Code Response Team will be called.

1A.19.2.1.2(2)(h) The nurse-to-patient ratio in SDC will be planned at 1:3 covering the 16.5-hour day.

1A.19.2.1.2(3) Scope of Education Functions

1A.19.2.1.2(3)(a) This component will be an environment for education and training of medical students, residents, nursing students, pharmacy students (pharmacy technicians and pharmacists), new staff – for orientation, ongoing education for all staff working in these areas.

1A.19.2.1.2(4) Excluded

1A.19.2.1.2(4)(a) No procedures will occur in this component.

1A.19.2.1.2(4)(b) Patient education in a group setting of up to 12 people (patients and their selected family members) will occur in space booked outside of this component.

1A.19.2.2 OPERATIONAL DESCRIPTION

1A.19.2.2.1 Hours of Operation

1A.19.2.2.1(1) Hours of operation of the PSSC will be weekdays from 0900 to 1700, and evening hours from 1630 to 1900.

1A.19.2.2.1(2) Hours of operation of SDC will be weekdays from 0645 to 2330.

1A.19.2.2.2 Organization & Management

1A.19.2.2.2(1) PSSC and SDC will be managed by the Manager of the Surgical Services reporting to the Director of Care.

1A.19.2.2.3 Workflow

1A.19.2.2.3(1) The following summarizes the patient journey associated with the PSSC and SDC:

1A.19.2.2.3(1)(a) a patient will be given an appointment to attend the PSSC by the OR Booking Clerk approximately two weeks before the scheduled day of surgery. Computerized scheduling will be based upon patient priority and surgical availability;

1A.19.2.2.3(1)(b) if attending the PSSC in person, the patient will be registered at the Main Patient Registration in the *Main Entry Facilities* component. A

patient having a phone “visit” to the PSSC will be able to proceed directly to SDC on the scheduled day of surgery and be entered into the by the SDC Clerk;

1A.19.2.2.3(1)(c) patients living out of town will be required to present in person to the PSSC. Multiple consults (surgeon, anaesthetist) will be grouped for time efficiency for the patient and care providers;

1A.19.2.2.3(1)(d) a Paediatric Clinic will be scheduled once every two weeks for anaesthesia consults;

1A.19.2.2.3(1)(e) while attending the PSSC, the RN will give any orders for lab work and x-rays, as required.

1A.19.2.2.3(1)(f) all patients will have had any x-rays and lab work completed prior to presenting at SDC; however, occasionally, elective patients will be directed to *Laboratory Services* for bloodwork;

1A.19.2.2.3(1)(g) prior to arrival, patients will be advised that valuables and personal effects shall be left at home. Following registration into SDC, the patient will be directed to the Change Area to gown. The patient will be instructed to put clothing into a garment bag that will be identified/tagged and held under their stretcher;

1A.19.2.2.3(1)(h) once gowned, the patient will remain in their Stretcher Bay. IVs, if required, and any consultations (including those with the anaesthesiologist) or pre-surgical procedures will occur in an Exam/Consult Room;

1A.19.2.2.3(1)(i) approximately 10% of all the patients attending SDC will be anticipated to require a stretcher rather than a chair for their pre-surgery time due to a variety of clinical needs;

1A.19.2.2.3(1)(j) at the scheduled time of surgery, the *Surgical Services: Surgical Suite* OR nurse will come to SDC for the patient, check identification, and escort the patient to their assigned OR in the *Surgical Services: Surgical Suite* component or transport the patient on a stretcher;

1A.19.2.2.3(1)(k) if the patient is to be admitted to an inpatient bed following surgery, porter staff will transport the patient’s clothing to the Inpatient Unit. Secure storage of these personal effects will be provided within SDC until the porter is available to take responsibility for them;

1A.19.2.2.3(1)(l) if a patient recovering from his or her procedure cannot be discharged by 2330, the patient will either remain in SDC (with overtime staff) or will be admitted to an inpatient bed if available;

1A.19.2.2.3(1)(m) during regular hours, following the surgical procedure, Stage 1 recovery will occur in the PACU in the *Surgical Services: Surgical Suite* component from which the patient will be transported to SDC for Stage 2 recovery and then discharge. If there is a delay in being able to be picked up, the patient will be invited to wait in the Facilities Waiting Area in the Lobby to free up the Stretcher Bay. Patients who

must be admitted will be transported to the Inpatient Unit by SDC staff;

1A.19.2.2.3(1)(n) patients requiring emergency surgery who have presented at ES will be transported to SDC (when it is open) for pre-surgery care once the decision to perform surgery has been made, unless medical needs can only be met in ES. After hours, such patients will be held and cared for in ES until the time of their surgery or will be admitted to the Inpatient Unit for pre-surgery care;

1A.19.2.2.3(1)(o) all patients having ophthalmology surgery under general anaesthetic will be transported from SDC to a General Operating room in the *Surgical Services: Surgical Suite* on a stretcher;

1A.19.2.2.3(1)(p) a woman scheduled for a c-section will be admitted through SDC and a porter will transport her personal effects to her designated room within the *Inpatient Units: Birthing Unit* component; and

1A.19.2.2.3(1)(q) scheduled surgery will be cancelled after an anaesthetist consult if the patient has contracted an infectious respiratory disease.

1A.19.2.2.3(1)(r) ***Staff***

A1.19.2.2.3(1)(r)(i) PSSC staff will do follow-up calls lasting two to four minutes providing continuity of care. PSSC staff will also provide a follow-up phone call to outpatients having had a general or spinal anaesthetic in the *Surgical Services*: *Surgical Suite* component.

A1.19.2.2.3(1)(r)(ii) The report of the PSSC visit will be written into the Electronic Medical Record (EMR).

A1.19.2.2.3(1)(r)(iii) Surgeons' offices will request an anaesthesiologist consult at the time of booking the surgeries.

A1.19.2.2.3(1)(r)(iv) The PSSC screening nurse will assess for pre-existing conditions and will make a referral for anaesthesia and/or internal medicine assessment as needed.

A1.19.2.2.3(1)(r)(v) Lab work and imaging examinations may be ordered by the anaesthetist or surgeon. Test results will form part of the PSSC analysis. The PSSC nurse will confer with the anaesthetist and/or surgeon if, after reviewing the documentation and completing the first phone contact, they feel that diagnostics such as ECG are recommended.

A1.19.2.2.3(1)(r)(vi) Staff of PSSC and SDC will use the locker facilities and the staff lounge located within the *Surgical Services: Surgical Suite* component.

1A.19.2 SURGICAL SERVICES: PRE-SURGERY SCREENING CLINIC, SURGICAL DAY CARE

1A.19.2.2.4 Support Activities

1A.19.2.2.4(1) Laboratory Services staff will be available to draw peripheral blood specimens, as required. Other specimens will be collected by SDC staff (i.e. point-of-care testing).

1A.19.2.2.4(2) Medications will be replenished in an ADC by Pharmacy staff on a regular basis, shared with the *Surgical Services: Surgical Suite's* PACU.

1A.19.2.2.4(3) Housekeeping staff will clean stretchers following patient discharge. Housekeeping staff will be responsible for putting clean linen on the stretchers. From 1600 to 2230, Housekeeping staff will perform a final cleaning of the day in SDC.

1A.19.2.2.4(4) Items for reprocessing will be rinsed by nursing staff and decontaminated for transport during on-call times. During regular hours, MDR staff will perform these tasks. Items for reprocessing will be stored in a sealed closed cart in the Soiled Utility Room in the *Surgical Services: Surgical Suite* PACU, until collection by MDR staff for delivery to MDR for reprocessing.

1A.19.2.2.4(5) During the Stage 2 recovery period, juice and light snacks may be offered to patients. Food Services staff will stock the Nourishment Station according to the standardized Unit Stock Policy.

1A.19.2.3 STAFFING

1A.19.2.3.1 Estimated future staffing for this component is summarized below in terms of Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

Position	Days Head Count	Days Occupancy	Nights Head Count
Total	9		2
Weekdays			
Pre-Surgery Screening Clinic			
RN	2	Shared Office	0
OR Booking Clerk	2	Office	0
Registration Clerk	1	Workstation	0
Day Surgery	0		0
Manager[1]	0	-	0
RN	3	Workstation	2
Clerk	1	Workstation	0

1A.19.2 SURGICAL SERVICES: PRE-SURGERY SCREENING CLINIC, SURGICAL DAY CARE

Notes:

1. The Manager has been accounted for in the Surgical Suite component description.

- Other staffing resources will be distributed to other components.
- RPG in consultation with Facility staff.

1A.19.2.4 DESIGN CRITERIA

1A.19.2.4.1 External Relationships

1A.19.2.4.1(1) The following key external relationships for PSSC will be achieved in the priority order as numbered for the purposes stated:

1	**Surgical Services: Surgical Suite (PACU)**	Provide direct access via internal circulation to/from the PACU area of Surgical Services: Surgical Suite to the Stretcher Bay Area of SDC to facilitate the movement of patients and sharing of staff.
2	**Surgical Services: Surgical Suite**	Provide convenient access via non-public circulation to/from the Surgical Suite to facilitate the movement of the anesthesiologist consult with patients.
3	**Main Entry Facilities**	Provide convenient access via public circulation to/from the Main Entry Facilities for the movement of surgical day care patients.

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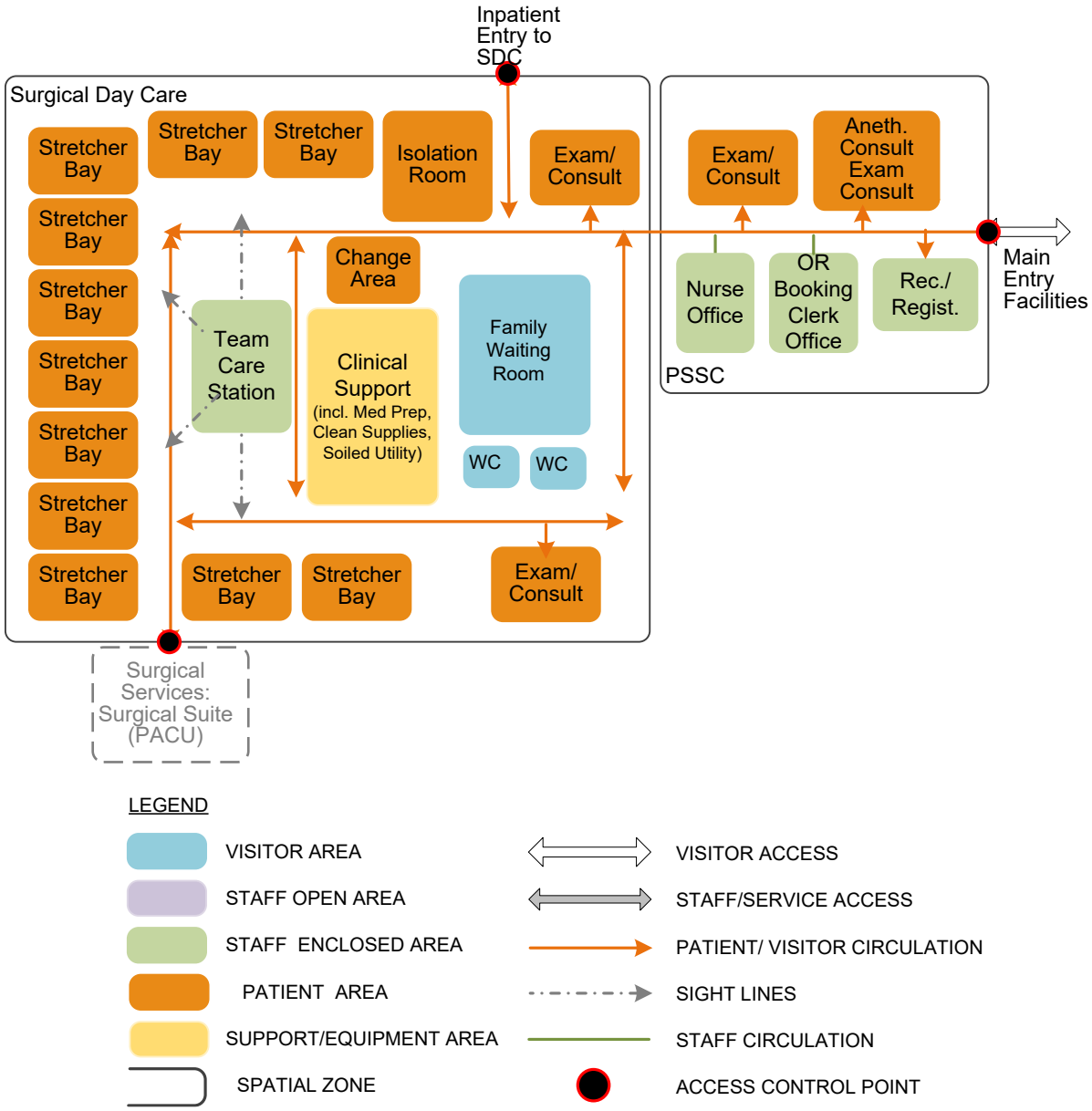
1A.19.2.4.2 Functional Relationship Diagram

1A.19.2.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.19.2 SURGICAL SERVICES: PRE-SURGERY SCREENING CLINIC, SURGICAL DAY CARE

1A.19.2.4.3 Internal Design Criteria

1A.19.2.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.19.2.4.3(2) Provide a separate entrance for inpatients being transported into SDC on a stretcher.

1A.19.2.4.3(3) Following is a room-by-room list of spaces for PSSC/SDC showing:

1A.19.2.4.3(3)(a) Intent of Space; and

1A.19.2.4.3(3)(b) Specific Design Features.

1A.19.2.5 SCHEDULE OF ACCOMMODATION

1A.19.2.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

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Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Pre-Surgery Screening Clinic (PSSC)					
19.2.01	Reception/Registration (shared with Surgical Day Care)	1		4.6	Ref No 19.2.13.02 and .03 have been clustered with this workstation - w/end user agreement	1. An emergency call button shall be provided, annunciating at the Team Care Station in the Stretcher Bay Area of the SDC 2. Ensure the Family Waiting Room is visible from this location 3. Provide glazed enclosure at counter w/document transfer area
19.2.02	Office, OR Booking Clerk	2	9.3	18.6		
19.2.03	Office, Nurse	1		9.3	Pre-surgical screening	
19.2.04	Exam/Consult Room	1		13.0		1. Provide lighting for physical examinations and educational interaction 2. Provide HHS
19.2.05	Anaesthesia Consult/Barrier-Free Exam/Consult Room	1		13.9		1. Provide lighting for physical examinations and educational interaction 2. Provide HHS
19.2.06	Alcove, Patient Weigh Scale, Barrier-Free	1		2.3		1. Flush mount to the floor 2. Provide built-in floor scale
19.2.07	Storage Cupboard	1		2.3		
	Subtotal, PSSC			64.0		87 CGSM at 1.35 grossing factor
	Surgical Day Care (SDC)					
	Outpatient Entrance Zone					
	Reception/Registration	1		0.0		1. See PSSC section

1A.19.2 SURGICAL SERVICES: PRE-SURGERY SCREENING CLINIC, SURGICAL DAY CARE

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
19.2.08	Family Waiting Room	1		38.8		1. Shared with PACU of Surgical Suite 2. Provide backing board for monitor and power & communications 3. Provide child area with child friendly wall art
19.2.09	Washroom, Public	1		4.6		1. 2 pc 2. Non-gendered
19.2.10	Washroom, Public, Barrier-Free	1		7.7		1. 2 pc 2. Non-gendered
19.2.12.	Exam/Consult Room	2	13.0	26.0		1. Must accessible from both the Outpatient Entrance Zone and the Stretcher Bay Area
	Stretcher Bay Area					
19.2.13.	Team Care Station	1		15.6		1. Shall be centrally located with sightlines to all patients 2. Provide glazed partitions for sound control
01	*workstation*	*3*	*2.8*			
02	*patient files storage, forms*	*1*	*3.0*			1. Has been planned at Ref No 19.02.01
03	*office equipment*	*1*	*1.9*			1. Has been planned at Ref No 19.02.01
04	*alcove, mobile workstation charging*	*1*	*2.3*			
19.2.14	Stretcher Bays, Pre & Post-Procedure	11	11.0	121.0		1. Provide medical gases (oxygen, air and suction) 2. Enclosed on 3 sides w/ movable privacy curtain (or similar) at foot end of bay

1A.19.2 SURGICAL SERVICES: PRE-SURGERY SCREENING CLINIC, SURGICAL DAY CARE

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
19.2.15	Washroom, Patient	1		4.6		1. Locate adjacent to Pre-Post Procedure Stretcher Bays 2. 2 pc 3. Non-gendered
19.2.16	Washroom, Patient, Barrier-Free	1		7.7		1. Locate adjacent to Pre-Post Procedure Stretcher Bays 2. 2 pc 3. Non-gendered
19.2.17.	Change Area	1		11.0		
01	*change cubicle*	2	*2.0*		will these be eliminated??	
02	*change cubicle, barrier-free*	1	*4.7*			
03	*purse lockers*	1	*2.3*			
19.2.18.	Isolation Room	1		22.6		1. Locate at one end of the Standard Stretcher Bays
01	*room area*	*1*	*13.0*	*0*		1. Accessed through Anteroom
02	*anteroom*	*1*	*5.0*	*0*		1. Provides access to Isolation Room 2. Provide HHS
03	*washroom*	*1*	*4.6*	*0*		1. 2 pc
19.2.19	Medications Preparation Room	1		9.5		1. Locate easily and quickly accessible by Surgical Services: PSSC, SDC 2. Provide utility sink (deep enough to pour IV solution with medication), mill work counter for med preparation 3. Provide space for one med cart with charging station

1A.19.2 SURGICAL SERVICES: PRE-SURGERY SCREENING CLINIC, SURGICAL DAY CARE

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
						4. Provide eyewash station 5. Secured door with glazing, door opens into room 6. Provide HHS
19.2.20	HHS, Staff	5	0.9	4.5		1. Provide 1 HHS per 2 patient positions
	Clinical Support Spaces					1. Must be central to Stretcher Bays 2. Must be accessible to PACU area of *Surgical Services: Surgical Suite*
19.2.21	Washroom, Staff	1		4.6		1. 2 pc washroom 2. Provide enclosed shelf @1.0 lin. mm above/behind toilet 3. Non-gendered
19.2.22	Clean Supplies Room	1		11.0		1. Shared with *Surgical Services: Surgical Suite*
19.2.23	Soiled Utility Room	1		12.0		1. Shared with *Surgical Services: Surgical Suite* 2. Provide separate storage for hazardous and non-hazardous drug waste
19.2.24	Housekeeping Closet, Distributed	1		7.0		1. Shared with *Surgical Services: Surgical Suite* PACU 2. See *Housekeeping & Laundry Services* component for description
19.2.25	Storage Room, Equipment	1		10.7	Storage for blanket warmer, child and adult scale, baby changing table	1. Shared with *Surgical Services: Surgical Suite*
19.2.26	Nourishment Station	1		4.9	For patient nourishment	1. Provide staff only access

1A.19.2 SURGICAL SERVICES: PRE-SURGERY SCREENING CLINIC, SURGICAL DAY CARE

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
						2. Provide 1800 lin mm upper and lower lockable millwork that includes a double sink, HHS
	Alcove, Crash Cart	1		0.0		1. See *Surgical Services; Surgical Suite* PACU
	Subtotal, Surgical Day Care			323.8		486 CGSM at 1.50 grossing factor
	Total PSSC, Surgical Day Care			387.8		Component Area = 572 CGSM (Gross up varies as shown)

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1A.19.3 SURGICAL SERVICES: SURGICAL SUITE

This specification outlines the functional, operational, and physical requirements for the Surgical Services: Surgical Suite component.

1A.19.3.1 FUNCTIONAL DESCRIPTION

1A.19.3.1.1 Statement of Purpose

1A.19.3.1.1(1) This component will accommodate invasive and minimally invasive procedures during which patients will require either anaesthesia or sedation. Following their procedure, patients will have first stage recovery monitored in the Post Anaesthetic Care Unit (PACU) within this component and be moved to the Surgical Day Care area of the *Surgical Services: PSSC/SDC* component for second stage recovery before either being discharged or transferred back to an inpatient room.

1A.19.3.1.2 Scope of Services

1A.19.3.1.2(1) Functional Content

1A.19.3.1.2(1)(a) The following list specifies the minimum set of surgical functions that must be accommodated within this component:

- 1A.19.3.1.2(1)(a)(i) dental;
- 1A.19.3.1.2(1)(a)(ii) ENT;
- 1A.19.3.1.2(1)(a)(iii) general surgery;
- 1A.19.3.1.2(1)(a)(iv) gynaecology (including c-sections on a scheduled and unscheduled basis);
- 1A.19.3.1.2(1)(a)(v) ophthalmology; and
- 1A.19.3.1.2(1)(a)(vi) urology (including cystoscopy).

1A.19.3.1.2(1)(b) It is planned that the Facility become the “node” in the NWHSDA for inpatient orthopaedic surgeries, trauma (Level 3), and selected outpatient orthopaedic surgeries, with other outpatient orthopaedic surgeries continuing in Kitimat and Prince Rupert.

1A.19.3.1.2(1)(c) Some inpatient surgeries currently referred out may be repatriated to the Facility.

1A.19.3.1.2(2) Planning Assumptions

1A.19.3.1.2(2)(a) The majority of elective surgeries will be performed on a day-surgery basis.

1A.19.3.1.2(2)(b) The PACU will be an integral part of the Surgical Services: Surgical Suite.

1A.19.3.1.2(2)(c) The designation of the Facility as a Level III Trauma Centre suggests more complex surgeries will be performed here.

1A.19.3.1.2(2)(d) In addition to increased orthopaedics, there may be a greater focus on urology and recruitment of a urologist.

1A.19.3.1.2(2)(e) Laser surgery will be utilized for urology, gynaecology, and ENT cases; however, all ORs will be designed for laser surgery.

1A.19.3.1.2(3) Scope of Education Functions

1A.19.3.1.2(3)(a) The Surgical Services: Surgical Suite will be an environment for education and training of numerous individuals including medical students and residents, nursing students, Pharmacy students, clerical staff, new staff (for orientation, and ongoing education) for all staff in this component.

1A.19.3.1.2(4) Excluded

1A.19.3.1.2(4)(a) Neurosurgery, cardiac/thoracic surgery, vascular surgery, polytrauma orthopaedics, and major trauma surgery will be referred out to the appropriate tertiary facility.

1A.19.3.1.2(4)(b) Pre-surgical screening and Stage 2 recovery will be accommodated in the *Surgical Services: Pre-Surgery Screening Clinic and Surgical Day Care (PSSC and SDC)* component.

1A.19.3.1.2(4)(c) Cardioversions will be performed in the Emergency Services (ES) as that is the only area where such procedure can occur on weekends.

1A.19.3.1.2(4)(d) Scheduled endoscopies will be performed in the Ambulatory Care Centre (ACC). Emergency endoscopies may occur in the ACC or in the Surgical Suite: Surgical Services. Close proximity of the Endoscopy Suite in the ACC to the Surgical Suite will facilitate the on-call OR nursing staff being involved if the decision is made to perform the procedure in the ACC.

1A.19.3.1.2(4)(e) A Family Waiting Area has been included in the *Surgical Services: PSSC/SDC* component.

1A.19.3.2 OPERATIONAL DESCRIPTION

1A.19.3.2.1 Hours of Operation

1A.19.3.2.1(1) Hours of operation are weekdays from 0730 to 1530, with surgery occurring from 0815 to 1500. There will be 24/7 on-call with two RNs to respond to emergency needs.

1A.19.3.2.1(2) Unscheduled urgent/emergent orthopaedic cases will be booked on weekends, as needed.

1A.19.3.2.1(3) The PACU's hours will be from 0830 to 1630. If workload demands it, on-call OR staff will work overtime hours.

1A.19.3.2.2 Organization & Management

1A.19.3.2.2(1) The Surgical Services: Surgical Suite will be managed by the Manager of the Surgical Services reporting to the Director of Care. There will be a Clinical Practice Leader for Surgical Services as well as Nurse Educator.

1A.19.3.2.2(2) There will be a Chief of Surgery and the Northwest Regional Medical Director.

1A.19.3.2.3 Workflow

1A.19.3.2.3(1) *Patient*

1A.19.3.2.3(1)(a) All patients having procedures in this component will attend the *PSSC in the Surgical Services: PSSC/SDC* , either by phone or in person, depending upon the criteria met.

1A.19.3.2.3(1)(b) There will be one pre-op holding space with this component to be used to accommodate an inpatient transported from his or her Inpatient Unit or a patient transported from ES when the *SDC* is closed.

1A.19.3.2.3(1)(c) Following surgery, the patient will be transported to the PACU by the anaesthesiologist and the OR nurse. Criteria for both admission to and discharge from the PACU have been developed and will be strictly enforced. A patient who is admitted to an inpatient bed will be transported to the *Inpatient Units: Medical/Surgical IPU* following discharge from the PACU by the PACU nurse.

1A.19.3.2.3(2) *Staff*

1A.19.3.2.3(2)(a) Staff working in the Surgical Suite, including physicians, will be required to wear “greens”. While in “greens”, Surgical Services: Surgical Suite staff will utilize the private staff rest area within the component, shared with SDC staff.

1A.19.3.2.3(2)(b) Following weekend and night cases, surgical nurses will perform initial and all cleaning of instruments in the Soiled Utility Room before MDR staff come to work.

1A.19.3.2.4 Support Activities

1A.19.3.2.4(1) *Medical Imaging*

1A.19.3.2.4(1)(a) X-rays will be taken in the Surgical Services: Surgical Suite, if needed, using portable machines that will be stored this component.

1A.19.3.2.4(1)(b) Portable c-arms will be used in the urology and orthopaedic ORs.

1A.19.3.2.4(2) *Laboratory Services (LS)*

1A.19.3.2.4(2)(a) Specimen tissue awaiting pickup will be stored in a refrigerator in the Soiled Utility Room that must have secured access from the adjoining public corridor system. Pre-filled formalin containers will be used, re-stocked on a regular basis (assumed to be twice a week) and stored in the Soiled Utility Room. Transport of specimens to LS for analysis will be the responsibility of Laboratory staff or Materiel Management (MM) Portering staff.

1A.19.3.2.4(3) *Housekeeping*

1A.19.3.2.4(3)(a) Housekeeping staff will clean the ORs between cases and at the end of the day. From 1600 to 2230, Housekeeping staff will perform terminal cleaning of the ORs. Housekeeping staff will clean the rest of the Surgical Services: Surgical Suite, including the PACU. This will include cleaning stretchers following patient discharge and putting clean linen on the stretchers. PACU staff will be responsible for incidental cleaning. Housekeeping coverage will be made available at other times.

1A.19.3.2.4(4) *Pharmacy*

1A.19.3.2.4(4)(a) The Pharmacy will supply medications via a full ADC located in the zones of the ORs as well as an ADC in the PACU. Medications used in the Surgical Suite include narcotics, antibiotics that will be stored in a medication refrigerator, ward-stock drugs used during anaesthesia, and emergency drugs. Anaesthesia carts will be stocked by OR nurses.

1A.19.3.2.4(5) *MDR*

1A.19.3.2.4(5)(a) Following a procedure, soiled instruments will be placed into enclosed contained carts and wheeled to the Soiled Utility Room where preparation for the MDR will occur (disposing of certain items, cleaning off caked instruments, removing sharps, etc.). MDR's Soiled Receiving & Decontamination area will be adjacent and MDR staff will take over instrument processing from there.

1A.19.3.2.4(6) *Materiel Management*

1A.19.3.2.4(6)(a) As well as sterile bundles, medical/surgical supplies will be stored in the Clean Core, along with sterile reusable linen and disposable linen. These will be topped up on a regular basis by MM staff.

1A.19.3.2.4(6)(b) Clean linen such as blankets will be provided to the Surgical Services: Surgical Suite (both the zone of the ORs and the PACU) by MM staff on a regular basis.

1A.19.3.3 STAFFING

1A.19.3.3.1 Estimated future staffing for this component is summarized below in terms of Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

Position	Days Head Count	Days Occupancy	Nights Head Count
Total	39		1
Weekdays	0		0
Manager	1	Private Office	0
Nurse Educator	1	Private Office	0
Clinical Practice Lead	1	Private Office	0
RNs; OR	10	-	0
RNs: PACU	3	Shared Workstation	0
Instrument Nurse	1	Private Office	0
Unit Clerk	1	Wkstn	0
Housekeeping Staff[1]	(3)	-	(1)
OR Booking Clerk[2]	0	-	0
Core Aide (Multi-tasked)	1	Shared Workstation	0
General Surgeon	3	Shared Office	1
ENT Specialist	1		0
Dental Surgeon	1		0
OB/GYN Surgeon	2		0
Urologist	1		0
Ophthalmologist	3		0
Family Physician with Obstetrical Training	1		0
Family Practice Anaesthetists[3]	4		0
Orthopaedic Surgeon	3		0
Plastics Surgeon (Visiting)	1		0

Notes:

1. Accounted for in *Housekeeping & Laundry Services* component.
2. Other staffing resources will be distributed to other components i.e. an OR Booking Clerk has been accounted for in the Surgical Services: Pre-Surgery Screening Clinic, Surgical Day Care Component.
3. Two GP Anaesthetists if a formal anaesthetist cannot be recruited.

1A.19.3.4 DESIGN CRITERIA

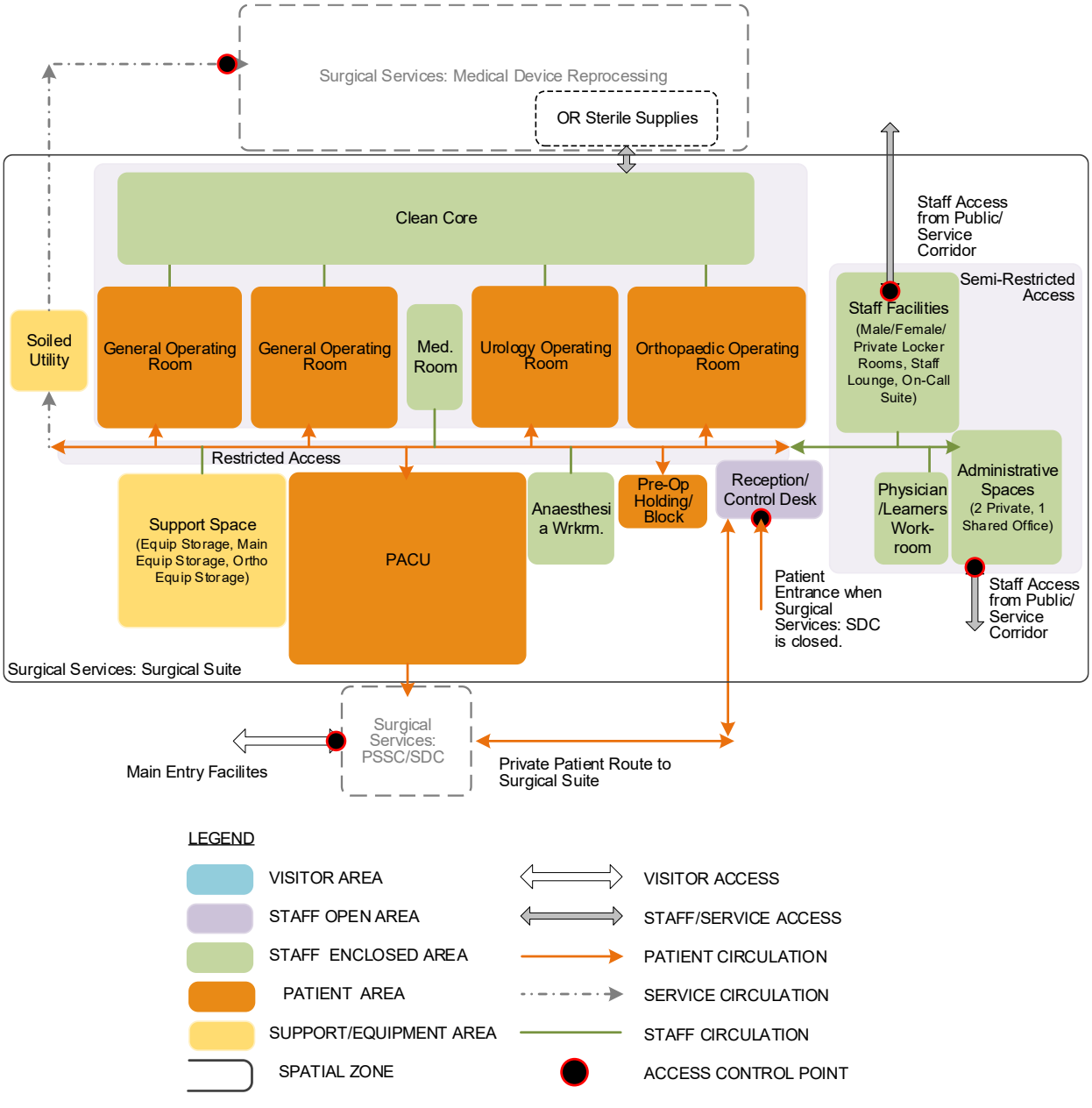
1A.19.3.4.1 External Relationships

1A.19.3.4.1(1) The following key external relationships for Surgical Services: Surgical Suite will be achieved in the priority order as numbered for the purposes stated:

1	**Surgical Services: Medical Device Reprocessing (MDR)**	Provide direct access via internal circulation to/from Surgical Services: MDR component for the movement of instruments and supplies.
2	**Surgical Services: PSSC/Surgical Day Care**	Provide direct access via internal circulation to/from Surgical Services: PSSC/SDC for the safe transfer of patients and for the sharing of support space.
3	**Inpatient Units: Birthing Unit**	Provide direct access via non-public circulation to/ from the Inpatient Units: Birthing Unit for the safe transfer of patients requiring an unscheduled c-section.

1A.19.3.4.2 Functional Relationship Diagram

1A.19.3.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.19.3.4.3 Internal Design Criteria

1A.19.3.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2 General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.19.3.4.3(2) The clearly identified "main door" will be within view of the Reception/ Control Office.

1A.19.3.4.3(3) Access to the component will be restricted with three levels of restricted area:

1A.19.3.4.3(3)(a) the interior corridor through which patients will access the ORs will be restricted to those wearing surgical "greens" and will be locked off from the Facility's secondary corridor system;

1A.19.3.4.3(3)(b) the Clean Core will contain sterile processed items from the adjacent Surgical Services: MDR and will be accessible from each OR;

1A.19.3.4.3(3)(c) just before accessing the interior corridor will be a semi-restricted area containing the office of the Nurse Educator/CPL, the Physician/Learners Workroom/Dictation, and the On-Call Suite; and

1A.19.3.4.3(3)(d) there must be an intercom link between the *Surgical Services: Surgical Suite* PACU and the *Surgical Services: PSSC/SDC* SDC area and the ORs as well as the Staff Lounge in this component.

1A.19.3.4.3(4) The main entrance to the component will be positioned to prevent viewing into Scrub Stations or ORs.

1A.19.3.4.3(5) Power to ceiling mounted equipment will be located on ceiling with cable management systems. Staff must be able to reach outlets from a standing position.

1A.19.3.4.3(6) Following is a room-by-room list of spaces for Surgical Services: Surgical Suite showing:

1A.19.3.4.3(6)(a) Intent of Space; and

1A.19.3.4.3(6)(b) Specific Design Features.

1A.19.3.5 SCHEDULE OF ACCOMMODATION

1A.19.3.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.19.3 SURGICAL SERVICES: SURGICAL SUITE

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	ORs Zone					
19.3.01.	Reception/Control Office	1		12.9	Communications centre for the Surgical Suite	
01	*workstation*	*1*	*4.6*			1. Position to monitor access to the Surgical Services: Surgical Suite 2. Accessed by authorized personnel and patients only
02	*office equipment & supplies*	*1*	*1.9*			
03	*alcove, workstation, charge nurse*	*1*	*4.6*			
04	*congregation area*	*2*	*0.9*			
19.3.02	Office, Manager	1		9.3		
19.3.03	Office, Nurse Educator/CPL	1		13.8		
19.3.04	Office, Instrument Nurse	1		9.3		1. Provide space for 1 large cart
19.3.05	Pre-Op Holding/Block Room	1		16.8	For pre-op holding, blocks and epidurals	1. Provide space for 2 stretchers, U/S cart and med cart 2. Provide medical gases (oxygen, air and suction)
19.3.06	Pre-Op Holding Patient Washroom	1		4.6		
19.3.07	Orthopaedic Operating Room	1		60.0		1. Shall not be within view of public space or public corridor 2. Provide glazing in door for viewing 3. Provide infrastructure for ceiling mounted patient lift
19.3.08	General Operating Rooms	2	55.0	110.0		1. Shall not be within view of public space or public corridor

1A.19.3 SURGICAL SERVICES: SURGICAL SUITE

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
						2. Provide glazing in door for viewing 3. Provide infrastructure for ceiling mounted patient lift and ceiling mounted microscopes
19.3.09	Urology Operating Room	1		55.0	May be used as a General Operating Room	1. Provide same layout as General Operating Rooms 2. Must not be within view of public space or public corridor 3. Provide glazing in door for viewing 4. Provide infrastructure for ceiling mounted patient lift and ceiling mounted microscopes
19.3.11	Ophthalmology Procedure Room	1		0.0		1. See Ambulatory Care Centre
19.3.12	Intraocular Lens (IOL) Storage Room	1		0.0		1. See Ambulatory Care Centre
19.3.13	Scrub Stations	3	2.4	7.2		1. Locate in the interior corridor 2. Provide 3 sinks per station at 0.8 nsm
19.3.14	Alcove, OR Stretcher	4	2.3	9.2		
19.3.15.	Physician/Learners Workroom/Dictation	1		30.4		1. Provide access from inside and outside of the 'red line' area
01	*workstation*	*5*	*2.8*			1. Provide acoustical control for multiple dictation stations in use simultaneously
02	*table area*	*1*	*11.1*			
03	*internal circulation (21%)*	*1*	*5.3*			
19.3.16.	Clean Core	1		98.5		
01	*workstation*	*1*	*4.6*			

1A.19.3 SURGICAL SERVICES: SURGICAL SUITE

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
02	*clean supplies cart*	*4*	*2.3*			
03	*M/S supplies cart*	*4*	*2.3*			
04	*tables set-up area*	*4*	*2.3*			
05	*MDR required space*	*1*	*37.2*			
06	*circulation space (42%)*	*1*	*29.1*			
19.3.17	Washroom, Staff	2	4.6	9.2		1. 2 pc washroom 2. Provide enclosed shelf @1.0 lin. mm above/behind toilet 3. Non-gendered
19.3.18	Alcove, Blanket Warmer & Solutions Warmer	2	2.6	5.2		
19.3.19	Medication Preparation Room	1		9.5		1. Provide utility sink with adjacent millwork counter for med preparation 2. Provide eyewash station 3. Provide secured door with glazing, door opens into room 4. Provide HHS
19.3.20	Alcove, Equipment Storage	2	5.6	11.2		1. Locate centrally to all OR's
19.3.21	Storage Room, Orthopaedic Equipment	1		13.9		
19.3.22	Storage Room, Large Equipment	1		13.9		1. Must be contiguous w/Ref No 19.3.28 Storage Room, Main Equipment
19.3.23	Alcove, Infant Warming Device	1		2.3		
19.3.24	Alcove, C-Arm Storage	1		9.3		1. Provide connections for 2 machines
19.3.25	Anaesthesia Supplies/Workroom	1		9.3	For anesthesia supplies, equipment	1. Must be secured

1A.19.3 SURGICAL SERVICES: SURGICAL SUITE

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
					Anes. meds here or in Med Rm??	
19.3.26	Soiled Utility Room	1		13.9	Soiled holding and specimen tissue holding	1. Must have secured access from the adjoining public corridor system 2. Locate centrally to the ORs and to be directly accessible to the Soiled Receiving & Decontamination Area of the *Surgical Services: MDR*
19.3.27	Housekeeping Closet, Distributed	1		7.0		1. See *Housekeeping & Laundry Services* component
19.3.28	Storage Room, Main Equipment	1		18.6		1. Must be contiguous w/Ref No 19.3.22 Storage Room, Large Equipment
19.3.29.	Female Staff Locker Room	1		39.6		1. Provide electronic access to the staff locker rooms will occur from the public corridor system with a direct exit from the Locker Rooms to the interior corridor
01	*entrance privacy vestibule*	*1*	*5.6*			
02	*locker area*	*1*	*20.0*		Shared with Surgical Services: MRD staff.	
03	*washroom*	*1*	*11.2*			1. 2 toilets, 2 HHS
04	*shower*	*1*	*2.8*			
19.3.30.	Male Staff Locker Room	1		28.5		1. Provide electronic access to the staff locker rooms will occur from the public corridor system with a direct exit from the locker rooms to the interior corridor

1A.19.3 SURGICAL SERVICES: SURGICAL SUITE

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
01	*entrance privacy vestibule*	*1*	*5.6*			
02	*locker area*	*1*	*8.9*			
03	*washroom*	*1*	*11.2*			1. 1 toilet, 1 urinal, 2 HHS
04	*shower*	*1*	*2.8*			
19.3.31.	Private Locker Room	1		6.0		
01	*change area*	*1*	*1.4*			
02	*washroom*	*1*	*4.6*			1. 3 pc
19.3.32	Alcove, Clean Linen/Uniform Cart	*1*		3.0		1. Locate adjacent to Female, Male and Private Locker Rooms 2. Provide power and data to accommodate automated uniform dispensing machine
19.3.33	Alcove, Soiled Linen/Uniform Cart	*1*		3.0		1. Locate adjacent to Female, Male and Private Locker Rooms 2. Provide power and data to accommodate automated uniform dispensing machine
19.3.34.	Staff/Physician Lounge	1		50.9		1. Provide access off interior corridor 2. Provide data 3. Located in immediate proximity to the Locker Rooms for convenience 4. Provide windows to the exterior of the Facility ensuring there is no line of sight into the Lounge by patients or visitors

1A.19.3 SURGICAL SERVICES: SURGICAL SUITE

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
01	*seat*	*15*	*2.0*			
02	*table area*	*2*	*7.4*			
03	*kitchenette*	*1*	*6.1*			1. Provide double sink, lockable millwork storage, and 1200 mm counter
19.3.35.	On-Call Suite	1		10.6		1. Provide access to communications
01	*bed area*	*1*	*6.0*			1. Location of the Bed Area must allow for sound isolation
02	*washroom*	*1*	*4.6*			1. 3 pc
	Subtotal, ORs Zone			701.9		
	PACU					1. The PACU shall be located centrally from each OR 2. The route from any OR to the PACU shall be direct and have minimal turns 3. The PACU shall be contiguous with the Surgical Day Care area of the *Surgical Services: PSSC, SDC* component
19.3.36	Stretcher Bay	5	9.5	47.5		1. Open, curtained 2. Provide medical gases (oxygen, air and suction)
19.3.37	Isolation Stretcher Room	1		13.0		
19.3.38	Isolation Anteroom	1		5.0		1. Provide HHS
19.3.39	Washroom, Patient	1		4.6		1. 2 pc
19.3.40	Family Consult Room	1		12.0		

1A.19.3 SURGICAL SERVICES: SURGICAL SUITE

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
19.3.41.	Team Care Station	1		10.5		1. Provide glazed partitions for sound control 2. Locate centrally to facilitate views to Stretcher Bays 3. Provide backing board for monitor and power & communications 4. To be adjacent to/part of Alcove, Physician Dictation (Ref No 19.3.42)
01	*workstation*	*2*	*2.8*			
02	*patient files storage*	*1*	*0.9*			
03	*forms & equipment*	*1*	*1.9*			
04	*internal circulation (25%)*	*1*	*2.1*			
19.3.42	Alcove, Physician Dictation	2	2.8	5.6		1. To be adjacent to/part of the Team Care Station (Ref No 19.3.41)
19.3.43	Medication Preparation Room	1		9.5		1. Locate central to Surgical Services: PSSC, SDC 2. Provide utility sink with adjacent millwork counter for med preparation 3. Provide space for 1 med cart with charging station 4. Provide eyewash station 5. Provide secure door with glazing, door opens into room 6. Provide HHS
	Clean Supplies Room	1		0.0		1. See *Surgical Services: PSSC, SDC*
19.3.44	Alcove, Blanket Warmer	1		0.9		

1A.19.3 SURGICAL SERVICES: SURGICAL SUITE

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
19.3.45	HHS, Staff	3	0.9	2.7		1. Locate in close proximity to Stretcher Bays
19.3.46	Alcove, Mobile Workstation	1		2.3		
19.3.47	Washroom, Staff	1		4.6		1. 2 pc washroom 2. Provide enclosed shelf @1.0 lin. mm above/behind toilet Non-gendered
19.3.48	Alcove, Crash Cart	1		1.4	Shared with Surgical Suite and SDC	1. Locate centrally to PACU and SDC
19.3.49	Alcove, Equipment	1		2.8		
	Soiled Utility Room	1		0.0		1. See *Surgical Services: PSSC, SDC*
	Storage Room, Equipment	1		0.0		1. See *Surgical Services: PSSC, SDC*
	Subtotal, PACU			122.4		
	Total, Surgical Services: Surgical Suite			824.3	Component Area = 1,088 CGSM at 1.55 grossing factor ORs Zone Component Area = 184 CGSM at 1.50 grossing factor PACU	

1A.20 SEVEN SISTERS MENTAL HEALTH REHABILITATION & RECOVERY PROGRAM

This specification outlines the functional, operational, and physical requirements for the separate facility that will accommodate the Seven Sisters Mental Health Rehabilitation & Recovery Program.

1A.20.1 FUNCTIONAL DESCRIPTION

1A.20.1.1 Statement of Purpose

1A.20.1.1(1) This component will accommodate mental health rehabilitation and recovery for adults with a primary axis/diagnosis of serious or persistent psychiatric disorders, which may or may not include a concurrent diagnosis of substance misuse.

1A.20.1.2 Scope of Services

1A.20.1.2(1) Functional Content

1A.20.1.2(1)(a) The prime objective will be to provide the optimum level of person and family-centred, recovery-oriented, evidence-based/informed, ethically driven, equity-oriented, culturally safe, and trauma-informed care, rooted in culture and community. This will include each resident receiving a specialized assessment, collaborative recovery plan, and provision of a flexible approach to strengthen focused rehabilitation.

1A.20.1.2(1)(b) Although provincial standards will prescribe the services to be provided, the following is a list of example services and activities:

1A.20.1.2(1)(b)(i) ongoing comprehensive mental health and addiction assessment;

1A.20.1.2(1)(b)(ii) medications management, maintenance and education;

1A.20.1.2(1)(b)(iii) life skills activities and training, complimented by an occupational assessment and ongoing consultation;

1A.20.1.2(1)(b)(iv) recreation activities, including assessment, social integration, physical exercise, peer support and advocacy, group activities;

1A.20.1.2(1)(b)(v) enhanced vocational services including assessment, supported employment, educational, and recreational opportunities;

1A.20.1.2(1)(b)(vi) enhanced community integration and transitional discharge planning;

1A.20.1.2(1)(b)(vii) residential psychiatry services;

1A.20.1.2(1)(b)(viii) links to community and Indigenous resources;

1A.20.1.2(1)(b)(ix) psycho-educational groups;

1A.20.1.2(1)(b)(x) Road to Recovery Group and individualized programs;

1A.20.1.2(1)(b)(xi) metabolic monitoring and physical/medical needs;

1A.20.1.2(1)(b)(xii) supports for family and caregivers; and

1A.20.1.2(1)(b)(xiii) connections to community Mental Health & Substance Use Programs.

1A.20.1.2(1)(c) Seven Sisters will provide a supportive environment for residents working on their recovery goals. The program will provide ongoing evaluation to find creative ways to strengthen and utilize skills towards achieving identified individualized goals.

1A.20.1.2(1)(d) Residents will have the ability to find new opportunities and to make choices based upon their personal beliefs and values. An ongoing goal will be to provide a setting where residents are able to live and feel safe.

1A.20.1.2(2) Planning Assumptions

1A.20.1.2(2)(a) The delivery of psychiatric services in the Northwest Region includes an expansion of the Seven Sisters facility that would:

1A.20.1.2(2)(a)(i) enhance the ability of the Seven Sisters to manage more acute challenging residents with better physical resources; and

1A.20.1.2(2)(a)(ii) provide a variety of environments that would allow for a continuum of care leading to discharge over time.

1A.20.1.2(2)(b) The design of the component shall incorporate, but not be limited to the following guiding principles:

1A.20.1.2(2)(b)(i) Design a homelike environment for residents, including “bringing the outdoors in concepts” and/or views to the exterior;

1A.20.1.2(2)(b)(ii) Encourage autonomy and independence by incorporating design features that facilitate activities of daily living; and

1A.20.1.2(2)(b)(iii) Facilitate accessibility in and around the building by designing meaningful destinations, short corridors, and safe indoor and outdoor space for healthy wandering and exploration.

1A.20.1.2(2)(b) The creation of Pods will provide the ability to cohort residents according to their needs and abilities while creating environments sized to be more therapeutically responsive to residents’ clinical profiles.

1A.20.1.2(2)(c) Pods comprised of apartments will provide the necessary environment for residents to transition into the community in a safe manner. Residents in these apartments will be able to “live on their

own" but with assistance from staff, as needed. Residents will be assessed for Activities of Daily Living (ADL) during their stay in the apartments in preparation for discharge.

1A.20.1.2(3) Scope of Education Functions

1A.20.1.2(3)(a) All staff will have access to non-mandatory and mandatory training and education, including Mandatory Cultural Competency training. There will be access to a NW MHSUS Clinical Educator, for specific assessment and training needs of new and current staff. All Life-Skills Workers (LSWs) and LPN new hires will be provided with a minimum of five shifts of orientation where they will shadow with a senior peer team member.

1A.20.1.2(3)(b) Nursing students and Integrated Human Service Worker students may be present (one to two at a time).

1A.20.1.2(4) Excluded

1A.20.1.2(4)(a) N/A.

1A.20.2 OPERATIONAL DESCRIPTION

1A.20.2.1 Hours of Operation

1A.20.2.1(1) Seven Sisters will operate 24/7.

1A.20.2.2 Organization & Management

1A.20.2.2(1) An on-site Team Leader will report to the Manager of Specialized Mental Health and Substance Use Services, who will report to Specialized Services Director.

1A.20.2.3 Workflow

1A.20.2.3(1) ***Admission & Referral***

1A.20.2.3(1)(a) Pre-admission Process: Triage of regional referrals will occur regularly and will be performed by the Regional Tertiary Utilization Committee (RTUC) whose representation includes various Area Managers across the Authority. This triage result will result in:

1A.20.2.3(1)(a)(i) wait-listing clients for services;

1A.20.2.3(1)(a)(ii) agreement to admit an individual and transfer of care planning to proceed; and

1A.20.2.3(1)(a)(iii) or, the referral is declined with request/recommendation made to the Team Leader and referring Case Manager for more information, or alternate planning.

1A.20.2.3(1)(b) Admission Process: The Case Manager will complete and submit an electronic referral to the Regional Tertiary Utilization Committee (RTUC) from the Authority, MHAS. The referral will be screened by the RTUC within 30 days of receiving the referral and involves a review of client information (using a Triage worksheet). This process involves discussion with the referring Case Manager, as well as other information compiled from various sources relevant to the potential resident.

1A.20.2.3(1)(c) The following are exclusion criteria for admission to Seven Sisters:

1A.20.2.3(1)(c)(i) if unable to fit into resident milieu (e.g., safety risk to other residents and/or staff);

1A.20.2.3(1)(c)(ii) acuity of symptoms requires a higher level or lower level of care than can be offered within the Program; and

1A.20.2.3(1)(c)(iii) has physical needs that cannot be met by staffing levels or physical environment.

1A.20.2.3(2) *Discharge and Escalation of Care*

1A.20.2.3(2)(a) Most Residents will be discharged home or to the community.

1A.20.2.3(2)(b) If a Resident requires acute care services, they will be discharged and escorted by staff and/or Police (either on foot or by ambulance) to the *Emergency Services* component.

1A.20.2.4 Support Activities

1A.20.2.4(1) *Clinical Services*

1A.20.2.4(1)(a) Residents will walk (with or without a staff escort) to outpatient services at the Facility (*Laboratory Services, Medical Imaging, Oncology, Renal Services, Ambulatory Care Centre* components) or will be escorted by staff to the community for required services.

1A.20.2.4(2) *Medication*

1A.20.2.4(2)(a) Residents in the Pods will come to the Medications Preparation Room to receive his or her scheduled medications.

1A.20.2.4(2)(b) Residents in the Apartments will use a community pharmacy who will provide blister pack medication, which will be stored in a locked safe in the Resident's Bedroom. Residents will self-administer medications.

1A.20.2.4(3) *Food Services*

1A.20.2.4(3)(a) A framework has been developed to assist residents in preparing their own meals in the Kitchen/Dining Areas, in teams with their peers. Residents will plan meals, budget, shop, and store food in pantries, and in the kitchens.

1A.20.2.4(3)(b) An LSW will cook and assist in plating resident meals that will be prepared in the Kitchens. The residents will eat the meal in the Kitchen/Dining Area. Residents will clean their dishes.

1A.20.2.4(3)(c) A Skills/Assessment Kitchen, along with the Skills/Assessment Pantry, will support those residents who are unable to participate in preparing their own meals. Residents will be encouraged to participate with meal preparation to the extent they are capable.

1A.20.2.4(3)(d) The LSW will plan and order food from community suppliers. Supplies will be ordered/stocked weekly.

1A.20.2.4(4) ***Laundry Services***

1A.20.2.4(4)(a) Residents will clean their own laundry using the Laundry Rooms provided. Linen will be provided, and residents will wash the linen from their bedrooms and remake their beds.

1A.20.2.4(4)(b) Laundry service for items such as rags, mops, tea-towels, etc. will be provided by a third party contracted service. These items will be picked up and dropped off through Seven Sisters Main Entrance.

1A.20.2.4(5) ***Supplies & Disposal***

1A.20.2.4(5)(a) Supplies will be ordered from Authority Stores or through Materiel Management as appropriate. Supplies will be delivered to Seven Sisters Main Entrance.

1A.20.2.4(6) ***Environmental Services***

1A.20.2.4(6)(a) Seven Sisters will retain dedicated, in-house housekeeping staff. The housekeeping staff will order housekeeping supplies as required, which will be delivered through Seven Sisters Main Entrance.

1A.20.2.4(6)(b) LSW's will assist residents in cleaning their Private Resident Rooms. Residents living in apartments will be responsible for cleaning their own space.

1A.20.2.4(7) ***Security***

1A.20.2.4(7)(a) Security Services will be provided by a contracted service through the main Facility. (see *Emergency Services* component).

1A.20.3 STAFFING

1A.20.3.1 Estimated future staffing for this component is summarized below in terms of Headcount and Occupancy. The information is for space planning purposes only and does not represent a commitment for hiring.

1A.20 SEVEN SISTERS MENTAL HEALTH REHABILITATION & RECOVERY PROGRAM

Position	Days Head Count	Days Occupancy	Nights Head Count
Total	52		36
Weekdays			
Team Leader	1	Private Office	0
LPNs	1	Shared Workstations	1
RN/RPN	1	Shared Workstations	1
CPL/RN	1	Shared Workstations	0
Social Worker	1	Private Office	0
Administrative Assistant	1	Shared Workstation	0
Recreation Therapy Assistant	1	Shared Workstations	0
Recreation Therapist	1	Private Office	0
LSW	4	Shared Workstations	2
OT	1	Shared Workstations	0
Vocational	1		0
Peer Support	2		1
Psychiatrist	1	Shared Workstations	1
Housekeeper	1		0
Resident	25		25
Family	10		5

Note:

1. Source: Authority Decision Support/Finance Department.

1A.20.4 DESIGN CRITERIA

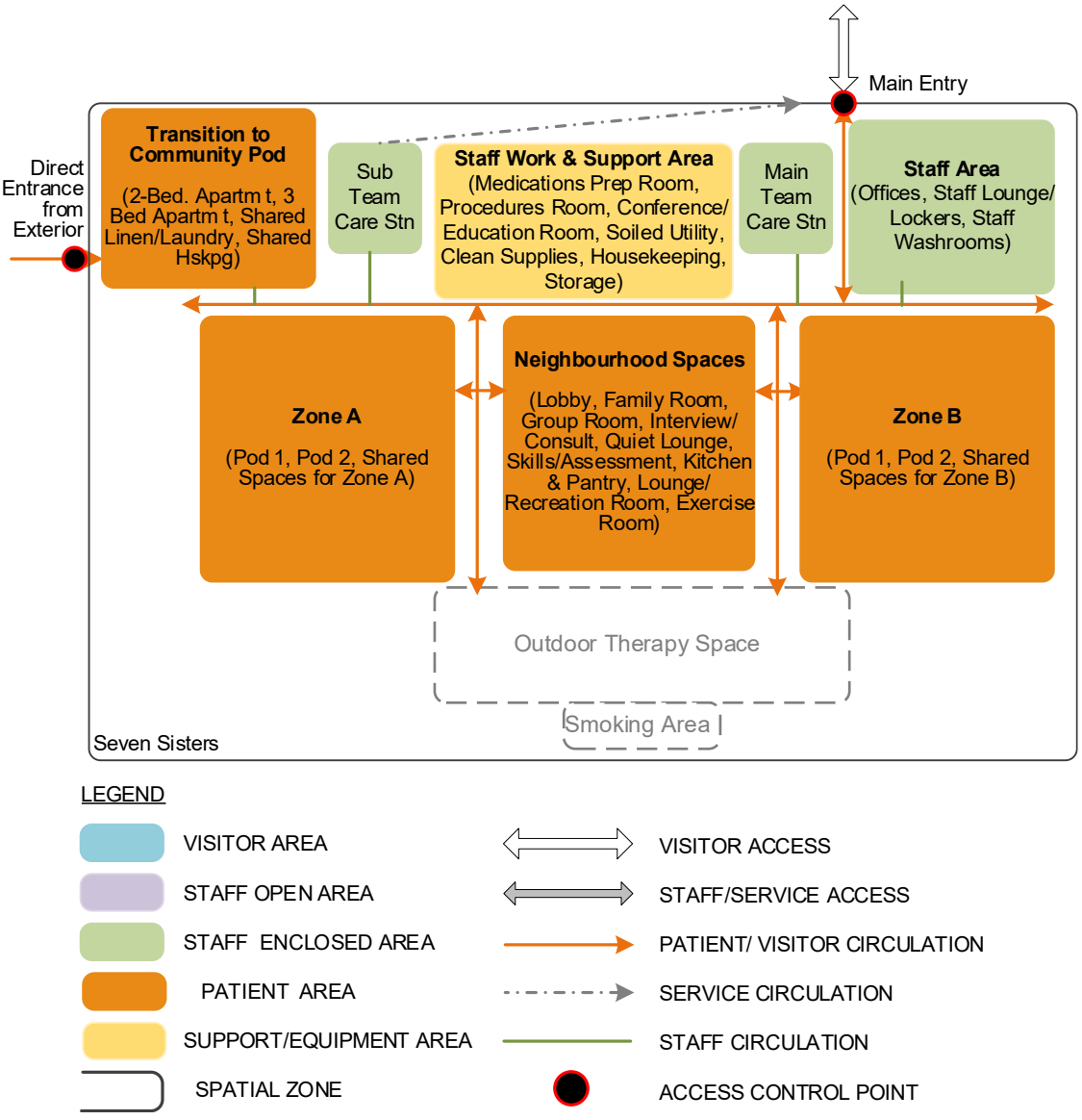
1A.20.4.1 External Relationships

1A.20.4.1(1) The following key external relationships for Seven Sisters Mental Health Rehabilitation & Recovery Program will be achieved in the priority order as numbered for the purposes stated:

1	**Psychiatry Inpatient Unit**	Provide convenient access via site circulation to/from the Psychiatry Inpatient Unit component for the movement of patients and staff.
2	**Emergency Services (Security Services)**	Provide convenient access via site circulation to/from Emergency Services (Security Services) for the movement of security staff.
3	**Public & Staff Parking**	Provide convenient access via site circulation to/ from the Public and Staff Parking for the movement of staff, residents and visitors.

1A.20.4.2 Functional Relationship Diagram

1A.20.4.2(1) Functional relationships between key areas will generally be as illustrated in the following diagram. Please note that the diagram is not to scale, not all rooms may be illustrated, and arrows do not indicate all required connections.



1A.20.4.3 Internal Design Criteria

1A.20.4.3(1) For a description of General Planning Concepts applicable to this component, see Section 2: General Planning Criteria of this Clinical Specification. These two sections must be read together.

1A.20.4.3(2) The Seven Sisters component shall be in a separate, standalone building from the main Facility.

1A.20.4.3(3) Ensure the corridors meet requirements for Code-White access (wide enough for three individuals walking side-by-side).

1A.20.4.3(4) Ensure the plumbing system has staff-controlled water shut-off valves that will avoid residents trying to flush clothing and other objects down toilets.

1A.20.4.3(5) Ensure no suspended ceilings are used in this component.

1A.20.4.3(6) Drywall partitions shall be reinforced with a plywood backing to reduce damage.

1A.20.4.3(7) Following is a room-by-room list of spaces for Seven Sisters Mental Health Rehabilitation & Recovery Program showing:

1A.20.4.3(6)(a) Intent of Space; and

1A.20.4.3(6)(b) Specific Design Features.

1A.20.5 SCHEDULE OF ACCOMMODATION

1A.20.5.1 Space requirements for this component are summarized on the following pages in terms of net square metres (nsm). Space identified is assumed to meet 2036/37 needs.

1A.20 SEVEN SISTERS MENTAL HEALTH REHABILITATION & RECOVERY PROGRAM

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1A.20 SEVEN SISTERS MENTAL HEALTH REHABILITATION & RECOVERY PROGRAM

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Parking, Fleet Vehicles	2		0.0	Van style vehicle for resident transportation, unloading shopping etc.	1. Locate near main entrance to component 2. Must be well-lit
	Parking, Night Staff	5		0.0		1. Locate near main entrance to component 2. Must be well-lit
	Parking, Ambulance/Police	1		0.0		1. Locate near main entrance to component 2. Must be well-lit
	Outdoor Storage: Garbage and Recycling Bins	1		0.0	Secure Outdoor Storage for Garbage, Cardboard storage	1. Locate near Soiled Utility Room 2. Provide staff only entrance/exit from interior of component
20.01	Main Entrance Vestibule	1		6.0		1. Provide means of passively cleaning footwear before entering component
20.58	Café/Coffee Bar	1		8.6		1. Locate near Main Entrance Vestibule 2. Provide a double sink, HHS and 1200 lin mm counter, 2 lockable millwork cabinets, 2 lockable drawers
	<u>Zone A</u>					
	Pod 1					
20.02	Private Resident Room	5	14.0	70.0		1. Provide infrastructure recessed and protected patient television/education system 2. Provide barrier-free door for one Private Resident Room in Pod 1
20.03	Alcove, Enclosed, Resident Storage	5	1.6	8.0		1. Locate adjacent to entrance of Private Resident Room

1A.20 SEVEN SISTERS MENTAL HEALTH REHABILITATION & RECOVERY PROGRAM

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
20.04	Washroom, Patient	1		5.6		1. 3 pc. 2. Locate near Private Resident Rooms, shall not open into Lounge or Kitchen/ Dining Area
20.05.	Lounge	1		12.0		1. Provide infrastructure for recessed and protected wall-mounted television/ education system 2. Provide non-glare lighting
01	*seats*	*6*	*2.0*			
	Pod 2					
20.06	Private Resident Room	5	14.0	70.0		1. Provide infrastructure recessed and protected patient television/education system 2. Provide barrier-free door for one Private Resident Room in Pod 2
20.07	Alcove, Enclosed, Resident Storage	5	1.6	8.0		1. Locate adjacent to entrance of Private Resident Room
20.08	Washroom, Patient	1		5.6		1. 3 pc. 2. Locate near Private Resident Rooms, shall not open into Lounge or Kitchen/ Dining Area
20.09.	Lounge			12.0		1. Provide infrastructure for recessed and protected wall-mounted television/ education system 2. Provide non-glare lighting
01	*seats*	*6*	*2.0*			
	Shared Spaces in Zone A					
20.10.	Kitchen/Dining Area	1		26.8	Resident Self-Serve	
01	*table area*	*1*	*14.8*			

1A.20 SEVEN SISTERS MENTAL HEALTH REHABILITATION & RECOVERY PROGRAM

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
02	*kitchen area*	*1*	*7.4*	*0*		1. Provide a double sink, HHS and 1800 lin mm counter, 4 millwork cabinets with 2 lockable, 4 drawers with 2 lockable
03	*pantry*	*1*	*4.6*	*0*		1. Locate adjacent to Kitchen Area
20.11	Alcove, Quiet Seating	*2*	3.0	12.0		1. Locate one in each Pod
20.12	Washroom, Patient	1		8.3		1. 4 pc 2. Locate near Private Resident Rooms. Shall not open into Lounge of Kitchen/Dining Area
20.13	Laundry Room	1		9.3		1. Provide laundry sink, 1800 lin mm millwork counter worksurface
	Subtotal, Zone A			241.6		
	Zone B					
	Pod 1					
20.14	Private Resident Room	5	14.0	70.0		1. Provide infrastructure recessed and protected patient television/education system 2. Provide barrier-free door for one Private Resident Room in Pod 1
20.15	Alcove, Enclosed, Resident Storage	5	1.6	8.0		1. Locate adjacent to entrance of Private Resident Room
20.16	Washroom, Patient	1		5.6		1. 3 pc. 2. Locate near Private Resident Rooms, shall not open into Lounge or Kitchen/Dining Area
20.17.	Lounge	1		12.0		1. Provide infrastructure for recessed and protected wall-mounted television/ education system 2. Provide non-glare lighting

1A.20 SEVEN SISTERS MENTAL HEALTH REHABILITATION & RECOVERY PROGRAM

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
01	*seats*	*6*	*2.0*			
	Pod 2					
20.18	Private Resident Room	5	14.0	70.0		1. Provide infrastructure recessed and protected patient television/education system 2. Provide barrier-free door for one Private Resident Room in Pod 2
20.19	Alcove, Enclosed, Resident Storage	5	1.6	8.0		1. Locate adjacent to entrance of Private Resident Room
20.20	Washroom, Patient	1		5.6		1. 3 pc. 2. Locate near Private Resident Rooms, shall not open into Lounge or Kitchen/ Dining Area
20.21.	Lounge			12.0		1. Provide infrastructure for recessed and protected wall-mounted television/ education system 2. Provide non-glare lighting
01	*seats*	*6*	*2.0*			
	Shared Spaces in Zone B					
20.22.	Kitchen/Dining Area	1		26.8	Resident Self-Serve	
01	*table area*	*1*	*14.8*			
02	*kitchen area*	*1*	*7.4*	*0*		1. Provide a double sink, HHS and 1800 lin mm counter, 4 millwork cabinets with 2 lockable, 4 drawers with 2 lockable
03	*pantry*	*1*	*4.6*			1. Locate adjacent to Kitchen Area
20.23	Alcove, Quiet Seating	2	3.0	12.0		1. Locate one in each Pod

1A.20 SEVEN SISTERS MENTAL HEALTH REHABILITATION & RECOVERY PROGRAM

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
20.24	Washroom, Patient	1		8.3		1. 4 pc 2. Locate near Private Resident Rooms. Shall not open into Lounge of Kitchen/ Dining Area
20.25	Laundry Room	1		9.3		1. Provide laundry sink, 1800 lin mm millwork counter worksurface
	Subtotal, Zone B			241.6		
	Neighbourhood Spaces					
20.26.	Lobby	1		16.0		
01	*seating*	*8*	*2.0*	*0*		
20.27	Washroom, Visitor	1		4.6		1. 2 pc. 2. Non-gendered
20.28.	Family Room	1		12.0	For families to meet in a home-like setting	1. Provide a door with shatterproof glazing with viewing into room
01	*seats*	*6*	*2.0*	*0*		
20.29.	Group Room	1		22.8		
01	*seats*	*10*	*2.0*			
02	*video-conferencing equipment*	*1*	*2.8*			
20.30	Interview/Consult Room	2	12.0	24.0		1. Provide a second door to an adjoining room for staff egress w/o window 2. Provide window in door or in wall adjacent to door with line of sight to the Lobby 3. Provide integral blinds in window operable from outside of room

1A.20 SEVEN SISTERS MENTAL HEALTH REHABILITATION & RECOVERY PROGRAM

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
20.31	Quiet Lounge	1		12.0	Quiet Room for Residents	1. Provide infrastructure for recessed and protected television/entertainment system 2. Provide data and power 3. Provide dimmable lighting 4. Provide integral blinds in door window operable from outside of room
20.32	Skills/Assessment Kitchen	1		17.0		1. Provide space for 6 people 2. Provide 1 double sink, 1 HHS, and 2 X 1800 lin mm counters, millwork cupboards and drawers
20.33	Skills/Assessment Pantry	1		13.9	Pantry storage for Skills/ Assessment Kitchen as well as other Kitchens	
20.34.	Lounge/Recreation Room	1		42.4	May be combined with Exercise Area	1. Provide folding/movable partitions between Lounge/Recreation/Games room and Exercise Area
01	*games area*	*1*	*35.0*			
02	*storage room*	*1*	*7.4*			
20.35	Exercise Area	1		31.6	May be combined with Lounge/ Recreation Room	
01	*treadmills*	*2*	*3.7*			
02	*bikes*	*3*	*2.2*			
03	*weights*	*1*	*2.8*			
04	*general exercise area*	*1*	*14.8*			
20.36	Shop Storage	1		10.0		1. Provide power
20.37	Housekeeping Closet, Distributed	1		7.0		1. See *Housekeeping & Laundry Services* component for description

1A.20 SEVEN SISTERS MENTAL HEALTH REHABILITATION & RECOVERY PROGRAM

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
	Outdoor Area	1		0.0	Dedicated area for Residents, family and visitors	1. Provide 6 X 4.0 nsm raised garden beds 2. Provide a 10.0 nsm garden shed 3. Provide 100 nsm level, rectangular shaped grass area for recreational/sporting activities 4. Provide a 40 nsm covered patio that is sheltered from the wind and elements. 5. Provide a space near the patio, but not on the grass area, that would be suitable for an open fire pit with surround seating 6. Area will be restricted to Residents and family and shall be accessible from inside the building or outside the building 7. Locate away from parking lots and roadways
	Smoking Area	1		0.0		1. Provide covered space sheltered from wind and elements 2. Locate away from any air intakes for the Facility
	Subtotal, Neighbourhood Spaces			213.3		
	Transition to Community Pod					1. Provide direct entrance from street level into each apartment 2. Provide staff only entrance from interior of component
20.38.	2-Bedroom Apartment	1		73.7		
01	*bedroom*	*2*	*11.2*			
02	*washroom*	*1*	*5.6*			1. 3 pc
03	*living room*	*1*	*11.2*			1. Provide infrastructure for recessed and protected wall mounted television/ entertainment system

1A.20 SEVEN SISTERS MENTAL HEALTH REHABILITATION & RECOVERY PROGRAM

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
04	*kitchen*	*1*	*7.4*			1. Provide a double sink and 2400 mm counter, 2 millwork cabinets, 2 drawers
05	*dining*	*1*	*7.4*			1. Shall be open to and contiguous with the Kitchen
06	*internal circulation (46%)*	*1*	*19.7*			
20.39.	3-Bedroom Apartment	1		93.2		
01	*bedroom*	*3*	*11.2*			1. Provide barrier-free door for one bedroom
02	*washroom*	*1*	*5.6*			1. 3 pc
03	*living room*	*1*	*15.0*			1. Provide infrastructure for recessed and protected wall mounted television/ entertainment system
04	*kitchen*	*1*	*7.4*			1. Provide a double sink and 2400 mm counter, 2 millwork cabinets, 2 drawers
05	*dining*	*1*	*9.3*			1. Shall be open to and contiguous with the Kitchen
06	*internal circulation (46%)*	*1*	*22.3*			
20.40	Shared Linen/Laundry Room	1		10.0		1. Provide laundry sink, 1800 lin. millwork counter worksurface
20.41	Shared Housekeeping Closet	1		2.5	For resident/LSW use	1. Provide space for mops, vacuum, buckets and cleaning supplies
	Subtotal, Transition to Community Pod			179.4		
	Staff Work & Support Areas					
20.42.	Main Team Care Station	1		10.9		1. ~~Provide views to the Main Entry of the component~~ Intentionally deleted 2. Provide glazing that does not interfere with views 3. Provide double Dutch style doors from Team Care Station to resident areas
01	*computer workstations*	*2*	*2.8*	*0*		

1A.20 SEVEN SISTERS MENTAL HEALTH REHABILITATION & RECOVERY PROGRAM

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
02	*congregation space*	*4*	*0.5*	*0*		
03	*office supplies/equipment*	*1*	*1.9*			
04	*~~shelving area~~*	*1*	*1.4*			1. Area used for circulation
20.43.	Sub Team Care Station	1		9.5		1. Provide views to Neighborhood areas of component 2. Provide glazing that does not interfere with views 3. Provide double Dutch style doors from Team Care Station to resident areas 4. Provide views to Ref No 20.01 Main Entry Vestibule of the component
01	*computer workstations*	*2*	*2.8*			
02	*congregation space*	3	*0.5*			
03	*office supplies/equipment*	*1*	*1.0*			
04	*shelving area*	*1*	*1.4*			
20.44	Medications Preparation Room	1		9.5		1. Locate adjacent to the Main Team Care Station 2. Provide a ~~Dutch-style door~~ securable sliding window to the resident's corridor that can be opened as a half door 3. Provide staff duress button 4. Provide utility sink, mill work counter for med preparation 5. Provide space for one med cart with charging station 6. Provide eyewash station, HHS 7. Secured door with glazing, door opens into room

1A.20 SEVEN SISTERS MENTAL HEALTH REHABILITATION & RECOVERY PROGRAM

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
20.45	Procedures Room	1		13.0	Wound Care/Minor Procedures	1. Locate adjacent to Medications Preparation Room
20.46.	Conference/Education Room	1		45.1	Multi-use. For family meetings, floor exercises, etc.	
01	*seating*	*20*	*2.0*			
02	*video-conferencing equipment*	*1*	*2.8*			
03	*storage cupboard*	*1*	*2.3*		For floor mats (for yoga, etc.)	
20.47	Soiled Utility Room	1		11.0		
20.48	Clean Supplies Room	1		12.0		
20.49	Housekeeping Closet, Distributed	1		7.0		1. See *Housekeeping & Laundry Services* component for description
20.50	Storage Room, Supplies/Equipment	1		11.2		
	Subtotal, Staff Work & Support Area			129.2		
	Staff Area					
20.51	Office, Program Support	1		9.3		
20.52	Office, Social Worker	1		9.3		
20.53	Office, Team Leader	1		10.3		
20.54	Office, CPL	1		9.3		
20.55.	Office, Shared	1		18.0	For Rehab Staff	
01	*workstations*	*5*	*3.6*			
20.56.	Staff Lounge/Lockers	1		22.5		

1A.20 SEVEN SISTERS MENTAL HEALTH REHABILITATION & RECOVERY PROGRAM

Ref	Space	Proposed Area units	nsm/unit	nsm	i. Intent of Space	ii. Specific Design Features
01	*soft seats*	*3*	*2.3*			
02	*table area*	*1*	*7.4*			
03	*kitchenette*	*1*	*4.9*	*0*		1. Provide double sink, 1800 mm millwork counter, millwork cupboards and drawers
04	*coat closet*	*1*	*1.5*	*0*		
05	*purse lockers*	*12*	*0.2*			
20.57	Staff Washroom	2	4.6	9.2		1. 2 pc 2. Non-gendered
	Subtotal, Staff Area			87.6		
	Total, Seven Sisters Mental Health Rehabilitation & Recovery Program			1,107.3	Component Area = 1,495 CGSM at 1.35 grossing factor	

APPENDIX 1B

FURNITURE AND MEDICAL EQUIPMENT

APPENDIX 1B EQUIPMENT & FURNITURE RESPONSIBILITY

1.1 DEFINITIONS

In this Schedule:

"Acceptance Protocol" has the meaning set out in Section 1.7.10 of this Schedule;

"Category 1 Equipment" means the equipment described and listed as "Category 1" in the Equipment Lists (or similar equipment); further defined in Section 1.2 below.

"Category 2 Equipment" means the equipment described and listed as "Category 2" in the Equipment Lists (or similar equipment); further defined in Section 1.3 below.

"Category 3 Equipment" means the equipment described and listed as "Category 3" in the Equipment Lists (or similar equipment); further defined in Section 1.4 below.

"Category 4 Equipment" means the equipment described and listed as "Category 4" in the Equipment Lists (or similar equipment); further defined in Section 1.5 below.

"Category 5 Equipment" means the equipment described and listed as "Category 5" in the Equipment Lists (or similar equipment); further defined in Section 1.6 below.

"Commission" means to assemble, install and test and commission the equipment or system in accordance with any commissioning requirements set out in this Agreement, and applicable standards and good industry practice, including to ensure that the Equipment is operating in accordance with the manufacturer's requirements and specifications, and "Commissioned" and "Commissioning" have a corresponding meaning;

"Deliver" means to deliver Equipment to the Facility, and "Delivered" and "Delivery" have corresponding meanings;

"Equipment" means the Category 1 Equipment, the Category 2 Equipment, the Category 3 Equipment, the Category 4 Equipment and the Category 5 Equipment as described in Appendix 1B;

"Equipment Committee" means the committee established pursuant to Section 1.7.7 of this Schedule;

"Equipment Cut Sheets" means the equipment data sheets set out in the Equipment List containing specifications for items of equipment on the Equipment List, as those cut sheets may be updated in accordance with this Agreement;

"Equipment Lists" means Appendix 1B: EQUIPMENT LIST, attached to the Statement of Requirements;

"Equipment Logistics Schedule" has the meaning set out in Section 1.7.11 of this Schedule;

"Install" means to install in the Facility, including making connections to necessary building services (including plumbing, heating, cooling, ventilation and electricity) and connections to necessary communication or network interfaces or devices, and "Installed" and "Installation" have corresponding meanings;

"Receive" means the provision of equipment and staff to accept Delivery and provide an appropriate and secure staging and storage area to be used prior to Setup, and "Received" and "Receiving" have corresponding meanings;

"Setup" includes:

a) transportation and movement within the Facility from the Delivery or storage location to the final installation location;
b) placement in the final location within the Facility; and
c) any necessary unwrapping, unpacking, disposing and/or recycling all wrapping and packaging materials, and assembly.

"Storage" means the provision of secure space with the appropriate environment to allow received Equipment to be set, placed, loaded, unloaded or otherwise warehoused without damage while awaiting Setup, and "Store", "Stored" and "Storing" have corresponding meanings.

"Supply" means the management and completion of procurement processes, up to and including Delivery, for Equipment, including the payment to vendors, and "Supplied" has a corresponding meaning.

1.2 CATEGORY 1 EQUIPMENT (AUTHORITY SUPPLIED, AUTHORITY INSTALLED)

1.2.1. Responsibilities For Category 1 Equipment

The Authority will Supply, Receive, Setup, Install and Commission the Category 1 Equipment.

1.2.2. Timing of Delivery and Installation of Category 1 Equipment

The Design-Builder will:

(a) as early as practicable:

(i) for each item of Category 1 Equipment, provide on the Equipment Logistics Schedule the earliest date when the Facility will be available to the Authority to Install such item, which date must, for all Category 1 Equipment and any required Setup or Installation equipment that will not fit through the constructed doorways and other physical constraints on access, be a reasonable period in advance of the construction of such doorways and other physical constraints on access; and

(ii) identify to the Authority the date by which each item of Category 1 Equipment must be Delivered, Installed and Commissioned so as not to delay the Design, the Construction, Substantial Completion of the Building or the Authority's use and occupation of the Facility; and

(b) as required from time to time until Substantial Completion of the Building, but no less than once per calendar month, update the information in Section 1.2.2(a) above so that at all times it is an accurate, reasonable and realistic representation of the Design-Builder's plans for the completion of the Design and Construction of the Facility. The Authority will cause the relevant item of Category 1 Equipment the Authority wishes to have Installed in the Facility to be Delivered by the date specified by the Design-Builder under Section 1.2.2(a) above.

1.2.3. Timing of Delivery and Installation of Category 1 Equipment

Subject to Section 1.2.2(a)(i) above and unless otherwise noted on the Equipment List or the Equipment Logistics Schedule, no Category 1 Equipment will be Delivered prior to Substantial Completion of the Building. Delivery after

Substantial Completion of the Building will not relieve the Design-Builder of its obligations under the Design-Build Agreement to complete the Design and Construction to accommodate the Equipment in the Facility and the obligations under this Schedule.

1.3 CATEGORY 2 EQUIPMENT (AUTHORITY SUPPLIED, DESIGN-BUILDER INSTALLED)

1.3.1. Responsibilities For Category 2 Equipment

The Authority will Supply the Category 2 Equipment. The Design-Builder will Receive, Setup/Assemble, Install and Commission all Category 2 Equipment. The Design-Builder will be responsible for notifying the Authority of any Category 2 Equipment that is Delivered damaged or short of the complete quantities on the weigh bill/bill of lading. Such discrepancy will be noted on the weigh bill/bill of lading provided to the shipper.

1.3.2. Timing of Delivery and Installation of Category 2 Equipment

The Design-Builder will:

(a) as early as practicable provide on the Equipment Logistics Schedule the dates by which each item of Category 2 Equipment must be Delivered, Installed and Commissioned so as not to delay the Design, the Construction, Substantial Completion of the Building or the Authority's use and occupation of the Facility; and

(b) as required from time to time until Substantial Completion of the Building, but no less than once per calendar month, update the information in Section 1.3.2(a) above so that at all times it is an accurate, reasonable and realistic representation of the Design-Builder's plans for the completion of the Design and Construction of the Facility. The Authority will cause each item of Category 2 Equipment to be Delivered by the date specified by the Design-Builder under Section 1.3.2(a) above.

1.4 CATEGORY 3 EQUIPMENT (AUTHORITY SUPPLIED, VENDOR INSTALLED, DESIGN-BUILDER COORDINATED)

1.4.1. Responsibilities For Category 3 Equipment

The Authority will Supply the Category 3 Equipment. The Design-Builder will Receive and Commission all Category 3 Equipment and will coordinate the Setup/Assembly, Installation, and Testing with the Vendor. The Design-Builder will be responsible for notifying the Authority of any Category 3 Equipment that is Delivered damaged or short of the complete quantities on the weigh bill/bill of lading. Such discrepancy will be noted on the weigh bill/bill of lading provided to the shipper.

1.4.2. Timing of Delivery and Installation of Category 3 Equipment

The Design-Builder will:

(a) as early as practicable provide on the Equipment Logistics Schedule the dates by which each item of Category 3 Equipment must be Delivered, Installed and Commissioned so as not to delay the Design, the Construction, Substantial Completion of the Building or the Authority's use and occupation of the Facility; and

(b) as required from time to time until Substantial Completion of the Building, but no less than once per calendar month, update the information in Section 1.4.2(a) above so that at all times it is an accurate, reasonable and realistic representation of the Design-Builder's plans for the completion of the Design and Construction of the

Facility. The Authority will cause each item of Category 3 Equipment to be Delivered by the date specified by the Design-Builder under Section 1.4.2(a) above.

1.5 CATEGORY 4 EQUIPMENT (DESIGN-BUILDER SUPPLIED, DESIGN-BUILDER INSTALLED)

1.5.1. Responsibilities for Category 4 Equipment

The Design-Builder will Supply, Deliver, Receive, Setup/Assemble, Install and Commission all Category 4 Equipment.

1.5.2. Standards for Equipment

The Design-Builder will cause all Category 4 Equipment to be:

(a) new;

(b) of good quality and in a safe, serviceable and clean condition in accordance with the Equipment List;

(c) of the type specified in the Statement of Requirements, if applicable;

(d) in compliance with all Laws; and

(e) in compliance with all certifications or standards that would be reasonable for similar equipment in a similar application if Supplied and Installed by the Authority. The Design-Builder will, as soon as practicable after receiving a request from the Authority, supply to the Authority evidence demonstrating its compliance with this Section 1.5.2.

1.5.3. Warranties

The Design-Builder will ensure that all manufacturer's and vendor's warranties for all Category 4 Equipment:

(a) commence no earlier than the date of first clinical use of the relevant item of Category 4 Equipment; and

(b) are in the Authority's name.

1.5.4. Training

The Design-Builder will include the Authority staff and other representatives to be notified and included in all stages of the Receiving, Setup/Assembly, Installation and Commissioning to ensure there is a comprehensive overview of the Equipment, including its features, calibration and interfaces. The Design-Builder will be knowledgeable on the proper use and maintenance of all Category 4 Equipment and will provide sufficient training and education of the Authority and persons designated by the Authority to enable proper use and maintenance of the Category 4 Equipment. The Design-Builder will not be responsible for providing the Authority with training and education in respect of Category 1 Equipment, Category 2 Equipment, Category 3 Equipment, and Category 5 Equipment. On or before the Target Building Substantial Completion Date, the Design-Builder will transfer and deliver to the Authority all guidance material and manuals relating to Category 4 Equipment items as produced and provided by the manufacturer or the vendor of such items.

1.6 CATEGORY 5 EQUIPMENT (AUTHORITY RELOCATED)

1.6.1. Responsibilities for Category 5 Equipment

The Authority will relocate the Category 5 Equipment from its existing location to the new Facility. The Authority may, at its discretion, Supply new Category 5 Equipment in lieu of relocating existing Category 5 Equipment and may designate it for purposes of this Appendix 1D – Equipment as Category 5 Equipment or alternatively as Category 1 Equipment, Category 2 Equipment, Category 3 Equipment or Category 4 Equipment. A change to the Design-Builder's obligations by a re-designation as Category 2 Equipment, Category 3 Equipment or Category 4 Equipment will be implemented as a Change.

1.6.2. Timing of Delivery and Installation of Category 5 Equipment

Unless otherwise noted on the Equipment List or the Equipment Logistics Schedule, no Category 5 Equipment will be Delivered prior to Substantial Completion of the Building. Delivery after Substantial Completion of the Building will not relieve the Design-Builder of its obligations under the Design-Build Agreement to complete the Design and Construction to accommodate the Equipment in the Facility and the obligations under this Schedule.

1.7 GENERAL

1.7.1. Integration of Equipment with Design of Facility

The Design-Builder will ensure that all Equipment is integrated with the overall Design of the Facility and will include such Equipment as part of the development of Design under this Agreement. To the extent practicable, any required changes to the Design of the Facility as a result of changes to Equipment requirements will be resolved as part of the Design Development process.

1.7.2. Changes affecting Design or Construction

If the Authority increases or decreases the quantities of Equipment, procures other items in substitution for those identified on the Equipment List or otherwise changes the items to be procured and there is an effect on the Design or Construction, such increase, decrease, procurement or change, and the effect thereof, will constitute a Change. The parties will endeavour to agree to an expedited Change process to deal with Equipment changes.

1.7.3. Staging and Storage

The Design-Builder will:

(a) provide a secure, dry space to accommodate staging and storage of Equipment;

(b) allow Authority representatives to access and work within the space;

(c) will ensure that the space is able to maintain a reasonable temperature to store and work in; and

(d) provide power to the space and will notify the Authority, in advance, of any power interruptions.

1.7.4. Storage Costs

The Authority will reimburse the Design-Builder for any incremental out of pocket storage costs for any item of Category 1 Equipment or Category 2 Equipment if such item is Delivered materially in advance of the earliest delivery date for such item as identified by the Design-Builder under Section 1.2.2(a) or 1.3.2(a) of this Schedule in the Equipment Logistics Schedule. Any storage costs incurred by the Design-Builder due to Equipment being Delivered by the delivery date as set out in the Equipment Logistics Schedule delivery date, but not ready for Setup, will be borne by the Design-Builder.

1.7.5. Equipment Commissioning

The Design-Builder will incorporate its Commissioning responsibilities under this Schedule into its commissioning activities for the Facility as contemplated in this Agreement. All Category 2 Equipment, Category 3 Equipment and Category 4 Equipment must be Commissioned, and the Acceptance Protocol completed where applicable, prior to Substantial Completion of the Building.

1.7.6. Addition of Additional Equipment or Replacement of Existing Equipment

If the Authority identifies Equipment that is in addition to, or in replacement of certain items of, the Equipment, the Authority may in its discretion:

(a) elect to have the Design-Builder Supply, Deliver, Receive, Setup, Install and/or Commission such additional Equipment, in accordance with and subject to the procedures for Changes; or

(b) itself perform any of such activities.

1.7.7. Equipment Committee

The parties will establish an Equipment Committee composed of 2 (or any other number agreed between the parties) representatives of each party. The Equipment Committee will meet regularly (and not less than once per month) to review the status of, and to provide advice to the parties with respect to the Equipment Supply, Delivery, Receiving, Setup, Installation and Commissioning.

1.7.8. Title

The Design-Builder will cause the procurement arrangements for Category 4 Equipment to provide for a direct transfer of title to such Equipment from the vendors to the Authority. Title to Category 4 Equipment may be reserved by third party unpaid vendors until the earlier of the date of payment and the Target Building Substantial Completion Date. The Design-Builder will pay all such unpaid vendors prior to the Target Building Substantial Completion Date for amounts owing on outstanding invoices.

1.7.9. Damage and Loss

Any damage or loss occurring prior to the Target Building Substantial Completion Date to:

(a) Category 2 Equipment, Category 3 Equipment or Category 4 Equipment after it has been Received; or

(b) Category 1 Equipment or Category 5 Equipment after it is Installed if it is installed prior to the Target Building Substantial Completion Date, is the responsibility of the Design-Builder.

1.7.10. Acceptance Protocol

A document will be provided by the Design-Builder to the Authority for each Category 2 Equipment, Category 3 Equipment and Category 4 Equipment that certifies that all testing of the relevant Equipment has been completed to demonstrate that it has been installed in accordance with the manufacturer's requirements and is functioning in accordance with the specifications included in the relevant equipment purchase contract or purchase order (the "Acceptance Protocol"). Without limiting the Design-Builder's obligation to Commission the relevant Equipment, the Design- Builder will, to the Authority's reasonable satisfaction, complete all of the aspects of the Acceptance Protocol for each item of Category 2 Equipment, Category 3 Equipment and Category 4 Equipment. If:

(a) prior to the Target Building Substantial Completion Date, the Design-Builder fails to complete any aspect of an Acceptance Protocol for any item of Category 2 Equipment, Category 3 Equipment or Category 4 Equipment; and

(b) the Authority waives the requirement for the Design-Builder to complete the relevant Acceptance Protocol prior to the Target Building Substantial Completion Date, then subject to meeting the other requirements for Substantial Completion of the Building each such failure will be a deficiency and the Authority may make the withholding described in the Design-Build Agreement.

1.7.11. Equipment Logistics Schedule

The Design-Builder will propose a draft schedule (the "Equipment Logistics Schedule") within 30 days after the Effective Date and the parties will seek to finalize the Equipment Logistics Schedule, each party acting reasonably, within 90 days after the Effective Date, in accordance with the following principles:

(a) in order to take advantage of the most recent technological advances, final decisions on the selection of Equipment sensitive to or anticipated to be revised with newer technology prior to the Target Building Substantial Completion Date, together with any training or service requirements, will not be made by the Authority until as late as possible in the period for Construction;

(b) the Design-Builder will require adequate time to issue competitive bidding documents, receive proposals, clarify aspects of proposals, and Receive, Install and Commission the Equipment;

(c) the Authority will require the ability to take advantage of bulk or other purchase opportunities advantageous to it; and

(d) the Design-Builder will undertake the precautions set out by Equipment vendors to protect any Equipment that is required to be Delivered or Installed while construction is still underway; however, as an additional precaution some sensitive Equipment (such as medical devices and equipment with electronic components) may require Delivery, Installation and Commissioning dates that are late in the period for Construction. The parties may modify the Equipment Logistics Schedule by mutual agreement, each acting reasonably.

Furniture and Equipment List

Component Name	Room Ref SOA Dec 18 2020	Room Name SOA Dec 18 2020	Room Quantity SOA Dec 18 2020	Code	Item Description	Long Description / Reference Model	Responsibility Code	Extended Quantity	Quantity - New (N)	Quantity - Existing	Quantity - Existing Replace (R)	Quantity - Existing Transfer (T)
General	0.0	General	1	A001	Allowance, Slings	Estimated quantity - 107	1	107	107			
General	0.0	General	1	E037	Blender, Air-Oxygen	Estimated quantity - to be confirmed later in project	1	35	35			
General	0.0	General	1	E082	Cart, WOW		2	9	9			
General	0.0	General	1	E152	Flowmeter, Air	Estimated quantity - to be confirmed later in project	2	70	70			
General	0.0	General	1	E303	Receptacle, Recycling, Large	Estimated quantity - to be confirmed later in project	2	25	25			
General	0.0	General	1	E304	Receptacle, Recycling, Small	Estimated quantity - to be confirmed later in project	2	450	450			
General	0.0	General	1	E305	Receptacle, Waste and Recycling, Public Spaces	Estimated quantity - to be confirmed later in project	2	10	10			
General	0.0	General	1	E306	Receptacle, Waste, Biohazard	Estimated quantity - to be confirmed later in project	2	50	50			
General	0.0	General	1	E307	Receptacle, Waste, Large	Estimated quantity - to be confirmed later in project	2	10	10			
General	0.0	General	1	E309	Receptacle, Waste, Medium	Estimated quantity - to be confirmed later in project	2	100	100			
General	0.0	General	1	E311	Receptacle, Waste, Small	Estimated quantity - to be confirmed later in project	2	350	350			
General	0.0	General	1	E328	Regulator, Suction	Estimated quantity - to be confirmed later in project	2	100	100			
General	0.0	General	1	E341	Container, Sharps	Estimated quantity - to be confirmed later in project	2	200	200			
General	0.0	General	1	E464	Waste, Hazardous Drug		2	1	1			
1A.1 Administration/HIMS	1.01	Reception	1	F013	Chair, Guest		3	1	1			
1A.1 Administration/HIMS	1.01	Reception	1	F033	Chair, Task		3	4	4			
1A.1 Administration/HIMS	1.01	Reception	1	F074	Workstation, Modular		3	3	3			
1A.1 Administration/HIMS	1.02	Waiting	1	F013	Chair, Guest		3	3	3			
1A.1 Administration/HIMS	1.02	Waiting	1	F014	Chair, Guest, Bariatric		3	2	2			
1A.1 Administration/HIMS	1.02	Waiting	1	F059	Table, End		3	1	1			
1A.1 Administration/HIMS	1.02	Waiting	1	F475	Whiteboard, Large		2	1	1			
1A.1 Administration/HIMS	1.03	Business Workroom	1	F085	Shelving, Laminate Bookcase		3	2	2			
1A.1 Administration/HIMS	1.04	Break-out Room, 8 seat	1	F013	Chair, Guest		3	8	8			
1A.1 Administration/HIMS	1.04	Break-out Room, 8 seat	1	F067	Table, Rectangular, Foldable, Mobile		3	2	2			
1A.1 Administration/HIMS	1.04	Break-out Room, 8 seat	1	F476	Whiteboard, Magnetic		2	1	1			
1A.1 Administration/HIMS	1.05	Kitchenette	1	E102	Coffee Machine		4	1	1			
1A.1 Administration/HIMS	1.05	Kitchenette	1	E238	Microwave		4	1	1			
1A.1 Administration/HIMS	1.05	Kitchenette	1	E327	Refrigerator/Freezer, Domestic, Upright		4	1	1			

Component Name	Room Ref SOA Dec 18 2020	Room Name SOA Dec 18 2020	Room Quantity SOA Dec 18 2020	Code	Item Description	Long Description / Reference Model	Responsibility Code	Extended Quantity	Quantity - New (N)	Quantity - Existing	Quantity - Existing Replace (R)	Quantity - Existing Transfer (T)
1A.1 Administration/HIMS	1.08	Office, Executive HSA	1	F013	Chair, Guest		3	4	4			
1A.1 Administration/HIMS	1.08	Office, Executive HSA	1	F033	Chair, Task		3	1	1			
1A.1 Administration/HIMS	1.08	Office, Executive HSA	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.1 Administration/HIMS	1.08	Office, Executive HSA	1	F063	Table, Meeting, Round, Small	3-4 people	3	1	1			
1A.1 Administration/HIMS	1.08	Office, Executive HSA	1	F475	Whiteboard, Large	4'x6'	2	1	1			
1A.1 Administration/HIMS	1.08	Office, Executive HSA	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.1 Administration/HIMS	1.09	Office, Shared	1	F013	Chair, Guest		3	3	3			
1A.1 Administration/HIMS	1.09	Office, Shared	1	F033	Chair, Task		3	1	1			
1A.1 Administration/HIMS	1.09	Office, Shared	1	F063	Table, Meeting, Round, Small		3	1	1			
1A.1 Administration/HIMS	1.09	Office, Shared	1	F474	Whiteboard		2	1	1			
1A.1 Administration/HIMS	1.09	Office, Shared	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.1 Administration/HIMS	1.10	Office, Director of Care	1	F013	Chair, Guest		3	4	4			
1A.1 Administration/HIMS	1.10	Office, Director of Care	1	F033	Chair, Task		3	1	1			
1A.1 Administration/HIMS	1.10	Office, Director of Care	1	F063	Table, Meeting, Round, Small	3-4 people	3	1	1			
1A.1 Administration/HIMS	1.10	Office, Director of Care	1	F475	Whiteboard, Large		2	1	1			
1A.1 Administration/HIMS	1.10	Office, Director of Care	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.1 Administration/HIMS	1.11	Office, Manager Patient Care Services	1	F013	Chair, Guest		3	3	3			
1A.1 Administration/HIMS	1.11	Office, Manager Patient Care Services	1	F033	Chair, Task		3	1	1			
1A.1 Administration/HIMS	1.11	Office, Manager Patient Care Services	1	F063	Table, Meeting, Round, Small	2-3 people	3	1	1			
1A.1 Administration/HIMS	1.11	Office, Manager Patient Care Services	1	F475	Whiteboard, Large		2	1	1			
1A.1 Administration/HIMS	1.11	Office, Manager Patient Care Services	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.1 Administration/HIMS	1.12	Office, Touchdown	1	F013	Chair, Guest		3	2	2			
1A.1 Administration/HIMS	1.12	Office, Touchdown	1	F033	Chair, Task		3	2	2			
1A.1 Administration/HIMS	1.12	Office, Touchdown	1	F474	Whiteboard		2	2	2			
1A.1 Administration/HIMS	1.12	Office, Touchdown	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	2	2			
1A.1 Administration/HIMS	1.13	Office, Shared, Union Stewards	1	F013	Chair, Guest		3	3	3			
1A.1 Administration/HIMS	1.13	Office, Shared, Union Stewards	1	F033	Chair, Task		3	2	2			
1A.1 Administration/HIMS	1.13	Office, Shared, Union Stewards	1	F063	Table, Meeting, Round, Small		3	1	1			

Furniture and Equipment List

Component Name	Room Ref SOA Dec 18 2020	Room Name SOA Dec 18 2020	Room Quantity SOA Dec 18 2020	Code	Item Description	Long Description / Reference Model	Responsibility Code	Extended Quantity	Quantity - New (N)	Quantity - Existing	Quantity - Existing Replace (R)	Quantity - Existing Transfer (T)
1A.1 Administration/HIMS	1.13	Office, Shared, Union Stewards	1	F474	Whiteboard		2	1	1			
1A.1 Administration/HIMS	1.13	Office, Shared, Union Stewards	1	F071	Workstation		3	2	2			
1A.1 Administration/HIMS	1.14	Reception/Workroom	1	F033	Chair, Task		3	2	2			
1A.1 Administration/HIMS	1.14	Reception/Workroom	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	2	2			
1A.1 Administration/HIMS	1.15	Workstation, ROI Assembly	1	F033	Chair, Task		3	1	1			
1A.1 Administration/HIMS	1.15	Workstation, ROI Assembly	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.1 Administration/HIMS	1.16	Work Room: Data Quality	1	F033	Chair, Task		3	4	4			
1A.1 Administration/HIMS	1.16	Work Room: Data Quality	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	4	4			
1A.1 Administration/HIMS	1.17	Workstation, Coding & Abstracting	1	F033	Chair, Task		3	4	4			
1A.1 Administration/HIMS	1.17	Workstation, Coding & Abstracting	1	F072	Workstation, Cubicle, w/hutch, w/pedestal, Height-Adjustable		3	4	4			
1A.1 Administration/HIMS	1.18	Workstation, Drop-In Chart Review	1	F033	Chair, Task		3	1	1			
1A.1 Administration/HIMS	1.18	Workstation, Drop-In Chart Review	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.1 Administration/HIMS	1.19	Workstation, Touch Down	1	F033	Chair, Task		3	1	1			
1A.1 Administration/HIMS	1.19	Workstation, Touch Down	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.1 Administration/HIMS	1.20	Office, Touchdown	1	F013	Chair, Guest		3	1	1			
1A.1 Administration/HIMS	1.20	Office, Touchdown	1	F033	Chair, Task		3	1	1			
1A.1 Administration/HIMS	1.20	Office, Touchdown	1	F474	Whiteboard		2	1	1			
1A.1 Administration/HIMS	1.20	Office, Touchdown	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.1 Administration/HIMS	1.21	Workstation, Advisor	2	F033	Chair, Task		3	2	2			
1A.1 Administration/HIMS	1.21	Workstation, Advisor	2	F474	Whiteboard		2	1	1			
1A.1 Administration/HIMS	1.21	Workstation, Advisor	2	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	2	2			
1A.1 Administration/HIMS	1.22	Storage, Supplies	1	F085	Shelving, Laminate Bookcase		3	1	1			
1A.1 Administration/HIMS	1.23	Storage, Active File	1	E383C	Storage, Filing, High-density	840 linear footage	4	1	1			
1A.1 Administration/HIMS	1.23	Storage, Active File	1	F033	Chair, Task		3	1	1			
1A.1 Administration/HIMS	1.23	Storage, Active File	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.2 Allied Health/Interprofessional Health Team	2.01	Waiting	1	F014	Chair, Guest, Bariatric		3	4	4			
1A.2 Allied Health/Interprofessional Health Team	2.04	Workstation, Student, Drop-in	1	F033	Chair, Task		3	1	1			
1A.2 Allied Health/Interprofessional Health Team	2.04	Workstation, Student, Drop-in	1	F078	Workstation, Small, w/pedestal		3	1	1			

Component Name	Room Ref SOA Dec 18 2020	Room Name SOA Dec 18 2020	Room Quantity SOA Dec 18 2020	Code	Item Description	Long Description / Reference Model	Responsibility Code	Extended Quantity	Quantity - New (N)	Quantity - Existing	Quantity - Existing Replace (R)	Quantity - Existing Transfer (T)
1A.2 Allied Health/Interprofessional Health Team	2.05	Business Work Area, Shared	1	F085	Shelving, Laminate Bookcase		3	1	1			
1A.2 Allied Health/Interprofessional Health Team	2.05	Business Work Area, Shared	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.2 Allied Health/Interprofessional Health Team	2.05	Business Work Area, Shared	1	F070	Table, Rectangular, Small		3	1	1			
1A.2 Allied Health/Interprofessional Health Team	2.06	Storage, Shared	1	E047	Cart	3'x3'	2	1	1			
1A.2 Allied Health/Interprofessional Health Team	2.06	Storage, Shared	1	F051	Storage, Office Supplies		3	1	1			
1A.2 Allied Health/Interprofessional Health Team	2.07	Office, Shared, Indigenous Patient Liasion	1	F013	Chair, Guest		3	4	4			
1A.2 Allied Health/Interprofessional Health Team	2.07	Office, Shared, Indigenous Patient Liasion	1	F033	Chair, Task		3	2	2			
1A.2 Allied Health/Interprofessional Health Team	2.07	Office, Shared, Indigenous Patient Liasion	1	F049	Storage, Cabinet, Filing, 4H		3	2	2			
1A.2 Allied Health/Interprofessional Health Team	2.07	Office, Shared, Indigenous Patient Liasion	1	F063	Table, Meeting, Round, Small		3	1	1			
1A.2 Allied Health/Interprofessional Health Team	2.07	Office, Shared, Indigenous Patient Liasion	1	F474	Whiteboard		2	1	1			
1A.2 Allied Health/Interprofessional Health Team	2.07	Office, Shared, Indigenous Patient Liasion	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	2	2			
1A.2 Allied Health/Interprofessional Health Team	2.08	Consult Room, Indigenous Patient Liaison	1	F013	Chair, Guest		3	2	2			
1A.2 Allied Health/Interprofessional Health Team	2.08	Consult Room, Indigenous Patient Liaison	1	F014	Chair, Guest, Bariatric		3	2	2			
1A.2 Allied Health/Interprofessional Health Team	2.08	Consult Room, Indigenous Patient Liaison	1	F055	Table, Coffee		3	1	1			
1A.2 Allied Health/Interprofessional Health Team	2.08	Consult Room, Indigenous Patient Liaison	1	F474	Whiteboard		2	1	1			
1A.2 Allied Health/Interprofessional Health Team	2.09	Office/Workroom, Clinical Nutrition	1	F013	Chair, Guest		3	1	1			
1A.2 Allied Health/Interprofessional Health Team	2.09	Office/Workroom, Clinical Nutrition	1	F033	Chair, Task		3	2	2			
1A.2 Allied Health/Interprofessional Health Team	2.09	Office/Workroom, Clinical Nutrition	1	E316	Refrigerator, Domestic, Undercounter		4	1	1			
1A.2 Allied Health/Interprofessional Health Team	2.09	Office/Workroom, Clinical Nutrition	1	E336	Scale, Patient, Platform, Electronic		3	1	1			
1A.2 Allied Health/Interprofessional Health Team	2.09	Office/Workroom, Clinical Nutrition	1	F049	Storage, Cabinet, Filing, 4H		3	2	2			
1A.2 Allied Health/Interprofessional Health Team	2.09	Office/Workroom, Clinical Nutrition	1	F474	Whiteboard		2	1	1			
1A.2 Allied Health/Interprofessional Health Team	2.09	Office/Workroom, Clinical Nutrition	1	F077	Workstation, Small, w/hutch, w/pedestal		3	2	2			
1A.2 Allied Health/Interprofessional Health Team	2.10	Office, IP&C, WCB	1	F013	Chair, Guest		3	1	1			
1A.2 Allied Health/Interprofessional Health Team	2.10	Office, IP&C, WCB	1	F033	Chair, Task		3	2	2			
1A.2 Allied Health/Interprofessional Health Team	2.10	Office, IP&C, WCB	1	F049	Storage, Cabinet, Filing, 4H		3	2	2			
1A.2 Allied Health/Interprofessional Health Team	2.10	Office, IP&C, WCB	1	F063	Table, Meeting, Round, Small		3	1	1			
1A.2 Allied Health/Interprofessional Health Team	2.10	Office, IP&C, WCB	1	F474	Whiteboard		2	2	2			
1A.2 Allied Health/Interprofessional Health Team	2.10	Office, IP&C, WCB	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	2	2			

Furniture and Equipment List

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1A.2 Allied Health/Interprofessional Health Team	2.11	Office/Consult Room, OH&C/WCB	1	F013	Chair, Guest		3	3	2			
1A.2 Allied Health/Interprofessional Health Team	2.11	Office/Consult Room, OH&C/WCB	1	F085	Shelving, Laminate Bookcase		3	1	1			
1A.2 Allied Health/Interprofessional Health Team	2.11	Office/Consult Room, OH&C/WCB	1	E389C	Storage, Vaccination		2	1	1			
1A.2 Allied Health/Interprofessional Health Team	2.11	Office/Consult Room, OH&C/WCB	1	F070	Table, Rectangular, Small		3	2	2			
1A.2 Allied Health/Interprofessional Health Team	2.12	Office/Consult Room, Social Work	2	F013	Chair, Guest		3	2	2			
1A.2 Allied Health/Interprofessional Health Team	2.12	Office/Consult Room, Social Work	2	F014	Chair, Guest, Bariatric		3	2	2			
1A.2 Allied Health/Interprofessional Health Team	2.12	Office/Consult Room, Social Work	2	F033	Chair, Task		3	3	3			
1A.2 Allied Health/Interprofessional Health Team	2.12	Office/Consult Room, Social Work	2	F049	Storage, Cabinet, Filing, 4H		3	2	2			
1A.2 Allied Health/Interprofessional Health Team	2.12	Office/Consult Room, Social Work	2	F474	Whiteboard		2	2	2			
1A.2 Allied Health/Interprofessional Health Team	2.12	Office/Consult Room, Social Work	2	F075	Workstation, Small	for student, only in 1 office	3	1	1			
1A.2 Allied Health/Interprofessional Health Team	2.12	Office/Consult Room, Social Work	2	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	2	2			
1A.2 Allied Health/Interprofessional Health Team	2.13	Office, Drop-In	1	EXXX	Equipment TBD		#N/A					
1A.3 Ambulatory Care Centre	3.01	Reception/Registration	1	F033	Chair, Task		3	3	3			
1A.3 Ambulatory Care Centre	3.01	Reception/Registration	1	F085	Shelving, Laminate Bookcase		3	2	2			
1A.3 Ambulatory Care Centre	3.01	Reception/Registration	1	F071	Workstation		3	3	3			
1A.3 Ambulatory Care Centre	3.02	Office	1	F013	Chair, Guest		3	1	1			
1A.3 Ambulatory Care Centre	3.02	Office	1	F033	Chair, Task		3	1	1			
1A.3 Ambulatory Care Centre	3.02	Office	1	F474	Whiteboard		2	1	1			
1A.3 Ambulatory Care Centre	3.02	Office	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.3 Ambulatory Care Centre	3.03	Waiting Area	1	F036	Chair, Waiting		3	22	22			
1A.3 Ambulatory Care Centre	3.03	Waiting Area	1	F037	Chair, Waiting, Bariatric		3	4	4			
1A.3 Ambulatory Care Centre	3.03	Waiting Area	1	F059	Table, End		3	6	6			
1A.3 Ambulatory Care Centre	3.04	Generic Clinic Module	2	F013	Chair, Guest		3	6	6			
1A.3 Ambulatory Care Centre	3.04	Generic Clinic Module	2	E254	Monitor, Vital Signs, Mobile	Mobile. Model 68NXTX-B from Welch Allyn	3	2		2	2	
1A.3 Ambulatory Care Centre	3.06	Telehealth Consult Room	2	F013	Chair, Guest		3	8	8			
1A.3 Ambulatory Care Centre	3.06	Telehealth Consult Room	2	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	1	1			
1A.3 Ambulatory Care Centre	3.06	Telehealth Consult Room	2	F067	Table, Rectangular, Foldable, Mobile		3	2	2			
1A.3 Ambulatory Care Centre	3.07	Procedure Room	1	F013	Chair, Guest		3	1	1			

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1A.3 Ambulatory Care Centre	3.07	Procedure Room	1	E125C	Electrosurgical Unit, Monopolar/Bipolar	Model: Olympus ESG300 - complete with all components and cart	2	2	2			
1A.3 Ambulatory Care Centre	3.07	Procedure Room	1	E222	Light, Surgical, Minor, Ceiling-Mounted		3	1	1			
1A.3 Ambulatory Care Centre	3.07	Procedure Room	1	E245	Monitor, Physiologic, Wall-Mounted	with temp	3	1	1			
1A.3 Ambulatory Care Centre	3.07	Procedure Room	1	E289	Pump, Infusion		1	1	1			
1A.3 Ambulatory Care Centre	3.07	Procedure Room	1	E354	Smoke Evacuation Systems, Surgical		5	1		1		1
1A.3 Ambulatory Care Centre	3.07	Procedure Room	1	E364	Stand, IV	6-legged in all rooms	1	1	1			
1A.3 Ambulatory Care Centre	3.07	Procedure Room	1	E371	Stool, Exam		1	1	1			
1A.3 Ambulatory Care Centre	3.07	Procedure Room	1	E412	Table, Procedures, Mobile		3	1	1			
1A.3 Ambulatory Care Centre	3.07	Procedure Room	1	F076	Workstation, Small, Clinical		3	1	1			
1A.3 Ambulatory Care Centre	3.09	Patient Weigh Scale, Barrier-Free	1	E337	Scale, Patient, Platform, Electronic, Bariatric	w/handrail	3	1	1			
1A.3 Ambulatory Care Centre	3.11	Clean Supplies Room	1	E070	Cart, Storage, Wire	A-Cart type	2	3	3			
1A.3 Ambulatory Care Centre	3.11	Clean Supplies Room	1	E450	Warming Unit, Blankets		1	1	1			
1A.3 Ambulatory Care Centre	3.12	Soiled Utility Room	1	E168C	Hamper, Linen		2	1	1			
1A.3 Ambulatory Care Centre	3.12	Soiled Utility Room	1	E517C	Disinfector, Bedpan	Meiko Topline 20	3	1	1			
1A.3 Ambulatory Care Centre	3.12	Soiled Utility Room	1	E434	Truck, Utility, Refuse		1	2	2			
1A.3 Ambulatory Care Centre	3.13	Storage Room, Equipment	1	E070	Cart, Storage, Wire	A-Cart type	2	1	1			
1A.3 Ambulatory Care Centre	3.13	Storage Room, Equipment	1	E334	Scale, Patient, Infant, Mobile		1	1	1			
1A.3 Ambulatory Care Centre	3.14	Housekeeping Closet, Distributed	2	E057	Cart, Housekeeping		2	2	1	1	1	
1A.3 Ambulatory Care Centre	3.14	Housekeeping Closet, Distributed	2	E116	Dispenser System, Chemical, Wall-Mounted		3	2	2			
1A.3 Ambulatory Care Centre	3.14	Housekeeping Closet, Distributed	2	E344	Shelving, HSKP		2	2	2			
1A.3 Ambulatory Care Centre	3.15	Medications Preparation Room	1	E018	Automation System, Medication Dispensing, Decentralized	2drawer countertop	3	1	1			
1A.3 Ambulatory Care Centre	3.15	Medications Preparation Room	1	E070	Cart, Storage, Wire	A-Cart type	2	1	1			
1A.3 Ambulatory Care Centre	3.15	Medications Preparation Room	1	E083	Cassette, Ward Stock		2	1	1			
1A.3 Ambulatory Care Centre	3.15	Medications Preparation Room	1	E324C	Refrigerator, Pharmacy, Undercounter		2	1	1			
1A.3 Ambulatory Care Centre	3.15	Medications Preparation Room	1	F476	Whiteboard, Magnetic		2	1	1			
1A.3 Ambulatory Care Centre	3.16	Kitchenette	1	E102	Coffee Machine		4	1	1			
1A.3 Ambulatory Care Centre	3.16	Kitchenette	1	E179	Ice Machine		4	1	1			
1A.3 Ambulatory Care Centre	3.16	Kitchenette	1	E238	Microwave		4	1	1			

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1A.3 Ambulatory Care Centre	3.16	Kitchenette	1	E316	Refrigerator, Domestic, Undercounter		4	1	1			
1A.3 Ambulatory Care Centre	3.18	Alcove, Crash Cart, Adult	1	E015	Aspirator, Airways		1	1	1			
1A.3 Ambulatory Care Centre	3.18	Alcove, Crash Cart, Adult	1	E051	Cart, Crash		2	1	1			
1A.3 Ambulatory Care Centre	3.18	Alcove, Crash Cart, Adult	1	E111C	Defibrillator, External, Manual	Lifepak 20e	1	1	1			
1A.3 Ambulatory Care Centre	3.19	Alcove, Crash Cart, Peds	1	E015	Aspirator, Airways		1	1	1			
1A.3 Ambulatory Care Centre	3.19	Alcove, Crash Cart, Peds	1	E051	Cart, Crash		2	1	1			
1A.3 Ambulatory Care Centre	3.19	Alcove, Crash Cart, Peds	1	E111C	Defibrillator, External, Manual	Lifepak 20e	1	1	1			
1A.3 Ambulatory Care Centre	3.20	Office, Manager	1	F013	Chair, Guest		3	2	2			
1A.3 Ambulatory Care Centre	3.20	Office, Manager	1	F033	Chair, Task		3	1	1			
1A.3 Ambulatory Care Centre	3.20	Office, Manager	1	F046	Storage, Bookcase		3	1	1			
1A.3 Ambulatory Care Centre	3.20	Office, Manager	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.3 Ambulatory Care Centre	3.20	Office, Manager	1	F474	Whiteboard		2	1	1			
1A.3 Ambulatory Care Centre	3.20	Office, Manager	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.3 Ambulatory Care Centre	3.21	Office, Shared	1	F013	Chair, Guest		3	2	2			
1A.3 Ambulatory Care Centre	3.21	Office, Shared	1	F033	Chair, Task		3	2	2			
1A.3 Ambulatory Care Centre	3.21	Office, Shared	1	F474	Whiteboard		2	1	1			
1A.3 Ambulatory Care Centre	3.21	Office, Shared	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	2	2			
1A.3 Ambulatory Care Centre	3.22	Diagnostic Urology (Cystoscopy) Room	1	F034	Chair, Task, Clinical		3	1	1			
1A.3 Ambulatory Care Centre	3.22	Diagnostic Urology (Cystoscopy) Room	1	E481C	Colposcope, System		3	1	1			
1A.3 Ambulatory Care Centre	3.22	Diagnostic Urology (Cystoscopy) Room	1	E125C	Electrosurgical Unit, Monopolar/Bipolar	Model: Olympus ESG300 - complete with all components and cart	5	1		1		1
1A.3 Ambulatory Care Centre	3.22	Diagnostic Urology (Cystoscopy) Room	1	E149	Facility Boom, Ceiling-Mounted		3	1	1			
1A.3 Ambulatory Care Centre	3.22	Diagnostic Urology (Cystoscopy) Room	1	E215	Light, Examination, Ceiling-Mounted		3	1	1			
1A.3 Ambulatory Care Centre	3.22	Diagnostic Urology (Cystoscopy) Room	1	E245	Monitor, Physiologic, Wall-Mounted		3	1	1			
1A.3 Ambulatory Care Centre	3.22	Diagnostic Urology (Cystoscopy) Room	1	E354	Smoke Evacuation Systems, Surgical		1	1	1			
1A.3 Ambulatory Care Centre	3.22	Diagnostic Urology (Cystoscopy) Room	1	E371	Stool, Exam		1	1	1			
1A.3 Ambulatory Care Centre	3.22	Diagnostic Urology (Cystoscopy) Room	1	E394	Stretcher, OB/GYN	Gynnie (Stryker)	3	1	1			
1A.3 Ambulatory Care Centre	3.22	Diagnostic Urology (Cystoscopy) Room	1	E504	Surgical Suction Waste Removal System	Wall-Mounted	3	1	1			
1A.3 Ambulatory Care Centre	3.22	Diagnostic Urology (Cystoscopy) Room	1	F076	Workstation, Small, Clinical		3	1	1			

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1A.3 Ambulatory Care Centre	3.24	Orthopaedic Exam/Consult/Procedure Room	1	F013	Chair, Guest		3	2	2			
1A.3 Ambulatory Care Centre	3.24	Orthopaedic Exam/Consult/Procedure Room	1	F034	Chair, Task, Clinical		3	1	1			
1A.3 Ambulatory Care Centre	3.24	Orthopaedic Exam/Consult/Procedure Room	1	E216	Light, Examination, Mobile	Mobile	3	1	1			
1A.3 Ambulatory Care Centre	3.24	Orthopaedic Exam/Consult/Procedure Room	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1	1			
1A.3 Ambulatory Care Centre	3.24	Orthopaedic Exam/Consult/Procedure Room	1	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	1	1			
1A.3 Ambulatory Care Centre	3.24	Orthopaedic Exam/Consult/Procedure Room	1	E371	Stool, Exam		1	1	1			
1A.3 Ambulatory Care Centre	3.24	Orthopaedic Exam/Consult/Procedure Room	1	E404	Table, Examination/Treatment, Height-Adjustable		3	1	1			
1A.3 Ambulatory Care Centre	3.24	Orthopaedic Exam/Consult/Procedure Room	1	E427	Thermometer, Electronic, Wall-Mounted		1	1	1			
1A.3 Ambulatory Care Centre	3.24	Orthopaedic Exam/Consult/Procedure Room	1	F076	Workstation, Small, Clinical		3	1	1			
1A.3 Ambulatory Care Centre	3.24	Orthopaedic Exam/Consult/Procedure Room	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	1	1			
1A.3 Ambulatory Care Centre	3.25	Orthopaedic Exam/Consult/Cast Room	1	E059	Cart, Instruments		2	1	1			
1A.3 Ambulatory Care Centre	3.25	Orthopaedic Exam/Consult/Cast Room	1	E081	Cart, Water Basin		2	1	1			
1A.3 Ambulatory Care Centre	3.25	Orthopaedic Exam/Consult/Cast Room	1	F013	Chair, Guest		3	2	2			
1A.3 Ambulatory Care Centre	3.25	Orthopaedic Exam/Consult/Cast Room	1	F034	Chair, Task, Clinical		3	1	1			
1A.3 Ambulatory Care Centre	3.25	Orthopaedic Exam/Consult/Cast Room	1	E215	Light, Examination, Ceiling-Mounted		3	1	1			
1A.3 Ambulatory Care Centre	3.25	Orthopaedic Exam/Consult/Cast Room	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1	1			
1A.3 Ambulatory Care Centre	3.25	Orthopaedic Exam/Consult/Cast Room	1	E329	Saw, Cast, With Integral Dust Collector		1	1	1			
1A.3 Ambulatory Care Centre	3.25	Orthopaedic Exam/Consult/Cast Room	1	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	1	1			
1A.3 Ambulatory Care Centre	3.25	Orthopaedic Exam/Consult/Cast Room	1	E371	Stool, Exam		1	1	1			
1A.3 Ambulatory Care Centre	3.25	Orthopaedic Exam/Consult/Cast Room	1	E403	Table, Examination/Treatment, Cast Room		3	1	1			
1A.3 Ambulatory Care Centre	3.25	Orthopaedic Exam/Consult/Cast Room	1	E427	Thermometer, Electronic, Wall-Mounted		1	1	1			
1A.3 Ambulatory Care Centre	3.25	Orthopaedic Exam/Consult/Cast Room	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	1	1			
1A.3 Ambulatory Care Centre	3.25	Orthopaedic Exam/Consult/Cast Room	1	F076	Workstation, Small, Clinical		3	1	1			
1A.3 Ambulatory Care Centre	3.26	Medical Day Care	1	E450	Warming Unit, Blankets		1	1	1			
1A.3 Ambulatory Care Centre	3.28	Endoscopy Procedure Room	1	E066C	Cart, Supplies/Procedure	Anesthesia	2	1	1			
1A.3 Ambulatory Care Centre	3.28	Endoscopy Procedure Room	1	E066C	Cart, Supplies/Procedure	Anesthesia	2	1	1			
1A.3 Ambulatory Care Centre	3.28	Endoscopy Procedure Room	1	F034	Chair, Task, Clinical		3	1	1			
1A.3 Ambulatory Care Centre	3.28	Endoscopy Procedure Room	1	E481C	Colposcope, System		3	1	1			

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1A.3 Ambulatory Care Centre	3.28	Endoscopy Procedure Room	1	E125C	Electrosurgical Unit, Monopolar/Bipolar	Model: Olympus ESG300 - complete with all components and cart	2	1		1	1	
1A.3 Ambulatory Care Centre	3.28	Endoscopy Procedure Room	1	E149	Facility Boom, Ceiling-Mounted		3	1	1			
1A.3 Ambulatory Care Centre	3.28	Endoscopy Procedure Room	1	E127	Endoscopy, Insufflator		5	1		1		1
1A.3 Ambulatory Care Centre	3.28	Endoscopy Procedure Room	1	E128	Endoscopy, Irrigator		3	1	1			
1A.3 Ambulatory Care Centre	3.28	Endoscopy Procedure Room	1	E129	Endoscopy, Light Source		3	1		1	1	
1A.3 Ambulatory Care Centre	3.28	Endoscopy Procedure Room	1	E130	Endoscopy, Positioning Aid		3	1		1	1	
1A.3 Ambulatory Care Centre	3.28	Endoscopy Procedure Room	1	E131	Endoscopy, Printer		3	1		1	1	
1A.3 Ambulatory Care Centre	3.28	Endoscopy Procedure Room	1	E134	Endoscopy, Video Processor		3	1		1	1	
1A.3 Ambulatory Care Centre	3.28	Endoscopy Procedure Room	1	E222	Light, Surgical, Minor, Ceiling-Mounted		3	1	1			
1A.3 Ambulatory Care Centre	3.28	Endoscopy Procedure Room	1	E245	Monitor, Physiologic, Wall-Mounted		3	2		2	2	
1A.3 Ambulatory Care Centre	3.28	Endoscopy Procedure Room	1	E252	Monitor, Video, High-Definition, Medical Image, Ceiling-Mounted		3	2		2	2	
1A.3 Ambulatory Care Centre	3.28	Endoscopy Procedure Room	1	E354	Smoke Evacuation Systems, Surgical		5	1		1		1
1A.3 Ambulatory Care Centre	3.28	Endoscopy Procedure Room	1	E504	Surgical Suction Waste Removal System	Wall-Mounted	3	1	1			
1A.3 Ambulatory Care Centre	3.28	Endoscopy Procedure Room	1	F076	Workstation, Small, Clinical		3	1	1			
1A.3 Ambulatory Care Centre	3.29	Scope Reprocessing	1	E078	Cart, Transport, Endoscopes		2	1	1			
1A.3 Ambulatory Care Centre	3.29	Scope Reprocessing	1	E132C	Endoscopy, Scope Canal Cleaner	Olympus Flushing pump OFP-2	3	1	1			
1A.3 Ambulatory Care Centre	3.29	Scope Reprocessing	1	E133	Endoscopy, Scope Reprocessor		3	2	1	2	2	
1A.3 Ambulatory Care Centre	3.29	Scope Reprocessing	1	E548	Cabinet, Scope Drying	Model 6000 series 16 scopes capacity. HEPA filtration to 99.7%. Stainless steel construction. Double tempered glass hinged doors.	2	3	3	0	0	
1A.3 Ambulatory Care Centre	3.29	Scope Reprocessing	1	E420C	Tester, Endoscopes, Leaks		1	1	1			
1A.3 Ambulatory Care Centre	3.3	Storage, Clean Scope Cupboard	1	E548	Cabinet, Scope Drying	Vented	2	1	1			
1A.3 Ambulatory Care Centre	3.32	Stress Testing Room	1	E051	Cart, Crash	General	2	1	1			
1A.3 Ambulatory Care Centre	3.32	Stress Testing Room	1	E066C	Cart, Supplies/Procedure		2	1	1			
1A.3 Ambulatory Care Centre	3.32	Stress Testing Room	1	F013	Chair, Guest		3	2	2			
1A.3 Ambulatory Care Centre	3.32	Stress Testing Room	1	F034	Chair, Task, Clinical		3	2	2			
1A.3 Ambulatory Care Centre	3.32	Stress Testing Room	1	E111C	Defibrillator, External, Manual	Lifepak 20e	1	1		1	1	
1A.3 Ambulatory Care Centre	3.32	Stress Testing Room	1	E147	Exerciser, Treadmill, Stress Test		2	1		1	1	
1A.3 Ambulatory Care Centre	3.32	Stress Testing Room	1	E146	Exerciser, Treadmill		2	1		1	1	

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1A.3 Ambulatory Care Centre	3.32	Stress Testing Room	1	E516	Monitor, Physiologic, Mobile		3	1		1	1	
1A.3 Ambulatory Care Centre	3.32	Stress Testing Room	1	E358	Sphygmomanometer, Aneroid, Mobile		1	1	1			
1A.3 Ambulatory Care Centre	3.32	Stress Testing Room	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	1	1			
1A.3 Ambulatory Care Centre	3.32	Stress Testing Room	1	F076	Workstation, Small, Clinical		3	2	2			
1A.3 Ambulatory Care Centre	3.34	Procedure Room, Negative Pressure	1	F013	Chair, Guest		3	1	1			
1A.3 Ambulatory Care Centre	3.34	Procedure Room, Negative Pressure	1	F034	Chair, Task, Clinical		3	1	1			
1A.3 Ambulatory Care Centre	3.34	Procedure Room, Negative Pressure	1	E149	Facility Boom, Ceiling-Mounted		3	1	1			
1A.3 Ambulatory Care Centre	3.34	Procedure Room, Negative Pressure	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1	1			
1A.3 Ambulatory Care Centre	3.34	Procedure Room, Negative Pressure	1	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	1	1			
1A.3 Ambulatory Care Centre	3.34	Procedure Room, Negative Pressure	1	E371	Stool, Exam		1	1	1			
1A.3 Ambulatory Care Centre	3.34	Procedure Room, Negative Pressure	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	1	1			
1A.3 Ambulatory Care Centre	3.34	Procedure Room, Negative Pressure	1	E427	Thermometer, Electronic, Wall-Mounted		1	1	1			
1A.3 Ambulatory Care Centre	3.34	Procedure Room, Negative Pressure	1	F076	Workstation, Small, Clinical		3	1	1			
1A.3 Ambulatory Care Centre	3.35	Storage Room	1	E108	Cylinder, Gas	For PF Testing	1	1	1			
1A.3 Ambulatory Care Centre	3.35	Storage Room	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.3 Ambulatory Care Centre	3.36	PF & Spirometry Testing Room	1	F013	Chair, Guest		3	1	1			
1A.3 Ambulatory Care Centre	3.36	PF & Spirometry Testing Room	1	F034	Chair, Task, Clinical		3	1	1			
1A.3 Ambulatory Care Centre	3.36	PF & Spirometry Testing Room	1	E287	Pulmonary Function Test Machine	With Body Box	3	1	1			
1A.3 Ambulatory Care Centre	3.36	PF & Spirometry Testing Room	1	E295	Rack, Boot		2	1	1			
1A.3 Ambulatory Care Centre	3.36	PF & Spirometry Testing Room	1	E296	Rack, Coat		2	1	1			
1A.3 Ambulatory Care Centre	3.36	PF & Spirometry Testing Room	1	E337	Scale, Patient, Platform, Electronic, Bariatric	w/handrail	3	1	1			
1A.3 Ambulatory Care Centre	3.36	PF & Spirometry Testing Room	1	E360	Spirometer		1	1	1			
1A.3 Ambulatory Care Centre	3.36	PF & Spirometry Testing Room	1	E371	Stool, Exam		1	1	1			
1A.3 Ambulatory Care Centre	3.36	PF & Spirometry Testing Room	1	E378	Storage, Cabinet, Medication, Lockable		4	1	1			
1A.3 Ambulatory Care Centre	3.36	PF & Spirometry Testing Room	1	E401	Syringe, Calibration		2	1	1			
1A.3 Ambulatory Care Centre	3.36	PF & Spirometry Testing Room	1	F076	Workstation, Small, Clinical		3	1	1			
1A.3 Ambulatory Care Centre	3.04.01	Generic Clinic Module, Exam/Consult Room	2	F034	Chair, Task, Clinical		3	4	4			
1A.3 Ambulatory Care Centre	3.04.01	Generic Clinic Module, Exam/Consult Room	2	E216	Light, Examination, Mobile		3	4	4			

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1A.3 Ambulatory Care Centre	3.04.01	Generic Clinic Module, Exam/Consult Room	2	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	4	4			
1A.3 Ambulatory Care Centre	3.04.01	Generic Clinic Module, Exam/Consult Room	2	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	4	4			
1A.3 Ambulatory Care Centre	3.04.01	Generic Clinic Module, Exam/Consult Room	2	E371	Stool, Exam		1	4	4			
1A.3 Ambulatory Care Centre	3.04.01	Generic Clinic Module, Exam/Consult Room	2	E404	Table, Examination/Treatment, Height-Adjustable		3	4	4			
1A.3 Ambulatory Care Centre	3.04.01	Generic Clinic Module, Exam/Consult Room	2	E427	Thermometer, Electronic, Wall-Mounted		1	4	4			
1A.3 Ambulatory Care Centre	3.04.01	Generic Clinic Module, Exam/Consult Room	2	F076	Workstation, Small, Clinical		3	4	4			
1A.3 Ambulatory Care Centre	3.04.01	Generic Clinic Module, Exam/Consult Room	2	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	4	4			
1A.3 Ambulatory Care Centre	3.04.02	Generic Clinic Module, Exam/Consult Room, Learner Oriented	1	F034	Chair, Task, Clinical		3	4	4			
1A.3 Ambulatory Care Centre	3.04.02	Generic Clinic Module, Exam/Consult Room, Learner Oriented	1	E216	Light, Examination, Mobile		3	4	4			
1A.3 Ambulatory Care Centre	3.04.02	Generic Clinic Module, Exam/Consult Room, Learner Oriented	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	4	4			
1A.3 Ambulatory Care Centre	3.04.02	Generic Clinic Module, Exam/Consult Room, Learner Oriented	1	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	4	4			
1A.3 Ambulatory Care Centre	3.04.02	Generic Clinic Module, Exam/Consult Room, Learner Oriented	1	E371	Stool, Exam		1	4	4			
1A.3 Ambulatory Care Centre	3.04.02	Generic Clinic Module, Exam/Consult Room, Learner Oriented	1	E404	Table, Examination/Treatment, Height-Adjustable		3	4	4			
1A.3 Ambulatory Care Centre	3.04.02	Generic Clinic Module, Exam/Consult Room, Learner Oriented	1	E427	Thermometer, Electronic, Wall-Mounted		1	4	4			
1A.3 Ambulatory Care Centre	3.04.02	Generic Clinic Module, Exam/Consult Room, Learner Oriented	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	4	4			
1A.3 Ambulatory Care Centre	3.04.02	Generic Clinic Module, Exam/Consult Room, Learner Oriented	1	F076	Workstation, Small, Clinical		3	4	4			
1A.3 Ambulatory Care Centre	3.26.01	Medical Day Care, Workstation	2	E012	Analyzer, Point-of-Care, Blood Glucose		1	1	1			
1A.3 Ambulatory Care Centre	3.26.01	Medical Day Care, Workstation	2	F034	Chair, Task, Clinical		3	2	2			
1A.3 Ambulatory Care Centre	3.26.01	Medical Day Care, Workstation	2	F076	Workstation, Small, Clinical		3	2	2			
1A.3 Ambulatory Care Centre	3.26.02	Medical Day Care, Treatment Chairs	8	E012	Analyzer, Point-of-Care, Blood Glucose		1	1	1			
1A.3 Ambulatory Care Centre	3.26.02	Medical Day Care, Treatment Chairs	8	F013	Chair, Guest		3	8	8			
1A.3 Ambulatory Care Centre	3.26.02	Medical Day Care, Treatment Chairs	8	F021	Chair, Lounge, Patient, Infusions		3	8	8			
1A.3 Ambulatory Care Centre	3.26.02	Medical Day Care, Treatment Chairs	8	E256	Monitor, Vital Signs, Wall-Mounted		3	8	8			
1A.3 Ambulatory Care Centre	3.26.02	Medical Day Care, Treatment Chairs	8	E289	Pump, Infusion		1	8	8			
1A.3 Ambulatory Care Centre	3.26.02	Medical Day Care, Treatment Chairs	8	E364	Stand, IV		1	8	8			
1A.3 Ambulatory Care Centre	3.26.03	Medical Day Care, Stretcher Bays, Regular	6	E245	Monitor, Physiologic, Wall-Mounted		3	6	6			
1A.3 Ambulatory Care Centre	3.26.03	Medical Day Care, Stretcher Bays, Regular	6	E289	Pump, Infusion		1	6	6			
1A.3 Ambulatory Care Centre	3.26.03	Medical Day Care, Stretcher Bays, Regular	6	E364	Stand, IV		1	6	6			

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1A.3 Ambulatory Care Centre	3.26.03	Medical Day Care, Stretcher Bays, Regular	6	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	6	6			
1A.3 Ambulatory Care Centre	3.26.04	Medical Day Care, Stretcher Bays, Cubicles	7	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	7	7			
1A.3 Ambulatory Care Centre	3.26.04	Medical Day Care, Stretcher Bays, Cubicles	7	E245	Monitor, Physiologic, Wall-Mounted		3	7	7			
1A.3 Ambulatory Care Centre	3.26.04	Medical Day Care, Stretcher Bays, Cubicles	7	E289	Pump, Infusion		1	7	7			
1A.3 Ambulatory Care Centre	3.26.04	Medical Day Care, Stretcher Bays, Cubicles	7	E364	Stand, IV		1	7	7			
1A.3 Ambulatory Care Centre	3.26.04	Medical Day Care, Stretcher Bays, Cubicles	7	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	5	5			
1A.3 Ambulatory Care Centre	3.26.04	Medical Day Care, Stretcher Bays, Cubicles	7	E393	Stretcher, Mobile, Hospital, Bariatric		3	2	2			
1A.3 Ambulatory Care Centre	3.26.05	Medical Day Care, Isolation Room	1	E245	Monitor, Physiologic, Wall-Mounted		3	1	1			
1A.3 Ambulatory Care Centre	3.26.05	Medical Day Care, Isolation Room	1	E289	Pump, Infusion		1	1	1			
1A.3 Ambulatory Care Centre	3.26.05	Medical Day Care, Isolation Room	1	E364	Stand, IV		1	1	1			
1A.3 Ambulatory Care Centre	3.26.05	Medical Day Care, Isolation Room	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	1	1			
1A.3 Ambulatory Care Centre	3.26.07	Medical Day Care, Stretcher Bays for Transfer Patients	2	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	2	2			
1A.3 Ambulatory Care Centre	3.26.08	Medical Day Care, Alcove, Nourishment Station	1	E179	Ice Machine		4	1	1			
1A.3 Ambulatory Care Centre	3.26.08	Medical Day Care, Alcove, Nourishment Station	1	E316	Refrigerator, Domestic, Undercounter		4	1	1			
1A.3 Ambulatory Care Centre	3.26.13	Medical Day Care, Alcove Clean Supplies	1	E070	Cart, Storage, Wire	A-Cart type	2	1	1			
1A.3 Ambulatory Care Centre	3.26.14	Medical Day Care, Alcove Soiled Utility	1	E168C	Hamper, Linen		2	1	1			
1A.3 Ambulatory Care Centre	3.26.15	Medical Day Care, Medications Preparation Room	1	E016	Automation System, Medication Dispensing, Decentralized, Auxiliary		3	1	1			
1A.3 Ambulatory Care Centre	3.26.15	Medical Day Care, Medications Preparation Room	1	E017	Automation System, Medication Dispensing, Decentralized	Pyxis	3	1	1			
1A.3 Ambulatory Care Centre	3.26.15	Medical Day Care, Medications Preparation Room	1	E019	Automation System, Medication Dispensing, Decentralized	Pyxis	3	1	1			
1A.3 Ambulatory Care Centre	3.26.15	Medical Day Care, Medications Preparation Room	1	E070	Cart, Storage, Wire	A-Cart type	2	1	1			
1A.3 Ambulatory Care Centre	3.26.15	Medical Day Care, Medications Preparation Room	1	E083	Cassette, Ward Stock		2	1	1			
1A.3 Ambulatory Care Centre	3.26.15	Medical Day Care, Medications Preparation Room	1	E324C	Refrigerator, Pharmacy, Undercounter		2	1	1			
1A.3 Ambulatory Care Centre	3.26.15	Medical Day Care, Medications Preparation Room	1	E378	Storage, Cabinet, Medication, Lockable		4	1	1			
1A.3 Ambulatory Care Centre	3.26.15	Medical Day Care, Medications Preparation Room	1	E379	Storage, Cabinet, Narcotics, Lockable		4	1	1			
1A.3 Ambulatory Care Centre	3.26.15	Medical Day Care, Medications Preparation Room	1	F476	Whiteboard, Magnetic		2	1	1			
1A.3 Ambulatory Care Centre	3.26.18	Medical Day Care, Alcove, Pacemaker Interrogation	1	EYYY	Programmer, Pacemaker		1	1	1			
1A.3 Ambulatory Care Centre	3.27.01	Generic Clinic Module, Exam/Testing Room	1	F013	Chair, Guest		3	1	1			
1A.3 Ambulatory Care Centre	3.27.01	Generic Clinic Module, Exam/Testing Room	1	E098	Chair, Procedures, Ophtalmology		5	1		1		1

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1A.3 Ambulatory Care Centre	3.27.01	Generic Clinic Module, Exam/Testing Room	1	E206	Lamp, Slit, Ophthalmic		1	1	1			
1A.3 Ambulatory Care Centre	3.27.01	Generic Clinic Module, Exam/Testing Room	1	E216	Light, Examination, Mobile		3	1	1			
1A.3 Ambulatory Care Centre	3.27.01	Generic Clinic Module, Exam/Testing Room	1	E277	Phacoemulsification Unit, Cataract Extraction	Centurion	3	1		1	1	
1A.3 Ambulatory Care Centre	3.27.01	Generic Clinic Module, Exam/Testing Room	1	E301	Radiofrequency Therapy System, Tissue Ablation	Ellman	2	1	1			
1A.3 Ambulatory Care Centre	3.27.01	Generic Clinic Module, Exam/Testing Room	1	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	1	1			
1A.3 Ambulatory Care Centre	3.27.01	Generic Clinic Module, Exam/Testing Room	1	E371	Stool, Exam		1	1	1			
1A.3 Ambulatory Care Centre	3.27.01	Generic Clinic Module, Exam/Testing Room	1	E372	Stool, Step		1	1	1			
1A.3 Ambulatory Care Centre	3.27.01	Generic Clinic Module, Exam/Testing Room	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	1	1			
1A.3 Ambulatory Care Centre	3.27.01	Generic Clinic Module, Exam/Testing Room	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	1	1			
1A.3 Ambulatory Care Centre	3.27.01	Generic Clinic Module, Exam/Testing Room	1	E427	Thermometer, Electronic, Wall-Mounted		1	1	1			
1A.3 Ambulatory Care Centre	3.27.02	Ophthalmology Services, Stretcher Cubicle	2	E492	Workstation, Wall-Mounted		2	2	2			
1A.3 Ambulatory Care Centre	3.27.03	Ophthalmology Services, Procedure Room	1	E014	Anesthesia Machine		1	1	1			
1A.3 Ambulatory Care Centre	3.27.03	Ophthalmology Services, Procedure Room	1	E066C	Cart, Supplies/Procedure	Anesthesia	2	1	1			
1A.3 Ambulatory Care Centre	3.27.03	Ophthalmology Services, Procedure Room	1	E221	Light, Surgical, Ceiling-Mounted		3	1	1			
1A.3 Ambulatory Care Centre	3.27.03	Ophthalmology Services, Procedure Room	1	E491C	Microscope, Surgical, Ophtalmology, Ceiling-Mounted		3	1	1			
1A.3 Ambulatory Care Centre	3.27.03	Ophthalmology Services, Procedure Room	1	E245	Monitor, Physiologic, Wall-Mounted		3	1	1			
1A.3 Ambulatory Care Centre	3.27.03	Ophthalmology Services, Procedure Room	1	E252	Monitor, Video, High-Definition, Medical Image, Ceiling-Mounted		3	1	1			
1A.3 Ambulatory Care Centre	3.27.03	Ophthalmology Services, Procedure Room	1	E373	Stool, Surgeon		2	2	2			
1A.3 Ambulatory Care Centre	3.27.03	Ophthalmology Services, Procedure Room	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	1	1			
1A.3 Ambulatory Care Centre	3.27.05	Ophthalmology Services, Storage Room, Intraocular Lens (IOL)	1	E070	Cart, Storage, Wire	A-Cart type	2	1	1			
1A.4.1 Facilities Management Office	4.1.01	Office, Private	1	F013	Chair, Guest		3	2	2			
1A.4.1 Facilities Management Office	4.1.01	Office, Private	1	F033	Chair, Task		3	1	1			
1A.4.1 Facilities Management Office	4.1.01	Office, Private	1	F063	Table, Meeting, Round, Small	2-3 people	3	1	1			
1A.4.1 Facilities Management Office	4.1.01	Office, Private	1	F474	Whiteboard		2	1	1			
1A.4.1 Facilities Management Office	4.1.01	Office, Private	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.4.1 Facilities Management Office	4.1.02	Operations Workroom	1	F033	Chair, Task		3	4	4			
1A.4.1 Facilities Management Office	4.1.02	Operations Workroom	1	E342C	Shelving, Wire	A-Cart type	2	2	2			
1A.4.1 Facilities Management Office	4.1.02	Operations Workroom	1	F049	Storage, Cabinet, Filing, 4H		3	2	2			

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1A.4.1 Facilities Management Office	4.1.02	Operations Workroom	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	4	4			
1A.4.1 Facilities Management Office	4.1.03	General Maintenance Shop	1	E076	Cart, Tools		2	4	4			
1A.4.1 Facilities Management Office	4.1.03	General Maintenance Shop	1	F035	Chair, Task/Stool, High		3	4	4			
1A.4.1 Facilities Management Office	4.1.03	General Maintenance Shop	1	E203	Ladder, 10'		1	1	1			
1A.4.1 Facilities Management Office	4.1.03	General Maintenance Shop	1	E204	Ladder, 7'		1	6	6			
1A.4.1 Facilities Management Office	4.1.03	General Maintenance Shop	1	E205	Ladder, 8'		1	1	1			
1A.4.1 Facilities Management Office	4.1.03	General Maintenance Shop	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Tracks only. With electrical supply	4	1	1			
1A.4.1 Facilities Management Office	4.1.03	General Maintenance Shop	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.4.1 Facilities Management Office	4.1.03	General Maintenance Shop	1	E377	Storage, Cabinet, Flammable		2	1	1			
1A.4.1 Facilities Management Office	4.1.03	General Maintenance Shop	1	F474	Whiteboard		2	3	3			
1A.4.1 Facilities Management Office	4.1.04	Woodworking Shop	1	E331	Saw, Table		5	1		1		1
1A.4.1 Facilities Management Office	4.1.04	Woodworking Shop	1	E496C	ShopTools, Dust Collector	Craftex CX408 complete with all accessories (hose, arm etc). Hose capable to connect from the walls abd above to the equipment	2	1	1			
1A.4.1 Facilities Management Office	4.1.04	Woodworking Shop	1	A003	Allowance, Shop Tools		1	1	1			
1A.4.1 Facilities Management Office	4.1.05	Parts/Supplies Storage	1	E342C	Shelving, Wire	A-Cart type	2	4	4			
1A.4.1 Facilities Management Office	4.1.05	Parts/Supplies Storage	1	E377	Storage, Cabinet, Flammable		2	1	1			
1A.4.1 Facilities Management Office	4.1.06	Vehicle Garage	1	E520	Light, Magnifier		1	1	1			
1A.4.1 Facilities Management Office	4.1.06	Vehicle Garage	1	E342C	Shelving, Wire	A-Cart type	2	2	2			
1A.4.2 Housekeeping and Laundry Services	4.2.01	Reception/Registration	1	F033	Chair, Task		3	3	3			
1A.4.2 Housekeeping and Laundry Services	4.2.01	Reception/Registration	1	E374	Storage, Cabinet		2	2	2			
1A.4.2 Housekeeping and Laundry Services	4.2.01	Reception/Registration	1	F070	Table, Rectangular, Small		3	1	1			
1A.4.2 Housekeeping and Laundry Services	4.2.01	Reception/Registration	1	F474	Whiteboard		2	2	2			
1A.4.2 Housekeeping and Laundry Services	4.2.01	Reception/Registration	1	F075	Workstation, Small		3	2	2			
1A.4.2 Housekeeping and Laundry Services	4.2.01	Reception/Registration	1	F081	Workstation, w/pedestal, Height-Adjustable		3	1	1			
1A.4.2 Housekeeping and Laundry Services	4.2.02	Storage, Supply/Equipment	1	E020	Autoscrubber		2	1	1			
1A.4.2 Housekeeping and Laundry Services	4.2.02	Storage, Supply/Equipment	1	E020	Autoscrubber		2	1		1	1	
1A.4.2 Housekeeping and Laundry Services	4.2.02	Storage, Supply/Equipment	1	E020	Autoscrubber		5	1		1		1
1A.4.2 Housekeeping and Laundry Services	4.2.02	Storage, Supply/Equipment	1	E043	Buffer, Floor		2	3		3	1	
1A.4.2 Housekeeping and Laundry Services	4.2.02	Storage, Supply/Equipment	1	E043	Buffer, Floor		5	1		1		1

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1A.4.2 Housekeeping and Laundry Services	4.2.02	Storage, Supply/Equipment	1	E070	Cart, Storage, Wire		2	10	10			
1A.4.2 Housekeeping and Laundry Services	4.2.02	Storage, Supply/Equipment	1	E151	Floor Scrubber, Ride-on		2	2	2			
1A.4.2 Housekeeping and Laundry Services	4.2.02	Storage, Supply/Equipment	1	E347	Sign, Warning, Pop-up, Wall-Mounted	To be distributed in corridors, quantity to be confirmed at late	1	20	20			
1A.4.2 Housekeeping and Laundry Services	4.2.02	Storage, Supply/Equipment	1	E375C	Storage, Cabinet, Chemicals		2	1	1			
1A.4.2 Housekeeping and Laundry Services	4.2.02	Storage, Supply/Equipment	1	E434	Truck, Utility, Refuse		1	4	4			
1A.4.2 Housekeeping and Laundry Services	4.2.02	Storage, Supply/Equipment	1	E438	Vacuum, Upright		1	4		4	4	
1A.4.2 Housekeeping and Laundry Services	4.2.02	Storage, Supply/Equipment	1	E439	Vacuum, Wet		1	3	2	1	1	
1A.4.2 Housekeeping and Laundry Services	4.2.02	Storage, Supply/Equipment	1	E460	Washer, Pressure		5	1		1		1
1A.4.2 Housekeeping and Laundry Services	4.2.03	Chemical Mixing Station	1	E116	Dispenser System, Chemical, Wall-Mounted		3	1	1			
1A.4.2 Housekeeping and Laundry Services	4.2.04	Workstation, Supervisor, Housekeeping & Laundry Svs	1	F033	Chair, Task		3	1	1			
1A.4.2 Housekeeping and Laundry Services	4.2.04	Workstation, Supervisor, Housekeeping & Laundry Svs	1	F474	Whiteboard		2	1	1			
1A.4.2 Housekeeping and Laundry Services	4.2.04	Workstation, Supervisor, Housekeeping & Laundry Svs	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.4.2 Housekeeping and Laundry Services	4.2.05	Office, Coordinator, Housekeeping & Laundry Svs	1	F013	Chair, Guest		3	2	2			
1A.4.2 Housekeeping and Laundry Services	4.2.05	Office, Coordinator, Housekeeping & Laundry Svs	1	F033	Chair, Task		3	1	1			
1A.4.2 Housekeeping and Laundry Services	4.2.05	Office, Coordinator, Housekeeping & Laundry Svs	1	F474	Whiteboard		2	1	1			
1A.4.2 Housekeeping and Laundry Services	4.2.05	Office, Coordinator, Housekeeping & Laundry Svs	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.4.2 Housekeeping and Laundry Services	4.2.08	Housekeeping Zone Rooms (distributed)	2	E043	Buffer, Floor		2	2		2	2	
1A.4.2 Housekeeping and Laundry Services	4.2.08	Housekeeping Zone Rooms (distributed)	2	E057	Cart, Housekeeping	Microfiber System	2	2	2			
1A.4.2 Housekeeping and Laundry Services	4.2.08	Housekeeping Zone Rooms (distributed)	2	E282	PPE, Wall-mounted Gloves Boxes		2	2	2			
1A.4.2 Housekeeping and Laundry Services	4.2.08	Housekeeping Zone Rooms (distributed)	2	E116	Dispenser System, Chemical, Wall-Mounted		3	2	2			
1A.4.2 Housekeeping and Laundry Services	4.2.08	Housekeeping Zone Rooms (distributed)	2	E151	Floor Scrubber, Ride-on		2	2	2			
1A.4.2 Housekeeping and Laundry Services	4.2.08	Housekeeping Zone Rooms (distributed)	2	E202	Ladder		1	2	2			
1A.4.2 Housekeeping and Laundry Services	4.2.08	Housekeeping Zone Rooms (distributed)	2	E344	Shelving, HSKP		2	2	2			
1A.4.2 Housekeeping and Laundry Services	4.2.08	Housekeeping Zone Rooms (distributed)	2	E438	Vacuum, Upright		1	2	2	0	0	
1A.4.2 Housekeeping and Laundry Services	4.2.08	Housekeeping Zone Rooms (distributed)	2	F474	Whiteboard		2	2	2			
1A.4.3 Materiel Management	4.3.01	Receiving Dock	1	E047	Cart	For staging	2	6	6			
1A.4.3 Materiel Management	4.3.01	Receiving Dock	1	E054	Cart, Gas Cylinder, 2-wheels		2	15	15			
1A.4.3 Materiel Management	4.3.01	Receiving Dock	1	E055	Cart, Gas Cylinder, 4-wheels		2	4	4			

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1A.4.3 Materiel Management	4.3.01	Receiving Dock	1	E070A-C	Cart, Storage, Wire, Locakble	Lockable	2	3	3			
1A.4.3 Materiel Management	4.3.01	Receiving Dock	1	E118	Dolly		2	6	6			
1A.4.3 Materiel Management	4.3.01	Receiving Dock	1	A005	Allowance, Mat, Anti-Fatigue		1	3	3			
1A.4.3 Materiel Management	4.3.01	Receiving Dock	1	E273	Palette Jack, Manual		2	4	4			
1A.4.3 Materiel Management	4.3.01	Receiving Dock	1	E333	Scale, Industrial		2	1	1			
1A.4.3 Materiel Management	4.3.01	Receiving Dock	1	E363	Stacker, Powered		2	1	1			
1A.4.3 Materiel Management	4.3.01	Receiving Dock	1	E374	Storage, Cabinet		2	1	1			
1A.4.3 Materiel Management	4.3.01	Receiving Dock	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.4.3 Materiel Management	4.3.01	Receiving Dock	1	E377	Storage, Cabinet, Flammable	1.5' x 4' x 8'	2	1	1			
1A.4.3 Materiel Management	4.3.01	Receiving Dock	1	F071	Workstation		3	4	4			
1A.4.3 Materiel Management	4.3.02	Waste Management Bay	1	E458C	Washer, Cart and Wheelchair	HubScrub 20/80 UV V7.3 to be used as basis of design	3	1	1			
1A.4.3 Materiel Management	4.3.03	Biohazard Waste	1	E314FC	Freezer, Built-in	Size: 8 X 8	2	1	1			
1A.4.3 Materiel Management	4.3.03	Biohazard Waste	1	E314RC	Refrigerator, Built-in	Size: 8 X 8	2	1	1			
1A.4.3 Materiel Management	4.3.04	Post-Receiving/Breakout	1	E053	Cart, Flatbed		2	2	2			
1A.4.3 Materiel Management	4.3.04	Post-Receiving/Breakout	1	E066C	Cart, Supplies/Procedure		2	15	15			
1A.4.3 Materiel Management	4.3.04	Post-Receiving/Breakout	1	F033	Chair, Task		3	1	1			
1A.4.3 Materiel Management	4.3.04	Post-Receiving/Breakout	1	E157	Freezer, Laboratory, Undercounter		2	1	1			
1A.4.3 Materiel Management	4.3.04	Post-Receiving/Breakout	1	E202	Ladder	Rolling	1	2	2			
1A.4.3 Materiel Management	4.3.04	Post-Receiving/Breakout	1	E274	Pallet Wrapping Equipment		2	1	1			
1A.4.3 Materiel Management	4.3.04	Post-Receiving/Breakout	1	E327	Refrigerator/Freezer, Domestic, Upright		4	1	1			
1A.4.3 Materiel Management	4.3.04	Post-Receiving/Breakout	1	E342C	Shelving, Wire	A-Cart type	2	4	4			
1A.4.3 Materiel Management	4.3.04	Post-Receiving/Breakout	1	E342C	Shelving, Wire	A-Cart type	2	4	4			
1A.4.3 Materiel Management	4.3.04	Post-Receiving/Breakout	1	F069	Table, Rectangular, Large	(for mail sorting)	3	1	1			
1A.4.3 Materiel Management	4.3.04	Post-Receiving/Breakout	1	E434	Truck, Utility, Refuse		1	3	3			
1A.4.3 Materiel Management	4.3.04	Post-Receiving/Breakout	1	F081	Workstation, w/pedestal, Height-Adjustable		3	1	1			
1A.4.3 Materiel Management	4.3.08	Bulk Stores Room	1	F033	Chair, Task		3	1	1			
1A.4.3 Materiel Management	4.3.08	Bulk Stores Room	1	E342C	Shelving, Wire		2	50	50			
1A.4.3 Materiel Management	4.3.08	Bulk Stores Room	1	E494C	Storage, Vertical Carousel		3	2	2			

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1A.4.3 Materiel Management	4.3.08	Bulk Stores Room	1	F075	Workstation, Small		3	1	1			
1A.4.3 Materiel Management	4.3.09	Inactive Material/Equipment Storage Room	1	E342C	Shelving, Wire	A-Cart type	2	40	40			
1A.4.3 Materiel Management	4.3.10	Staff Worktable	1	F033	Chair, Task		3	1	1			
1A.4.3 Materiel Management	4.3.10	Staff Worktable	1	F078	Workstation, Small, w/pedestal		3	1	1			
1A.4.3 Materiel Management	4.3.11	Porter Sign-in Station	1	F033	Chair, Task		3	1	1			
1A.4.3 Materiel Management	4.3.11	Porter Sign-in Station	1	F474	Whiteboard		2	1	1			
1A.4.3 Materiel Management	4.3.11	Porter Sign-in Station	1	F081	Workstation, w/pedestal, Height-Adjustable		3	1	1			
1A.4.3 Materiel Management	4.3.12	Office, Buyer/Supervisor	1	F013	Chair, Guest		3	1	1			
1A.4.3 Materiel Management	4.3.12	Office, Buyer/Supervisor	1	F033	Chair, Task		3	1	1			
1A.4.3 Materiel Management	4.3.12	Office, Buyer/Supervisor	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.4.3 Materiel Management	4.3.12	Office, Buyer/Supervisor	1	F474	Whiteboard		2	1	1			
1A.4.3 Materiel Management	4.3.12	Office, Buyer/Supervisor	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.5 Biomedical Engineering	5.01	Alcove, Equipment Receiving	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.5 Biomedical Engineering	5.02	Equipment Receiving/Holding	1	E342C	Shelving, Wire	A-Cart type	2	2	2			
1A.5 Biomedical Engineering	5.03	Workshop Area	1	E075	Cart, Testing Equipment		2	1	1			
1A.5 Biomedical Engineering	5.03	Workshop Area	1	E075	Cart, Testing Equipment		5	2		2		2
1A.5 Biomedical Engineering	5.03	Workshop Area	1	F035	Chair, Task/Stool, High		3	3	3			
1A.5 Biomedical Engineering	5.03	Workshop Area	1	E121	Electrical Conductivity Meters		1	1		1	1	
1A.5 Biomedical Engineering	5.03	Workshop Area	1	E122	Electrical Multimeters		1	1		1	1	
1A.5 Biomedical Engineering	5.03	Workshop Area	1	E199	Incubator, Laboratory, Test Tube		1	1		1	1	
1A.5 Biomedical Engineering	5.03	Workshop Area	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Tracks only. With electrical supply	4	1	1			
1A.5 Biomedical Engineering	5.03	Workshop Area	1	E266	Oscilloscope		1	1		1	1	
1A.5 Biomedical Engineering	5.03	Workshop Area	1	E278	Phantom, Ultrasound		1	1		1	1	
1A.5 Biomedical Engineering	5.03	Workshop Area	1	E284	Pressure Meter, Digital		1	2		2	2	
1A.5 Biomedical Engineering	5.03	Workshop Area	1	E284	Pressure Meter, Digital		5	1		1		1
1A.5 Biomedical Engineering	5.03	Workshop Area	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.5 Biomedical Engineering	5.03	Workshop Area	1	E348	Simulator, Multiparameter		1	3		3	3	
1A.5 Biomedical Engineering	5.03	Workshop Area	1	E349	Simulator, Noninvasive Blood Pressure		1	1		1	1	

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1A.5 Biomedical Engineering	5.03	Workshop Area	1	E351	Simulator, Transducer Output, Pulse Oximetry		1	2		2	2	
1A.5 Biomedical Engineering	5.03	Workshop Area	1	E356C	Spectrometer		1	1		1	1	
1A.5 Biomedical Engineering	5.03	Workshop Area	1	E377	Storage, Cabinet, Flammable	For chemicals, adhesives, glues, silicones, and grease	2	1	1			
1A.5 Biomedical Engineering	5.03	Workshop Area	1	E417	Tester, Defibrillator		1	1		1	1	
1A.5 Biomedical Engineering	5.03	Workshop Area	1	E418	Tester, Electrical Safety		1	2		2	2	
1A.5 Biomedical Engineering	5.03	Workshop Area	1	E419	Tester, Electrosurgical Unit		1	1		1	1	
1A.5 Biomedical Engineering	5.03	Workshop Area	1	E421	Tester, Pneumatic		1	1		1	1	
1A.5 Biomedical Engineering	5.03	Workshop Area	1	E422	Tester, Radiographic System, Quality Assurance		1	1		1	1	
1A.5 Biomedical Engineering	5.03	Workshop Area	1	E423	Tester/Reconditioner, Battery		1	1		1	1	
1A.5 Biomedical Engineering	5.03	Workshop Area	1	E466	Weights, Balance, Precision		2	1		1	1	
1A.5 Biomedical Engineering	5.03	Workshop Area	1	F474	Whiteboard		2	3	3			
1A.5 Biomedical Engineering	5.04	Wet/Dirty Area	1	E174	Hood, Fume		3	1	1			
1A.5 Biomedical Engineering	5.05	Workstation, Documentation	3	F033	Chair, Task		3	3	3			
1A.5 Biomedical Engineering	5.05	Workstation, Documentation	3	F046	Storage, Bookcase		3	3	3			
1A.5 Biomedical Engineering	5.05	Workstation, Documentation	3	F077	Workstation, Small, w/hutch, w/pedestal		3	3	3			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.26	Lobby	1	E295	Rack, Boot		2	1	1			
1A.6 Cancer Care Clinic	6.01	Reception Desk	1	F013	Chair, Guest		3	1	1			
1A.6 Cancer Care Clinic	6.01	Reception Desk	1	F033	Chair, Task		3	1	1			
1A.6 Cancer Care Clinic	6.01	Reception Desk	1	F085	Shelving, Laminate Bookcase		3	1	1			
1A.6 Cancer Care Clinic	6.01	Reception Desk	1	F048	Storage, Cabinet, Filing, 2H		3	1	1			
1A.6 Cancer Care Clinic	6.01	Reception Desk	1	F081	Workstation, w/pedestal, Height-Adjustable		3	1	1			
1A.6 Cancer Care Clinic	6.02	Waiting Room	1	F036	Chair, Waiting		3	10	10			
1A.6 Cancer Care Clinic	6.02	Waiting Room	1	F037	Chair, Waiting, Bariatric		3	2	2			
1A.6 Cancer Care Clinic	6.02	Waiting Room	1	E297	Rack, Display		2	1	1			
1A.6 Cancer Care Clinic	6.02	Waiting Room	1	E299	Rack, Pamphlet		2	1	1			
1A.6 Cancer Care Clinic	6.02	Waiting Room	1	E342C	Shelving, Wire		2	1	1			
1A.6 Cancer Care Clinic	6.02	Waiting Room	1	F046	Storage, Bookcase		3	1	1			
1A.6 Cancer Care Clinic	6.02	Waiting Room	1	F083	Storage, Coat		3	1	1			

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1A.6 Cancer Care Clinic	6.02	Waiting Room	1	F059	Table, End		3	3	3			
1A.6 Cancer Care Clinic	6.04	Team Care Station	1	E012	Analyzer, Point-of-Care, Blood Glucose		1	1	1			
1A.6 Cancer Care Clinic	6.04	Team Care Station	1	F034	Chair, Task, Clinical		3	2	2			
1A.6 Cancer Care Clinic	6.04	Team Care Station	1	E342C	Shelving, Wire	Open Shelves (paper, forms) A-Cart Type	2	2	2			
1A.6 Cancer Care Clinic	6.04	Team Care Station	1	F075	Workstation, Small		3	2	2			
1A.6 Cancer Care Clinic	6.05	Chemo Stations, Chairs	6	E088	Chair, Chemotherapy		2	6	6			
1A.6 Cancer Care Clinic	6.05	Chemo Stations, Chairs	6	F013	Chair, Guest		3	12	12			
1A.6 Cancer Care Clinic	6.05	Chemo Stations, Chairs	6	E256	Monitor, Vital Signs, Wall-Mounted		3	6	2	4	4	
1A.6 Cancer Care Clinic	6.05	Chemo Stations, Chairs	6	E289	Pump, Infusion		1	12	2	10	10	
1A.6 Cancer Care Clinic	6.05	Chemo Stations, Chairs	6	E364	Stand, IV		1	6	6			
1A.6 Cancer Care Clinic	6.06	Chemo Station, Stretcher	1	F013	Chair, Guest		3	2	2			
1A.6 Cancer Care Clinic	6.06	Chemo Station, Stretcher	1	E256	Monitor, Vital Signs, Wall-Mounted		3	1	1			
1A.6 Cancer Care Clinic	6.06	Chemo Station, Stretcher	1	E289	Pump, Infusion		1	2	2			
1A.6 Cancer Care Clinic	6.06	Chemo Station, Stretcher	1	E358	Sphygmomanometer, Aneroid, Mobile	Shared with all Chemo Chairs/Stretchers	1	1	1			
1A.6 Cancer Care Clinic	6.06	Chemo Station, Stretcher	1	E364	Stand, IV		1	1	1			
1A.6 Cancer Care Clinic	6.06	Chemo Station, Stretcher	1	E371	Stool, Exam	Shared with all Chemo Chairs/Stretchers	1	3	3			
1A.6 Cancer Care Clinic	6.06	Chemo Station, Stretcher	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	1	1			
1A.6 Cancer Care Clinic	6.06	Chemo Station, Stretcher	1	F477	Whiteboard, Magnetic, Small		2	1	1			
1A.6 Cancer Care Clinic	6.07	Exam/Consult Room	2	F013	Chair, Guest		3	4	4			
1A.6 Cancer Care Clinic	6.07	Exam/Consult Room	2	F034	Chair, Task, Clinical		3	2	2			
1A.6 Cancer Care Clinic	6.07	Exam/Consult Room	2	E216	Light, Examination, Mobile		3	2	2			
1A.6 Cancer Care Clinic	6.07	Exam/Consult Room	2	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	2	2	1	1	
1A.6 Cancer Care Clinic	6.07	Exam/Consult Room	2	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	2	2			
1A.6 Cancer Care Clinic	6.07	Exam/Consult Room	2	E371	Stool, Exam		1	2	2			
1A.6 Cancer Care Clinic	6.07	Exam/Consult Room	2	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	1	1			
1A.6 Cancer Care Clinic	6.07	Exam/Consult Room	2	E404	Table, Examination/Treatment, Height-Adjustable	With OB/GYN configuration (stirrups)	3	1	1			
1A.6 Cancer Care Clinic	6.07	Exam/Consult Room	2	E427	Thermometer, Electronic, Wall-Mounted		1	2	2			
1A.6 Cancer Care Clinic	6.07	Exam/Consult Room	2	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	2	2			

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1A.6 Cancer Care Clinic	6.08	Procedure Room/Isolation Room, Negative Pressure	1	E215	Light, Examination, Ceiling-Mounted		3	1	1			
1A.6 Cancer Care Clinic	6.08	Procedure Room/Isolation Room, Negative Pressure	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	1	1			
1A.6 Cancer Care Clinic	6.08	Procedure Room/Isolation Room, Negative Pressure	1	E254	Monitor, Vital Signs, Mobile	Mobile. Model 68NXTX-B from Welch Allyn	3	1		1	1	
1A.6 Cancer Care Clinic	6.08	Procedure Room/Isolation Room, Negative Pressure	1	E371	Stool, Exam		1	1	1			
1A.6 Cancer Care Clinic	6.08	Procedure Room/Isolation Room, Negative Pressure	1	E393	Stretcher, Mobile, Hospital, Bariatric		3	1	1			
1A.6 Cancer Care Clinic	6.09	Anteroom	1	E061	Cart, Isolation, PPE		2	1	1			
1A.6 Cancer Care Clinic	6.11	Education/Telehealth/Family Consult Room	1	F013	Chair, Guest		3	12	12			
1A.6 Cancer Care Clinic	6.11	Education/Telehealth/Family Consult Room	1	F033	Chair, Task		3	2	2			
1A.6 Cancer Care Clinic	6.11	Education/Telehealth/Family Consult Room	1	F061	Table, Meeting, Round, Large		3	1	1			
1A.6 Cancer Care Clinic	6.11	Education/Telehealth/Family Consult Room	1	F075	Workstation, Small		3	1	1			
1A.6 Cancer Care Clinic	6.13	Medications Preparation Room (no ADC)	1	E070	Cart, Storage, Wire	A-Cart type	2	1	1			
1A.6 Cancer Care Clinic	6.13	Medications Preparation Room (no ADC)	1	E083	Cassette, Ward Stock		2	1	1			
1A.6 Cancer Care Clinic	6.13	Medications Preparation Room (no ADC)	1	E157	Freezer, Laboratory, Undercounter		2	1	1			
1A.6 Cancer Care Clinic	6.13	Medications Preparation Room (no ADC)	1	E502	Refrigerator, Pharmacy, Undercounter, Pyxis		3	1	1			
1A.6 Cancer Care Clinic	6.13	Medications Preparation Room (no ADC)	1	E018	Automation System, Medication Dispensing, Decentralized	2drawer countertop	3	1	1			
1A.6 Cancer Care Clinic	6.13	Medications Preparation Room (no ADC)	1	F476	Whiteboard, Magnetic		2	1	1			
1A.6 Cancer Care Clinic	6.16	Clean Supplies Room	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.6 Cancer Care Clinic	6.16	Clean Supplies Room	1	E450	Warming Unit, Blankets		5	1		1		1
1A.6 Cancer Care Clinic	6.17	Nourishment Station	1	E102	Coffee Machine		4	1	1			
1A.6 Cancer Care Clinic	6.17	Nourishment Station	1	E179	Ice Machine		4	1	1			
1A.6 Cancer Care Clinic	6.17	Nourishment Station	1	E513C	Refirgerator Freezer, Domestic, Undercounter	with Freezer compartment	4	1	1			
1A.6 Cancer Care Clinic	6.18	Soiled Utility Room	1	E168C	Hamper, Linen		2	2	2			
1A.6 Cancer Care Clinic	6.18	Soiled Utility Room	1	E434	Truck, Utility, Refuse		1	1	1			
1A.6 Cancer Care Clinic	6.19	Alcove, Crash Cart	1	E015	Aspirator, Airways		1	1	1			
1A.6 Cancer Care Clinic	6.19	Alcove, Crash Cart	1	E051	Cart, Crash	General	2	1	1			
1A.6 Cancer Care Clinic	6.19	Alcove, Crash Cart	1	E111C	Defibrillator, External, Manual	Lifepak 20e	1	1	1			
1A.6 Cancer Care Clinic	6.20	Storage Room, Equipment	1	E066C	Cart, Supplies/Procedure		2	3	3			
1A.6 Cancer Care Clinic	6.20	Storage Room, Equipment	1	E245	Monitor, Physiologic, Wall-Mounted		3	2	2			

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1A.6 Cancer Care Clinic	6.20	Storage Room, Equipment	1	E254	Monitor, Vital Signs, Mobile	Mobile. Model 68NXTX-B from Welch Allyn	3	1		1	1	
1A.6 Cancer Care Clinic	6.20	Storage Room, Equipment	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.6 Cancer Care Clinic	6.20	Storage Room, Equipment	1	E454	Warming Unit, Patient, Forced-Air	Bair Hugger	1	1	1			
1A.6 Cancer Care Clinic	6.24	Office/Workstation, Oncology Pharmacist	1	F013	Chair, Guest		3	1	1			
1A.6 Cancer Care Clinic	6.24	Office/Workstation, Oncology Pharmacist	1	F034	Chair, Task, Clinical		3	1	1			
1A.6 Cancer Care Clinic	6.24	Office/Workstation, Oncology Pharmacist	1	F474	Whiteboard		2	1	1			
1A.6 Cancer Care Clinic	6.24	Office/Workstation, Oncology Pharmacist	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.6 Cancer Care Clinic	6.25	Office/Consult Room, GPO	2	F013	Chair, Guest		3	2	2			
1A.6 Cancer Care Clinic	6.25	Office/Consult Room, GPO	2	F034	Chair, Task, Clinical		3	2	2			
1A.6 Cancer Care Clinic	6.25	Office/Consult Room, GPO	2	F063	Table, Meeting, Round, Small		3	2	2			
1A.6 Cancer Care Clinic	6.25	Office/Consult Room, GPO	2	F474	Whiteboard		2	2	2			
1A.6 Cancer Care Clinic	6.25	Office/Consult Room, GPO	2	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	2	2			
1A.6 Cancer Care Clinic	6.26	Office/Consult Room, RN	1	F013	Chair, Guest		3	2	2			
1A.6 Cancer Care Clinic	6.26	Office/Consult Room, RN	1	F034	Chair, Task, Clinical		3	1	1			
1A.6 Cancer Care Clinic	6.26	Office/Consult Room, RN	1	F063	Table, Meeting, Round, Small		3	1	1			
1A.6 Cancer Care Clinic	6.26	Office/Consult Room, RN	1	F474	Whiteboard		2	1	1			
1A.6 Cancer Care Clinic	6.26	Office/Consult Room, RN	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.7.1 Education & Meeting Facilities	7.1.01	Boardroom	1	F023	Chair, Meeting, Boardroom	High-end finish	3	40	40			
1A.7.1 Education & Meeting Facilities	7.1.01	Boardroom	1	F476	Whiteboard, Magnetic		2	1	1			
1A.7.1 Education & Meeting Facilities	7.1.01	Boardroom	1	F033	Chair, Task		3	40	40			
1A.7.1 Education & Meeting Facilities	7.1.01	Boardroom	1	F053	Table, Boardroom	High-end finish	3	1	1			
1A.7.1 Education & Meeting Facilities	7.1.01	Boardroom	1	F067	Table, Rectangular, Foldable, Mobile	30x60, foldable on casters	3	1	1			
1A.7.1 Education & Meeting Facilities	7.1.02	Kitchenette	1	E238	Microwave		4	1	1			
1A.7.1 Education & Meeting Facilities	7.1.02	Kitchenette	1	E327	Refrigerator/Freezer, Domestic, Upright		4	1	1			
1A.7.1 Education & Meeting Facilities	7.1.03	Storage	1	F085	Shelving, Laminate Bookcase		3	1	1			
1A.7.1 Education & Meeting Facilities	7.1.05	Meeting Room	1	F022	Chair, Meeting		3	12	12			
1A.7.1 Education & Meeting Facilities	7.1.05	Meeting Room	1	F067	Table, Rectangular, Foldable, Mobile	30x60, foldable on casters	3	4	4			
1A.7.1 Education & Meeting Facilities	7.1.05	Meeting Room	1	F476	Whiteboard, Magnetic		2	1	1			

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1A.7.1 Education & Meeting Facilities	7.1.06	Training/Learning Resource Room	1	F033	Chair, Task		3	16	16			
1A.7.1 Education & Meeting Facilities	7.1.06	Training/Learning Resource Room	1	F046	Storage, Bookcase		3	1	1			
1A.7.1 Education & Meeting Facilities	7.1.06	Training/Learning Resource Room	1	F081	Workstation, w/pedestal, Height-Adjustable		3	16	16			
1A.7.1 Education & Meeting Facilities	7.1.07	Office, Shared, CNE	1	F013	Chair, Guest		3	2	2			
1A.7.1 Education & Meeting Facilities	7.1.07	Office, Shared, CNE	1	F033	Chair, Task		3	2	2			
1A.7.1 Education & Meeting Facilities	7.1.07	Office, Shared, CNE	1	F474	Whiteboard	4'x8'	2	1	1			
1A.7.1 Education & Meeting Facilities	7.1.07	Office, Shared, CNE	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	2	2			
1A.7.1 Education & Meeting Facilities	7.1.08	Workstation, Technical Assistant	1	F033	Chair, Task		3	1	1			
1A.7.1 Education & Meeting Facilities	7.1.08	Workstation, Technical Assistant	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.01	Patient Room, Standard	1	E027	Bed, Electric, Patient		3	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.01	Patient Room, Standard	1	E215	Light, Examination, Ceiling-Mounted	General	3	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.01	Patient Room, Standard	1	F030	Chair, Side, Stackable	On casters, stackable w/arm rest	3	6	6			
1A.7.2 Northern Clinical Simulation Centre	7.2.01	Patient Room, Standard	1	F067	Table, Rectangular, Foldable, Mobile	30x60, foldable on casters	3	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.01	Patient Room, Standard	1	E555	Headwall System, Horizontal	Horizontal	4	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.01	Patient Room, Standard	1	E051	Cart, Crash	General	2	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.01	Patient Room, Standard	1	E066C	Cart, Supplies/Procedure	Medication	2	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.01	Patient Room, Standard	1	E111C	Defibrillator, External, Manual	Lifepak 20e	1	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.01	Patient Room, Standard	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.01	Patient Room, Standard	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.01	Patient Room, Standard	1	E289	Pump, Infusion		1	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.01	Patient Room, Standard	1	E350	Simulator, Patient	Pediatric Patient	5	1		1		1
1A.7.2 Northern Clinical Simulation Centre	7.2.01	Patient Room, Standard	1	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.01	Patient Room, Standard	1	E364	Stand, IV		1	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.01	Patient Room, Standard	1	E372	Stool, Step		1	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.01	Patient Room, Standard	1	F052	Table, Bedside		3	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.01	Patient Room, Standard	1	F066	Table, Overbed		3	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.01	Patient Room, Standard	1	E427	Thermometer, Electronic, Wall-Mounted		1	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.01	Patient Room, Standard	1	F474	Whiteboard	4'x8'	2	1	1			

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1A.7.2 Northern Clinical Simulation Centre	7.2.02	Trauma/OR Simulation Room	1	E051	Cart, Crash	General	2	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.02	Trauma/OR Simulation Room	1	E215	Light, Examination, Ceiling-Mounted	General	3	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.02	Trauma/OR Simulation Room	1	F030	Chair, Side, Stackable	On casters, stackable w/arm rest	3	6	6			
1A.7.2 Northern Clinical Simulation Centre	7.2.02	Trauma/OR Simulation Room	1	F067	Table, Rectangular, Foldable, Mobile	30x60, foldable on casters	3	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.02	Trauma/OR Simulation Room	1	E111C	Defibrillator, External, Manual	Lifepak 20e	1	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.02	Trauma/OR Simulation Room	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.02	Trauma/OR Simulation Room	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.02	Trauma/OR Simulation Room	1	E289	Pump, Infusion		1	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.02	Trauma/OR Simulation Room	1	E350	Simulator, Patient	Obstetrical Patient	5	1		1		1
1A.7.2 Northern Clinical Simulation Centre	7.2.02	Trauma/OR Simulation Room	1	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.02	Trauma/OR Simulation Room	1	E364	Stand, IV		1	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.02	Trauma/OR Simulation Room	1	E372	Stool, Step		1	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.02	Trauma/OR Simulation Room	1	E374	Storage, Cabinet	lockable	2	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.02	Trauma/OR Simulation Room	1	E180	Image Processor, Video, Laryngoscopic Intubation		3	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.02	Trauma/OR Simulation Room	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.02	Trauma/OR Simulation Room	1	F052	Table, Bedside		3	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.02	Trauma/OR Simulation Room	1	E407	Table, Mayo		2	2	2			
1A.7.2 Northern Clinical Simulation Centre	7.2.02	Trauma/OR Simulation Room	1	F066	Table, Overbed		3	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.02	Trauma/OR Simulation Room	1	E427	Thermometer, Electronic, Wall-Mounted		1	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.02	Trauma/OR Simulation Room	1	F474	Whiteboard	4'x8'	2	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.03	Control Room	2	F033	Chair, Task		3	6	6			
1A.7.2 Northern Clinical Simulation Centre	7.2.04	Debriefing Room	1	F030	Chair, Side, Stackable	On casters, stackable w/arm rest	3	16	16			
1A.7.2 Northern Clinical Simulation Centre	7.2.04	Debriefing Room	1	F067	Table, Rectangular, Foldable, Mobile	30x60, foldable on casters	3	6	6			
1A.7.2 Northern Clinical Simulation Centre	7.2.04	Debriefing Room	1	F474	Whiteboard	4x8	2	2	2			
1A.7.2 Northern Clinical Simulation Centre	7.2.06	Storage Room	1	E066C	Cart, Supplies/Procedure		2	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.06	Storage Room	1	F030	Chair, Side, Stackable	On casters, stackable w/arm rest	3	10	10			
1A.7.2 Northern Clinical Simulation Centre	7.2.06	Storage Room	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Single track for lifting mannequin on/off the shelf	4	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.06	Storage Room	1	E342C	Shelving, Wire	A-Cart type	2	1	1			

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1A.7.2 Northern Clinical Simulation Centre	7.2.06	Storage Room	1	E350	Simulator, Patient		5	1		1		1
1A.7.2 Northern Clinical Simulation Centre	7.2.06	Storage Room	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	2	2			
1A.7.2 Northern Clinical Simulation Centre	7.2.06	Storage Room	1	E406	Table, Instruments, Stainless Steel		2	2	2			
1A.7.2 Northern Clinical Simulation Centre	7.2.09	Workstation	1	F034	Chair, Task, Clinical		3	1	1			
1A.7.2 Northern Clinical Simulation Centre	7.2.09	Workstation	1	F071	Workstation		3	1	1			
1A.7.3 Northern Medical Program	7.3.01	Videoconference/Seminar Room, Medium, 12 seats	1	F030	Chair, Side, Stackable	On casters, stackable w/arm rest	3	16	16			
1A.7.3 Northern Medical Program	7.3.01	Videoconference/Seminar Room, Medium, 12 seats	1	F085	Shelving, Laminate Bookcase		3	1	1			
1A.7.3 Northern Medical Program	7.3.01	Videoconference/Seminar Room, Medium, 12 seats	1	F067	Table, Rectangular, Foldable, Mobile	30x60, foldable on casters	3	6	6			
1A.7.3 Northern Medical Program	7.3.01	Videoconference/Seminar Room, Medium, 12 seats	1	F086	Table, Meeting, Rectangular		3	1	1			
1A.7.3 Northern Medical Program	7.3.01	Videoconference/Seminar Room, Medium, 12 seats	1	F474	Whiteboard	4'x8'	2	2	2			
1A.7.3 Northern Medical Program	7.3.02	On-Call Rooms: UBC undergraduate medical learners and post-graduate re	4	F004	Bed, Twin		3	4	4			
1A.7.3 Northern Medical Program	7.3.02	On-Call Rooms: UBC undergraduate medical learners and post-graduate re	4	F028	Chair, Recliner		3	1	1			
1A.7.3 Northern Medical Program	7.3.02	On-Call Rooms: UBC undergraduate medical learners and post-graduate re	4	F010	Chair, Desk		3	4	4			
1A.7.3 Northern Medical Program	7.3.02	On-Call Rooms: UBC undergraduate medical learners and post-graduate re	4	F041	Desk, Small		3	4	4			
1A.7.3 Northern Medical Program	7.3.03	Locker Area	1	F006	Chair, Bench, Locker		3	2	2			
1A.7.3 Northern Medical Program	7.3.03	Locker Area	1	E295	Rack, Boot		2	2	2			
1A.7.3 Northern Medical Program	7.3.03	Locker Area	1	E296	Rack, Coat		2	2	2			
1A.7.3 Northern Medical Program	7.3.06	Lounge, Resident	1	F030	Chair, Side, Stackable	On casters, stackable w/arm rest	3	4	4			
1A.7.3 Northern Medical Program	7.3.06	Lounge, Resident	1	F016	Chair, Lounge, 1 Seat		3	6	6			
1A.7.3 Northern Medical Program	7.3.06	Lounge, Resident	1	F033	Chair, Task		3	1	1			
1A.7.3 Northern Medical Program	7.3.06	Lounge, Resident	1	E102	Coffee Machine		4	1	1			
1A.7.3 Northern Medical Program	7.3.06	Lounge, Resident	1	E238	Microwave		4	1	1			
1A.7.3 Northern Medical Program	7.3.06	Lounge, Resident	1	E316	Refrigerator, Domestic, Undercounter		4	1	1			
1A.7.3 Northern Medical Program	7.3.06	Lounge, Resident	1	F067	Table, Rectangular, Foldable, Mobile	30x60, foldable on casters	3	1	1			
1A.7.3 Northern Medical Program	7.3.06	Lounge, Resident	1	F055	Table, Coffee		3	1	1			
1A.7.3 Northern Medical Program	7.3.06	Lounge, Resident	1	F474	Whiteboard	4'x8'	2	1	1			
1A.7.3 Northern Medical Program	7.3.06	Lounge, Resident	1	F075	Workstation, Small		3	1	1			
1A.7.3 Northern Medical Program	7.3.07	Collection	1	F046	Storage, Bookcase		3	1	1			

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1A.7.3 Northern Medical Program	7.3.08	Study Stations/VC	1	F033	Chair, Task		3	6	6			
1A.7.3 Northern Medical Program	7.3.08	Study Stations/VC	1	F474	Whiteboard	4'x8'	2	1	1			
1A.7.3 Northern Medical Program	7.3.08	Study Stations/VC	1	F046	Storage, Bookcase		3	6	6			
1A.7.3 Northern Medical Program	7.3.08	Study Stations/VC	1	F075	Workstation, Small	height adjustable	3	6	6			
1A.7.3 Northern Medical Program	7.3.09	Office, Private	3	F013	Chair, Guest		3	6	6			
1A.7.3 Northern Medical Program	7.3.09	Office, Private	3	F033	Chair, Task		3	3	3			
1A.7.3 Northern Medical Program	7.3.09	Office, Private	3	F049	Storage, Cabinet, Filing, 4H		3	3	3			
1A.7.3 Northern Medical Program	7.3.09	Office, Private	3	F474	Whiteboard	4'x8'	2	3	3			
1A.7.3 Northern Medical Program	7.3.09	Office, Private	3	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	3	3			
1A.7.3 Northern Medical Program	7.3.10	Workstation: Administrative Support/Reception	1	F033	Chair, Task		3	1	1			
1A.7.3 Northern Medical Program	7.3.10	Workstation: Administrative Support/Reception	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.7.3 Northern Medical Program	7.3.11	Waiting area	1	F013	Chair, Guest		3	2	2			
1A.7.3 Northern Medical Program	7.3.12	Kitchenette	1	E102	Coffee Machine		4	1	1			
1A.7.3 Northern Medical Program	7.3.12	Kitchenette	1	E238	Microwave		4	1	1			
1A.7.3 Northern Medical Program	7.3.12	Kitchenette	1	E316	Refrigerator, Domestic, Undercounter		4	1	1			
1A.7.3 Northern Medical Program	7.3.14	Storage Room, Central AV Equipment	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.8 Emergency Services	8.01	Ambulance Garage	1	E507	Headwall System, Concealed		4	4	4			
1A.8 Emergency Services	8.01	Ambulance Garage	1	E168C	Hamper, Linen		2	4	4			
1A.8 Emergency Services	8.01	Ambulance Garage	1	E282	PPE, Wall-mounted Gloves Boxes		2	2	2			
1A.8 Emergency Services	8.03	AE Stretcher/Wheelchair Alcove	1	E539	Wheelchair, Adult, Staxi	Staxi model plus the docking stand	2	4	4			
1A.8 Emergency Services	8.05	Decontamination Room	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.8 Emergency Services	8.06	EMS/Police Workroom	1	F013	Chair, Guest		3	1	1			
1A.8 Emergency Services	8.06	EMS/Police Workroom	1	F033	Chair, Task		3	1	1			
1A.8 Emergency Services	8.06	EMS/Police Workroom	1	F075	Workstation, Small		3	1	1			
1A.8 Emergency Services	8.09	Alcove, ES Entrance Stretcher/Wheelchair	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	1	1			
1A.8 Emergency Services	8.09	Alcove, ES Entrance Stretcher/Wheelchair	1	E468	Wheelchair, Adult		2	3	3			
1A.8 Emergency Services	8.10	Greeter/Security Services Desk	1	F033	Chair, Task		3	1	1			
1A.8 Emergency Services	8.10	Greeter/Security Services Desk	1	F071	Workstation		3	1	1			

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1A.8 Emergency Services	8.11	Triage	1	E012	Analyzer, Point-of-Care, Blood Glucose		1	1	1			
1A.8 Emergency Services	8.11	Triage	1	F013	Chair, Guest		3	2	2			
1A.8 Emergency Services	8.11	Triage	1	F034	Chair, Task, Clinical		3	1	1			
1A.8 Emergency Services	8.11	Triage	1	E254	Monitor, Vital Signs, Mobile	Mobile. Model 68NXTX-B from Welch Allyn	3	2	1			
1A.8 Emergency Services	8.11	Triage	1	E334	Scale, Patient, Infant, Mobile		1	1		1	1	
1A.8 Emergency Services	8.11	Triage	1	E339	Scale, Patient, Wheelchair		3	1	1			
1A.8 Emergency Services	8.11	Triage	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	1	1			
1A.8 Emergency Services	8.11	Triage	1	E514	Analyzer, Urine	Roche Urysis 1100	1	1	1			
1A.8 Emergency Services	8.11	Triage	1	E468	Wheelchair, Adult		2	1	1			
1A.8 Emergency Services	8.11	Triage	1	F071	Workstation	Workstation with 2 pedestals	3	1	1			
1A.8 Emergency Services	8.11.01a	Triage, Interview Cubicle	1	E256	Monitor, Vital Signs, Wall-Mounted		3	1	1			
1A.8 Emergency Services	8.11.01b	Triage, Interview Cubicle	1	E256	Monitor, Vital Signs, Wall-Mounted		3	1	1			
1A.8 Emergency Services	8.12	Triage Waiting	1	F036	Chair, Waiting		3	4	4			
1A.8 Emergency Services	8.13	Registration	1	F013	Chair, Guest		3	1	1			
1A.8 Emergency Services	8.13	Registration	1	F033	Chair, Task		3	1	1			
1A.8 Emergency Services	8.13	Registration	1	E468	Wheelchair, Adult		2	1	1			
1A.8 Emergency Services	8.13	Registration	1	F071	Workstation		3	1	1			
1A.8 Emergency Services	8.14	General Waiting	1	F036	Chair, Waiting		3	16	16			
1A.8 Emergency Services	8.14	General Waiting	1	F037	Chair, Waiting, Bariatric		3	4	4			
1A.8 Emergency Services	8.16	Team Care Station	1	E012	Analyzer, Point-of-Care, Blood Glucose		1	1	1			
1A.8 Emergency Services	8.16	Team Care Station	1	F034	Chair, Task, Clinical		3	4	4			
1A.8 Emergency Services	8.16a	Team Care Station	1	E246	Monitor, Physiologic, Central Station	With 2 Monitors, each displaying 8 Patient Monitors	3	1		1	1	0
1A.8 Emergency Services	8.16b	Team Care Station	1	E246	Monitor, Physiologic, Central Station	With 2 Monitors, each displaying 8 Patient Monitors	3	1	1	0		0
1A.8 Emergency Services	8.16	Team Care Station	1	F081	Workstation, w/pedestal, Height-Adjustable		3	4	4			
1A.8 Emergency Services	8.17	Medications Preparation Room	1	E016	Automation System, Medication Dispensing, Decentralized	Pyxis	3	1	1			
1A.8 Emergency Services	8.17	Medications Preparation Room	1	E017	Automation System, Medication Dispensing, Decentralized	Pyxis	3	1	1			
1A.8 Emergency Services	8.17	Medications Preparation Room	1	E019	Automation System, Medication Dispensing, Decentralized	Pyxis	3	2	2			
1A.8 Emergency Services	8.17	Medications Preparation Room	1	E070	Cart, Storage, Wire	A-Cart type	2	1	1			

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1A.8 Emergency Services	8.17	Medications Preparation Room	1	E083	Cassette, Ward Stock		2	1	1			
1A.8 Emergency Services	8.17	Medications Preparation Room	1	E153C	Freezer -20, Laboratory, Upright	Lockable	2	1	1			
1A.8 Emergency Services	8.17	Medications Preparation Room	1	E325C	Refrigerator, Pharmacy, Upright	Pyxis Full Fridge Std Type	2	1	1			
1A.8 Emergency Services	8.17	Medications Preparation Room	1	F476	Whiteboard, Magnetic		2	1	1			
1A.8 Emergency Services	8.18	Report/Conference Room	1	F022	Chair, Meeting		3	8	8			
1A.8 Emergency Services	8.18	Report/Conference Room	1	F067	Table, Rectangular, Foldable, Mobile		3	2	2			
1A.8 Emergency Services	8.19	Trauma/Resus Room	1	E358	Sphygmomanometer, Aneroid, Mobile		1	1	1			
1A.8 Emergency Services	8.19	Trauma/Resus Room	1	E015	Aspirator, Airways		1	3	3			
1A.8 Emergency Services	8.19	Trauma/Resus Room	1	E544	Pump, I.V., Rapid Infuser		1	1	1			
1A.8 Emergency Services	8.19	Trauma/Resus Room	1	E017	Automation System, Medication Dispensing, Decentralized	Pyxis	3	1	1			
1A.8 Emergency Services	8.19	Trauma/Resus Room	1	E051	Cart, Crash	General	2	2	3			
1A.8 Emergency Services	8.19	Trauma/Resus Room	1	E503C	Cart, Medication	Avalo Model	3	1	1			
1A.8 Emergency Services	8.19	Trauma/Resus Room	1	E066C	Cart, Supplies/Procedure		2	2	2			
1A.8 Emergency Services	8.19	Trauma/Resus Room	1	E341	Container, Sharps		2	1	1			
1A.8 Emergency Services	8.19	Trauma/Resus Room	1	F034	Chair, Task, Clinical		3	2	2			
1A.8 Emergency Services	8.19	Trauma/Resus Room	1	E111C	Defibrillator, External, Manual	Lifepak 20e	1	2	3			
1A.8 Emergency Services	8.19	Trauma/Resus Room	1	E149	Facility Boom, Ceiling-Mounted		3	4	4			
1A.8 Emergency Services	8.19	Trauma/Resus Room	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	2	2			
1A.8 Emergency Services	8.19	Trauma/Resus Room	1	E215	Light, Examination, Ceiling-Mounted		3	2	1			
1A.8 Emergency Services	8.19	Trauma/Resus Room	1	E245	Monitor, Physiologic, Wall-Mounted		3	2	2			
1A.8 Emergency Services	8.19	Trauma/Resus Room	1	E061	Cart, Isolation, PPE		2	1	1			
1A.8 Emergency Services	8.19	Trauma/Resus Room	1	E502	Refrigerator, Pharmacy, Undercounter, Pyxis	Pyxis Undercounter 5 cubic ft	3	1	1			
1A.8 Emergency Services	8.19	Trauma/Resus Room	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	1	1			
1A.8 Emergency Services	8.19	Trauma/Resus Room	1	E393	Stretcher, Mobile, Hospital, Bariatric		3	1	1			
1A.8 Emergency Services	8.19	Trauma/Resus Room	1	E554	Cabinet, Supply, Mobile	Double wide	1	4	4			
1A.8 Emergency Services	8.19	Trauma/Resus Room	1	E082	Cart, WOW		2	2	2			
1A.8 Emergency Services	8.20	Lower Acuity Care Zone	1	E515	Chair, Treatment		3	2	2			
1A.8 Emergency Services	8.20	Lower Acuity Care Zone	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	2	2			

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1A.8 Emergency Services	8.20	Lower Acuity Care Zone	1	E245	Monitor, Physiologic, Wall-Mounted		3	2	2			
1A.8 Emergency Services	8.20	Lower Acuity Care Zone	1	E254	Monitor, Vital Signs, Mobile	Mobile. Model 68NXTX-B from Welch Allyn	3	2	2			
1A.8 Emergency Services	8.20	Lower Acuity Care Zone	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	2	2			
1A.8 Emergency Services	8.21	Stretcher Bay	6	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	6	6			
1A.8 Emergency Services	8.21	Stretcher Bay	6	E264	Ophthalmoscope/Otoscope, Wall-Mounted	Complete Set incl Sphygmo	1	6	6			
1A.8 Emergency Services	8.21	Stretcher Bay	6	F013	Chair, Guest		3	6	6			
1A.8 Emergency Services	8.21	Stretcher Bay	6	F066	Table, Overbed		3	6	6			
1A.8 Emergency Services	8.21	Stretcher Bay	6	E216	Light, Examination, Mobile		3	6	6			
1A.8 Emergency Services	8.21	Stretcher Bay	6	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	6	6			
1A.8 Emergency Services	8.21	Stretcher Bay	6	E250	Monitor, Telemetry		3	6	6			
1A.8 Emergency Services	8.21	Stretcher Bay	6	E289	Pump, Infusion		1	20		20	20	
1A.8 Emergency Services	8.21	Stretcher Bay	6	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	3		3	3	
1A.8 Emergency Services	8.21	Stretcher Bay	6	E393	Stretcher, Mobile, Hospital, Bariatric		3	3	3			
1A.8 Emergency Services	8.22	Gynae/Sexual Assault Room	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	1	1			
1A.8 Emergency Services	8.22	Gynae/Sexual Assault Room	1	F013	Chair, Guest		3	1	1			
1A.8 Emergency Services	8.22	Gynae/Sexual Assault Room	1	F034	Chair, Task, Clinical		3	1	1			
1A.8 Emergency Services	8.22	Gynae/Sexual Assault Room	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
1A.8 Emergency Services	8.22	Gynae/Sexual Assault Room	1	E250	Monitor, Telemetry		3	1	1			
1A.8 Emergency Services	8.22	Gynae/Sexual Assault Room	1	E371	Stool, Exam		1	1	1			
1A.8 Emergency Services	8.22	Gynae/Sexual Assault Room	1	E394	Stretcher, OB/GYN		3	1	1			
1A.8 Emergency Services	8.23	Isolation Exam/Treatment Room	1	E506	Bed Dock Locator		4	1	1			
1A.8 Emergency Services	8.23	Isolation Exam/Treatment Room	1	F013	Chair, Guest		3	1	1			
1A.8 Emergency Services	8.23	Isolation Exam/Treatment Room	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	1	1			
1A.8 Emergency Services	8.23	Isolation Exam/Treatment Room	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
1A.8 Emergency Services	8.23	Isolation Exam/Treatment Room	1	E218	Light, Examination, Wall-Mounted		3	1	1			
1A.8 Emergency Services	8.23	Isolation Exam/Treatment Room	1	E250	Monitor, Telemetry		3	2	2			
1A.8 Emergency Services	8.23	Isolation Exam/Treatment Room	1	E061	Cart, Isolation, PPE		2	1	1			
1A.8 Emergency Services	8.23	Isolation Exam/Treatment Room	1	E168C	Hamper, Linen		2	1	1			

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1A.8 Emergency Services	8.23	Isolation Exam/Treatment Room	1	E371	Stool, Exam		1	1	1			
1A.8 Emergency Services	8.23	Isolation Exam/Treatment Room	1	E404	Table, Examination/Treatment, Height-Adjustable		3	1	1			
1A.8 Emergency Services	8.23	Isolation Exam/Treatment Room	1	F076	Workstation, Small, Clinical		3	1	1			
1A.8 Emergency Services	8.24	Exam/Treatment Room	1	E506	Bed Dock Locator		4	1	1			
1A.8 Emergency Services	8.24	Exam/Treatment Room	1	F013	Chair, Guest		3	1	1			
1A.8 Emergency Services	8.24	Exam/Treatment Room	1	F034	Chair, Task, Clinical		3	1	1			
1A.8 Emergency Services	8.24	Exam/Treatment Room	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	1	1			
1A.8 Emergency Services	8.24	Exam/Treatment Room	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
1A.8 Emergency Services	8.24	Exam/Treatment Room	1	E216	Light, Examination, Mobile		3	1	1			
1A.8 Emergency Services	8.24	Exam/Treatment Room	1	E245	Monitor, Physiologic, Wall-Mounted		3	1	1			
1A.8 Emergency Services	8.24	Exam/Treatment Room	1	E371	Stool, Exam		1	1	1			
1A.8 Emergency Services	8.24	Exam/Treatment Room	1	E404	Table, Examination/Treatment, Height-Adjustable		3	1	1			
1A.8 Emergency Services	8.24	Exam/Treatment Room	1	F076	Workstation, Small, Clinical		3	1	1			
1A.8 Emergency Services	8.25	Exam/Treatment Room	1	E506	Bed Dock Locator		4	1	1			
1A.8 Emergency Services	8.25	Exam/Treatment Room	1	F013	Chair, Guest		3	1	1			
1A.8 Emergency Services	8.25	Exam/Treatment Room	1	F034	Chair, Task, Clinical		3	1	1			
1A.8 Emergency Services	8.25	Exam/Treatment Room	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	1	1			
1A.8 Emergency Services	8.25	Exam/Treatment Room	1	E206	Lamp, Slit, Ophthalmic		1	1	1			
1A.8 Emergency Services	8.25	Exam/Treatment Room	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
1A.8 Emergency Services	8.25	Exam/Treatment Room	1	E216	Light, Examination, Mobile		3	1	1			
1A.8 Emergency Services	8.25	Exam/Treatment Room	1	E245	Monitor, Physiologic, Wall-Mounted		3	1	1			
1A.8 Emergency Services	8.25	Exam/Treatment Room	1	E250	Monitor, Telemetry		3	1	1			
1A.8 Emergency Services	8.25	Exam/Treatment Room	1	E371	Stool, Exam		1	1	1			
1A.8 Emergency Services	8.25	Exam/Treatment Room	1	E404	Table, Examination/Treatment, Height-Adjustable		3	1	1			
1A.8 Emergency Services	8.25	Exam/Treatment Room	1	F076	Workstation, Small, Clinical		3	1	1			
1A.8 Emergency Services	8.26	Major Procedures/EENT Room	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	1	1			
1A.8 Emergency Services	8.26	Major Procedures/EENT Room	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	1	1			
1A.8 Emergency Services	8.26	Major Procedures/EENT Room	1	E125C	Electrosurgical Unit, Monopolar/Bipolar	Model: Olympus ESG300 - complete with all components and cart	5	1		1		1

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1A.8 Emergency Services	8.26	Major Procedures/EENT Room	1	E206	Lamp, Slit, Ophthalmic		1	1	1			
1A.8 Emergency Services	8.26	Major Procedures/EENT Room	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
1A.8 Emergency Services	8.26	Major Procedures/EENT Room	1	E215	Light, Examination, Ceiling-Mounted		3	1	1			
1A.8 Emergency Services	8.26	Major Procedures/EENT Room	1	E245	Monitor, Physiologic, Wall-Mounted		3	1	1			
1A.8 Emergency Services	8.26	Major Procedures/EENT Room	1	E371	Stool, Exam		1	2	2			
1A.8 Emergency Services	8.26	Major Procedures/EENT Room	1	F071	Workstation		3	1	1			
1A.8 Emergency Services	8.27	Cast/Exam Room	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
1A.8 Emergency Services	8.27	Cast/Exam Room	1	E216	Light, Examination, Mobile		3	1		1	1	
1A.8 Emergency Services	8.27	Cast/Exam Room	1	E245	Monitor, Physiologic, Wall-Mounted		3	1		1	1	
1A.8 Emergency Services	8.27	Cast/Exam Room	1	E329	Saw, Cast, With Integral Dust Collector		1	1		1	1	
1A.8 Emergency Services	8.27	Cast/Exam Room	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.8 Emergency Services	8.27	Cast/Exam Room	1	E371	Stool, Exam		1	1	1			
1A.8 Emergency Services	8.27	Cast/Exam Room	1	E543	Table, Casting		3	1	1			
1A.8 Emergency Services	8.27	Cast/Exam Room	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	1	1			
1A.8 Emergency Services	8.27	Cast/Exam Room	1	F479	Workstation, Radiologist, Height-Adjustable		4	1	1			
1A.8 Emergency Services	8.28	Secure Room	2	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	2		2	2	
1A.8 Emergency Services	8.29	Vestibule/Alcove, Secure Rooms	1	F034	Chair, Task, Clinical		3	1	1			
1A.8 Emergency Services	8.29	Vestibule/Alcove, Secure Rooms	1	F071	Workstation		3	1	1			
1A.8 Emergency Services	8.30	Family/Consult Room	1	F013	Chair, Guest		3	6	6			
1A.8 Emergency Services	8.30	Family/Consult Room	1	F034	Chair, Task, Clinical		3	1	1			
1A.8 Emergency Services	8.30	Family/Consult Room	1	F061	Table, Meeting, Round, Large		3	1	1			
1A.8 Emergency Services	8.30	Family/Consult Room	1	F075	Workstation, Small		3	1	1			
1A.8 Emergency Services	8.33	Physician Workroom	1	F033	Chair, Task		3	1	1			
1A.8 Emergency Services	8.33	Physician Workroom	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.8 Emergency Services	8.33	Physician Workroom	1	E492	Workstation, Wall-Mounted	Standing Height WS	2	1	1			
1A.8 Emergency Services	8.34	Office, Nurse Manager	1	F013	Chair, Guest		3	2	2			
1A.8 Emergency Services	8.34	Office, Nurse Manager	1	F033	Chair, Task		3	1	1			
1A.8 Emergency Services	8.34	Office, Nurse Manager	1	F474	Whiteboard		2	1	1			

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1A.8 Emergency Services	8.34	Office, Nurse Manager	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.8 Emergency Services	8.35	Office, ES Physician/Medical Director	1	F013	Chair, Guest		3	2	2			
1A.8 Emergency Services	8.35	Office, ES Physician/Medical Director	1	F033	Chair, Task		3	1	1			
1A.8 Emergency Services	8.35	Office, ES Physician/Medical Director	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.8 Emergency Services	8.35	Office, ES Physician/Medical Director	1	F474	Whiteboard		2	1	1			
1A.8 Emergency Services	8.35	Office, ES Physician/Medical Director	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.8 Emergency Services	8.36	Office, Trauma Office/Multi-Use	1	F013	Chair, Guest		3	2	2			
1A.8 Emergency Services	8.36	Office, Trauma Office/Multi-Use	1	F033	Chair, Task		3	1	1			
1A.8 Emergency Services	8.36	Office, Trauma Office/Multi-Use	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.8 Emergency Services	8.36	Office, Trauma Office/Multi-Use	1	F474	Whiteboard		2	1	1			
1A.8 Emergency Services	8.36	Office, Trauma Office/Multi-Use	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.8 Emergency Services	8.37	Office, Clinical Practice Leader (shared with ICU)	1	F013	Chair, Guest		3	2	2			
1A.8 Emergency Services	8.37	Office, Clinical Practice Leader (shared with ICU)	1	F033	Chair, Task		3	1	1			
1A.8 Emergency Services	8.37	Office, Clinical Practice Leader (shared with ICU)	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.8 Emergency Services	8.37	Office, Clinical Practice Leader (shared with ICU)	1	F474	Whiteboard		2	1	1			
1A.8 Emergency Services	8.37	Office, Clinical Practice Leader (shared with ICU)	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.8 Emergency Services	8.38	Office, Clinical Pharmacist	1	F013	Chair, Guest		3	2	2			
1A.8 Emergency Services	8.38	Office, Clinical Pharmacist	1	F033	Chair, Task		3	1	1			
1A.8 Emergency Services	8.38	Office, Clinical Pharmacist	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.8 Emergency Services	8.38	Office, Clinical Pharmacist	1	F474	Whiteboard		2	1	1			
1A.8 Emergency Services	8.38	Office, Clinical Pharmacist	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.8 Emergency Services	8.39	Office, Security Services	1	F033	Chair, Task		3	1	1			
1A.8 Emergency Services	8.39	Office, Security Services	1	E374	Storage, Cabinet		2	1	1			
1A.8 Emergency Services	8.39	Office, Security Services	1	F474	Whiteboard		2	1	1			
1A.8 Emergency Services	8.39	Office, Security Services	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.8 Emergency Services	8.40	Staff Lounge/Break Room	1	F011	Chair, Dining		3	4	4			
1A.8 Emergency Services	8.40	Staff Lounge/Break Room	1	F028	Chair, Recliner		3	5	5			
1A.8 Emergency Services	8.40	Staff Lounge/Break Room	1	E102	Coffee Machine		4	1	1			

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1A.8 Emergency Services	8.40	Staff Lounge/Break Room	1	E179	Ice Machine		4	1	1			
1A.8 Emergency Services	8.40	Staff Lounge/Break Room	1	E238	Microwave		4	1	1			
1A.8 Emergency Services	8.40	Staff Lounge/Break Room	1	E327	Refrigerator/Freezer, Domestic, Upright		4	1	1			
1A.8 Emergency Services	8.40	Staff Lounge/Break Room	1	F057	Table, Dining		3	1	1			
1A.8 Emergency Services	8.40	Staff Lounge/Break Room	1	F479	Workstation, Radiologist, Height-Adjustable		4	1	1			
1A.8 Emergency Services	8.42	Clean Supplies Room	1	E342C	Shelving, Wire	A-Cart type	2	3	3			
1A.8 Emergency Services	8.43	Soiled Utility Room	1	E168C	Hamper, Linen		2	1	1			
1A.8 Emergency Services	8.43	Soiled Utility Room	1	E517C	Disinfector, Bedpan	Meiko Topline 20	3	1	1			
1A.8 Emergency Services	8.43	Soiled Utility Room	1	E434	Truck, Utility, Refuse		1	2	2			
1A.8 Emergency Services	8.45	Storage Room, Equipment	1	E064C	Cart, Linen		2	1	1			
1A.8 Emergency Services	8.45	Storage Room, Equipment	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.8 Emergency Services	8.45	Storage Room, Equipment	1	E358	Sphygmomanometer, Aneroid, Mobile		1	1	1			
1A.8 Emergency Services	8.46	Housekeeping Closet, Distributed	1	E057	Cart, Housekeeping		2	1		1	1	
1A.8 Emergency Services	8.46	Housekeeping Closet, Distributed	1	E116	Dispenser System, Chemical, Wall-Mounted		3	1	1			
1A.8 Emergency Services	8.46	Housekeeping Closet, Distributed	1	E344	Shelving, HSKP		2	1	1			
1A.8 Emergency Services	8.47	Nourishment Station	1	E102	Coffee Machine		4	1	1			
1A.8 Emergency Services	8.47	Nourishment Station	1	E179	Ice Machine		4	1	1			
1A.8 Emergency Services	8.47	Nourishment Station	1	E316	Refrigerator, Domestic, Undercounter		4	1	1			
1A.8 Emergency Services	8.48	Alcove, Crash Cart	1	E015	Aspirator, Airways		1	1	1			
1A.8 Emergency Services	8.48	Alcove, Crash Cart	1	E051	Cart, Crash	General	2	1	1			
1A.8 Emergency Services	8.48	Alcove, Crash Cart	1	E111C	Defibrillator, External, Manual	Lifepak 20e	1	1		1	1	
1A.8 Emergency Services	8.49	Alcove, ECG Machine	1	E123C	Electrocardiograph (ECG)		1	1		1	1	
1A.8 Emergency Services	8.50	Alcove, Echo Machine	1	E191	Imaging, Scanning System, Ultrasonic, Bladder		1	1		1	1	
1A.8 Emergency Services	8.51	Alcove, Blanket Warmer	1	E450	Warming Unit, Blankets		5	1		1		1
1A.8 Emergency Services	8.52	On-Call Suite	1	F004	Bed, Twin		3	1	1			
1A.8 Emergency Services	8.52	On-Call Suite	1	F052	Table, Bedside		3	1	1			
1A.8 Emergency Services	8.53	After Hours Registration Phone Booth	1	F013	Chair, Guest		3	1	1			
A1.8.1 Intensive Care Unit	8.1.01	Team Care Station	1	E012	Analyzer, Point-of-Care, Blood Glucose		1	2	2			

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A1.8.1 Intensive Care Unit	8.1.01	Team Care Station	1	F034	Chair, Task, Clinical		3	5	5			
A1.8.1 Intensive Care Unit	8.1.01	Team Care Station	1	E246	Monitor, Physiologic, Central Station	with additional wall-mounted Slave Monitor with each CS.	3	2	1	1	1	0
A1.8.1 Intensive Care Unit	8.1.01	Team Care Station	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
A1.8.1 Intensive Care Unit	8.1.01	Team Care Station	1	F071	Workstation	with pedestals	3	6	6			
A1.8.1 Intensive Care Unit	8.1.02	Medications Preparation Room	1	E016	Automation System, Medication Dispensing, Decentralized	Pyxis	3	1	1			
A1.8.1 Intensive Care Unit	8.1.02	Medications Preparation Room	1	E017	Automation System, Medication Dispensing, Decentralized	Pyxis	3	1	1			
A1.8.1 Intensive Care Unit	8.1.02	Medications Preparation Room	1	E019	Automation System, Medication Dispensing, Decentralized	Pyxis	3	1	1			
A1.8.1 Intensive Care Unit	8.1.02	Medications Preparation Room	1	E070	Cart, Storage, Wire	A-Cart type	2	1	1			
A1.8.1 Intensive Care Unit	8.1.02	Medications Preparation Room	1	E083	Cassette, Ward Stock		2	1	1			
A1.8.1 Intensive Care Unit	8.1.02	Medications Preparation Room	1	E324C	Refrigerator, Pharmacy, Undercounter		2	1	1			
A1.8.1 Intensive Care Unit	8.1.02	Medications Preparation Room	1	F476	Whiteboard, Magnetic		2	1	1			
A1.8.1 Intensive Care Unit	8.1.03	Office, Physician	1	F013	Chair, Guest		3	2	2			
A1.8.1 Intensive Care Unit	8.1.03	Office, Physician	1	F033	Chair, Task		3	1	1			
A1.8.1 Intensive Care Unit	8.1.03	Office, Physician	1	F474	Whiteboard		2	1	1			
A1.8.1 Intensive Care Unit	8.1.03	Office, Physician	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
A1.8.1 Intensive Care Unit	8.1.04	Multipurpose Workroom	1	F033	Chair, Task		3	4	4			
A1.8.1 Intensive Care Unit	8.1.04	Multipurpose Workroom	1	F081	Workstation, w/pedestal, Height-Adjustable		3	4	4			
A1.8.1 Intensive Care Unit	8.1.05	Family Consult/Quiet Room	1	F016	Chair, Lounge, 1 Seat		3	2	2			
A1.8.1 Intensive Care Unit	8.1.05	Family Consult/Quiet Room	1	F033	Chair, Task		3	1	1			
A1.8.1 Intensive Care Unit	8.1.05	Family Consult/Quiet Room	1	F075	Workstation, Small		3	1	1			
A1.8.1 Intensive Care Unit	8.1.06	Family Waiting Room	1	F036	Chair, Waiting		3	6	6			
A1.8.1 Intensive Care Unit	8.1.06	Family Waiting Room	1	F037	Chair, Waiting, Bariatric		3	2	2			
A1.8.1 Intensive Care Unit	8.1.08	Patient Room, Standard	3	E506	Bed Dock Locator		4	3	3			
A1.8.1 Intensive Care Unit	8.1.08	Patient Room, Standard	3	E032	Bed, Intensive Care		5	3		3		3
A1.8.1 Intensive Care Unit	8.1.08	Patient Room, Standard	3	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	3	3			
A1.8.1 Intensive Care Unit	8.1.08	Patient Room, Standard	3	F013	Chair, Guest		3	3	3			
A1.8.1 Intensive Care Unit	8.1.08	Patient Room, Standard	3	E170	Headwall System, Vertical	Vertical. 1 on each side. Mirror Image	4	3	3			
A1.8.1 Intensive Care Unit	8.1.08	Patient Room, Standard	3	E177	Humidifier, Artificial Airway		1	3		3	3	

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A1.8.1 Intensive Care Unit	8.1.08	Patient Room, Standard	3	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	3	3			
A1.8.1 Intensive Care Unit	8.1.08	Patient Room, Standard	3	E215	Light, Examination, Ceiling-Mounted		3	3	3			
A1.8.1 Intensive Care Unit	8.1.08	Patient Room, Standard	3	E245	Monitor, Physiologic, Wall-Mounted		5	3		3		3
A1.8.1 Intensive Care Unit	8.1.08	Patient Room, Standard	3	E289	Pump, Infusion		1	12	8	4	4	
A1.8.1 Intensive Care Unit	8.1.08	Patient Room, Standard	3	E364	Stand, IV		1	3	3			
A1.8.1 Intensive Care Unit	8.1.08	Patient Room, Standard	3	F052	Table, Bedside		3	3	3			
A1.8.1 Intensive Care Unit	8.1.08	Patient Room, Standard	3	F066	Table, Overbed		3	3	3			
A1.8.1 Intensive Care Unit	8.1.08	Patient Room, Standard	3	E443	Ventilator, Intensive Care		1	2		2	2	
A1.8.1 Intensive Care Unit	8.1.08	Patient Room, Standard	3	E443	Ventilator, Intensive Care		5	1		1		1
A1.8.1 Intensive Care Unit	8.1.09	Patient Room, Barrier free	2	E506	Bed Dock Locator		4	2	2			
A1.8.1 Intensive Care Unit	8.1.09	Patient Room, Barrier free	2	E033	Bed, Intensive Care, Bariatric		3	2	2			
A1.8.1 Intensive Care Unit	8.1.09	Patient Room, Barrier free	2	F013	Chair, Guest		3	2	2			
A1.8.1 Intensive Care Unit	8.1.09	Patient Room, Barrier free	2	E170	Headwall System, Vertical	Vertical. 1 on each side. Mirror Image	4	2	2			
A1.8.1 Intensive Care Unit	8.1.09	Patient Room, Barrier free	2	E177	Humidifier, Artificial Airway		1	2		2	2	
A1.8.1 Intensive Care Unit	8.1.09	Patient Room, Barrier free	2	E211	Lift, Patient Transfer, Bariatric, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	2	2			
A1.8.1 Intensive Care Unit	8.1.09	Patient Room, Barrier free	2	E215	Light, Examination, Ceiling-Mounted		3	2	2			
A1.8.1 Intensive Care Unit	8.1.09	Patient Room, Barrier free	2	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	2	2			
A1.8.1 Intensive Care Unit	8.1.09	Patient Room, Barrier free	2	E245	Monitor, Physiologic, Wall-Mounted		5	2		2		2
A1.8.1 Intensive Care Unit	8.1.09	Patient Room, Barrier free	2	E289	Pump, Infusion		1	8	8			
A1.8.1 Intensive Care Unit	8.1.09	Patient Room, Barrier free	2	E364	Stand, IV		1	2	2			
A1.8.1 Intensive Care Unit	8.1.09	Patient Room, Barrier free	2	F052	Table, Bedside		3	2	2			
A1.8.1 Intensive Care Unit	8.1.09	Patient Room, Barrier free	2	F066	Table, Overbed		3	2	2			
A1.8.1 Intensive Care Unit	8.1.09	Patient Room, Barrier free	2	E443	Ventilator, Intensive Care		1	2	2			
A1.8.1 Intensive Care Unit	8.1.10	Patient Room, Isolation Room, Negative Pressure	1	E506	Bed Dock Locator		4	1	1			
A1.8.1 Intensive Care Unit	8.1.10	Patient Room, Isolation Room, Negative Pressure	1	E032	Bed, Intensive Care		5	1		1		1
A1.8.1 Intensive Care Unit	8.1.10	Patient Room, Isolation Room, Negative Pressure	1	F013	Chair, Guest		3	1	1			
A1.8.1 Intensive Care Unit	8.1.10	Patient Room, Isolation Room, Negative Pressure	1	E170	Headwall System, Vertical	Vertical. 1 on each side. Mirror Image	4	1	1			
A1.8.1 Intensive Care Unit	8.1.10	Patient Room, Isolation Room, Negative Pressure	1	E177	Humidifier, Artificial Airway		5	1		1		1

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A1.8.1 Intensive Care Unit	8.1.10	Patient Room, Isolation Room, Negative Pressure	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
A1.8.1 Intensive Care Unit	8.1.10	Patient Room, Isolation Room, Negative Pressure	1	E215	Light, Examination, Ceiling-Mounted		3	1	1			
A1.8.1 Intensive Care Unit	8.1.10	Patient Room, Isolation Room, Negative Pressure	1	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	1	1			
A1.8.1 Intensive Care Unit	8.1.10	Patient Room, Isolation Room, Negative Pressure	1	E245	Monitor, Physiologic, Wall-Mounted		3	1	1			
A1.8.1 Intensive Care Unit	8.1.10	Patient Room, Isolation Room, Negative Pressure	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1	1			
A1.8.1 Intensive Care Unit	8.1.10	Patient Room, Isolation Room, Negative Pressure	1	E282	PPE, Wall-mounted Gloves Boxes		2	1	1			
A1.8.1 Intensive Care Unit	8.1.10	Patient Room, Isolation Room, Negative Pressure	1	E289	Pump, Infusion		1	4	4			
A1.8.1 Intensive Care Unit	8.1.10	Patient Room, Isolation Room, Negative Pressure	1	E364	Stand, IV		1	1	1			
A1.8.1 Intensive Care Unit	8.1.10	Patient Room, Isolation Room, Negative Pressure	1	F052	Table, Bedside		3	1	1			
A1.8.1 Intensive Care Unit	8.1.10	Patient Room, Isolation Room, Negative Pressure	1	F066	Table, Overbed		3	1	1			
A1.8.1 Intensive Care Unit	8.1.10	Patient Room, Isolation Room, Negative Pressure	1	E425	Thermometer, Electronic, Infrared, Skin, Wall-Mounted		1	1		1	1	
A1.8.1 Intensive Care Unit	8.1.10	Patient Room, Isolation Room, Negative Pressure	1	E443	Ventilator, Intensive Care		1	1	1			
A1.8.1 Intensive Care Unit	8.1.11	Patient Room, Isolation Room, Barrier Free, Negative Pressure	1	E506	Bed Dock Locator		4	1	1			
A1.8.1 Intensive Care Unit	8.1.11	Patient Room, Isolation Room, Barrier Free, Negative Pressure	1	E033	Bed, Intensive Care, Bariatric		3	1	1			
A1.8.1 Intensive Care Unit	8.1.11	Patient Room, Isolation Room, Barrier Free, Negative Pressure	1	F013	Chair, Guest		3	1	1			
A1.8.1 Intensive Care Unit	8.1.11	Patient Room, Isolation Room, Barrier Free, Negative Pressure	1	E170	Headwall System, Vertical	Vertical. 1 on each side. Mirror Image	4	1	1			
A1.8.1 Intensive Care Unit	8.1.11	Patient Room, Isolation Room, Barrier Free, Negative Pressure	1	E177	Humidifier, Artificial Airway		5	1		1		1
A1.8.1 Intensive Care Unit	8.1.11	Patient Room, Isolation Room, Barrier Free, Negative Pressure	1	E211	Lift, Patient Transfer, Bariatric, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
A1.8.1 Intensive Care Unit	8.1.11	Patient Room, Isolation Room, Barrier Free, Negative Pressure	1	E215	Light, Examination, Ceiling-Mounted		3	1	1			
A1.8.1 Intensive Care Unit	8.1.11	Patient Room, Isolation Room, Barrier Free, Negative Pressure	1	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	1	1			
A1.8.1 Intensive Care Unit	8.1.11	Patient Room, Isolation Room, Barrier Free, Negative Pressure	1	E245	Monitor, Physiologic, Wall-Mounted		3	1	1			
A1.8.1 Intensive Care Unit	8.1.11	Patient Room, Isolation Room, Barrier Free, Negative Pressure	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1	1			
A1.8.1 Intensive Care Unit	8.1.11	Patient Room, Isolation Room, Barrier Free, Negative Pressure	1	E282	PPE, Wall-mounted Gloves Boxes		2	1	1			
A1.8.1 Intensive Care Unit	8.1.11	Patient Room, Isolation Room, Barrier Free, Negative Pressure	1	E289	Pump, Infusion		1	4	4			
A1.8.1 Intensive Care Unit	8.1.11	Patient Room, Isolation Room, Barrier Free, Negative Pressure	1	E364	Stand, IV		1	1	1			
A1.8.1 Intensive Care Unit	8.1.11	Patient Room, Isolation Room, Barrier Free, Negative Pressure	1	F052	Table, Bedside		3	1	1			
A1.8.1 Intensive Care Unit	8.1.11	Patient Room, Isolation Room, Barrier Free, Negative Pressure	1	F066	Table, Overbed		3	1	1			
A1.8.1 Intensive Care Unit	8.1.11	Patient Room, Isolation Room, Barrier Free, Negative Pressure	1	E425	Thermometer, Electronic, Infrared, Skin, Wall-Mounted		1	1	1			

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A1.8.1 Intensive Care Unit	8.1.11	Patient Room, Isolation Room, Barrier Free, Negative Pressure	1	E443	Ventilator, Intensive Care		1	1	1			
A1.8.1 Intensive Care Unit	8.1.12	Patient Room, Isolation Room, Positive Pressure	1	E506	Bed Dock Locator		4	1	1			
A1.8.1 Intensive Care Unit	8.1.12	Patient Room, Isolation Room, Positive Pressure	1	E032	Bed, Intensive Care		5	1		1		1
A1.8.1 Intensive Care Unit	8.1.12	Patient Room, Isolation Room, Positive Pressure	1	F013	Chair, Guest		3	1	1			
A1.8.1 Intensive Care Unit	8.1.12	Patient Room, Isolation Room, Positive Pressure	1	E170	Headwall System, Vertical	Vertical. 1 on each side. Mirror Image	4	1	1			
A1.8.1 Intensive Care Unit	8.1.12	Patient Room, Isolation Room, Positive Pressure	1	E177	Humidifier, Artificial Airway		1	1	1			
A1.8.1 Intensive Care Unit	8.1.12	Patient Room, Isolation Room, Positive Pressure	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
A1.8.1 Intensive Care Unit	8.1.12	Patient Room, Isolation Room, Positive Pressure	1	E215	Light, Examination, Ceiling-Mounted		3	1	1			
A1.8.1 Intensive Care Unit	8.1.12	Patient Room, Isolation Room, Positive Pressure	1	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	1	1			
A1.8.1 Intensive Care Unit	8.1.12	Patient Room, Isolation Room, Positive Pressure	1	E245	Monitor, Physiologic, Wall-Mounted		3	1	1			
A1.8.1 Intensive Care Unit	8.1.12	Patient Room, Isolation Room, Positive Pressure	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1	1			
A1.8.1 Intensive Care Unit	8.1.12	Patient Room, Isolation Room, Positive Pressure	1	E282	PPE, Wall-mounted Gloves Boxes		2	1	1			
A1.8.1 Intensive Care Unit	8.1.12	Patient Room, Isolation Room, Positive Pressure	1	E289	Pump, Infusion		1	4	4			
A1.8.1 Intensive Care Unit	8.1.12	Patient Room, Isolation Room, Positive Pressure	1	E364	Stand, IV		1	1	1			
A1.8.1 Intensive Care Unit	8.1.12	Patient Room, Isolation Room, Positive Pressure	1	F052	Table, Bedside		3	1	1			
A1.8.1 Intensive Care Unit	8.1.12	Patient Room, Isolation Room, Positive Pressure	1	F066	Table, Overbed		3	1	1			
A1.8.1 Intensive Care Unit	8.1.12	Patient Room, Isolation Room, Positive Pressure	1	E425	Thermometer, Electronic, Infrared, Skin, Wall-Mounted		1	1	1			
A1.8.1 Intensive Care Unit	8.1.12	Patient Room, Isolation Room, Positive Pressure	1	E443	Ventilator, Intensive Care		1	1	1			
A1.8.1 Intensive Care Unit	8.1.14	Nourishment Station	1	E102	Coffee Machine		4	1	1			
A1.8.1 Intensive Care Unit	8.1.14	Nourishment Station	1	E179	Ice Machine		4	1	1			
A1.8.1 Intensive Care Unit	8.1.14	Nourishment Station	1	E316	Refrigerator, Domestic, Undercounter		4	1	1			
A1.8.1 Intensive Care Unit	8.1.16	Clean Supplies Room	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
A1.8.1 Intensive Care Unit	8.1.16	Clean Supplies Room	1	E450	Warming Unit, Blankets		1	1	1			
A1.8.1 Intensive Care Unit	8.1.17	Soiled Utility Room	1	E168C	Hamper, Linen		2	1	1			
A1.8.1 Intensive Care Unit	8.1.17	Soiled Utility Room	1	E517C	Disinfector, Bedpan	Meiko Topline 20	3	1	1			
A1.8.1 Intensive Care Unit	8.1.17	Soiled Utility Room	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
A1.8.1 Intensive Care Unit	8.1.17	Soiled Utility Room	1	E434	Truck, Utility, Refuse		1	2	2			
A1.8.1 Intensive Care Unit	8.1.19	Alcove, ECG Machine	1	E498	Dialysis Machine, CRRT	Prismaflex - Baxter	3	1	3			

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A1.8.1 Intensive Care Unit	8.1.19	Alcove, ECG Machine	1	E123C	Electrocardiograph (ECG)		5	1		1		1
A1.8.1 Intensive Care Unit	8.1.20	Storage Room, Equipment	1	E124	Electroencephalograph (EEG)		1	2		2	2	
A1.8.1 Intensive Care Unit	8.1.20	Storage Room, Equipment	1	E263	Ophthalmoscope/Otoscope, Portable		1	2	2	0	0	
A1.8.1 Intensive Care Unit	8.1.20	Storage Room, Equipment	1	E424	Thermometer, Electronic, Infrared, Skin, Portable		1	2	2			
A1.8.1 Intensive Care Unit	8.1.20	Storage Room, Equipment	1	E318	Refrigerator, Laboratory, Undercounter	For Lab Specimen	2	1	1			
A1.8.1 Intensive Care Unit	8.1.20	Storage Room, Equipment	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
A1.8.1 Intensive Care Unit	8.1.20	Storage Room, Equipment	1	E224	Manometer, Cuff Pressure		1	3	3			
A1.8.1 Intensive Care Unit	8.1.20	Storage Room, Equipment	1	E452	Warming Unit, Blood/Solution		1	2		2	2	
A1.8.1 Intensive Care Unit	8.1.20	Storage Room, Equipment	1	E454	Warming Unit, Patient, Forced-Air	Bair Hugger	1	1		1	1	
A1.8.1 Intensive Care Unit	8.1.20	Storage Room, Equipment	1	E457	Warming/Cooling Unit, Patient, Circulating Liquid	Arctic Sun	1	1	1			
A1.8.1 Intensive Care Unit	8.1.21	Storage Room, Large Equipment	1	E066C	Cart, Supplies/Procedure		2	1	1			
A1.8.1 Intensive Care Unit	8.1.21	Storage Room, Large Equipment	1	E194	Imaging, Scanning System, Ultrasonic, Portable		5	1		1		1
A1.8.1 Intensive Care Unit	8.1.21	Storage Room, Large Equipment	1	E289	Pump, Infusion		1	1	1			
A1.8.1 Intensive Care Unit	8.1.21	Storage Room, Large Equipment	1	E334	Scale, Patient, Infant, Mobile		1	1	1			
A1.8.1 Intensive Care Unit	8.1.21	Storage Room, Large Equipment	1	E337	Scale, Patient, Platform, Electronic, Bariatric	w/handrail	3	1	1			
A1.8.1 Intensive Care Unit	8.1.21	Storage Room, Large Equipment	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
A1.8.1 Intensive Care Unit	8.1.21	Storage Room, Large Equipment	1	E358	Sphygmomanometer, Aneroid, Mobile		1	1	1			
A1.8.1 Intensive Care Unit	8.1.21	Storage Room, Large Equipment	1	E469	Wheelchair, Adult, Bariatric		2	1	1			
A1.8.1 Intensive Care Unit	8.1.21	Storage Room, Large Equipment	1	E471	Wheelchair, Adult, Reclining		2	1	1			
A1.8.1 Intensive Care Unit	8.1.21	Storage Room, Large Equipment	1	E263	Ophthalmoscope/Otoscope, Portable		1	4	4			
A1.8.1 Intensive Care Unit	8.1.22	Housekeeping Closet, Distributed	1	E057	Cart, Housekeeping		2	1	1			
A1.8.1 Intensive Care Unit	8.1.22	Housekeeping Closet, Distributed	1	E116	Dispenser System, Chemical, Wall-Mounted		3	1	1			
A1.8.1 Intensive Care Unit	8.1.22	Housekeeping Closet, Distributed	1	E344	Shelving, HSKP		2	1	1			
A1.8.1 Intensive Care Unit	8.1.24	Meeting/Education Room	1	F013	Chair, Guest		3	8	8			
A1.8.1 Intensive Care Unit	8.1.24	Meeting/Education Room	1	F033	Chair, Task		3	3	3			
A1.8.1 Intensive Care Unit	8.1.24	Meeting/Education Room	1	F067	Table, Rectangular, Foldable, Mobile		3	2	2			
A1.8.1 Intensive Care Unit	8.1.24	Meeting/Education Room	1	F075	Workstation, Small		3	3	3			
A1.8.1 Intensive Care Unit	8.1.26	Respiratory Therapy Workroom	1	E011C	Analyzer, Point-of-Care, Blood Gas	GEM 4000	5	1		1		1

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A1.8.1 Intensive Care Unit	8.1.26	Respiratory Therapy Workroom	1	E040	Bronchoscopy Tower		1	2	2			
A1.8.1 Intensive Care Unit	8.1.26	Respiratory Therapy Workroom	1	E066C	Cart, Supplies/Procedure	Difficult Intubation	2	1	1			
A1.8.1 Intensive Care Unit	8.1.26	Respiratory Therapy Workroom	1	F034	Chair, Task, Clinical		3	1	1			
A1.8.1 Intensive Care Unit	8.1.26	Respiratory Therapy Workroom	1	E177	Humidifier, Artificial Airway		1	5	5			
A1.8.1 Intensive Care Unit	8.1.26	Respiratory Therapy Workroom	1	E180	Image Processor, Video, Laryngoscopic Intubation	CMAC	3	1		1	1	
A1.8.1 Intensive Care Unit	8.1.26	Respiratory Therapy Workroom	1	E267	Oximeter, Portable		1	4	2	2	2	
A1.8.1 Intensive Care Unit	8.1.26	Respiratory Therapy Workroom	1	E268C	Oxygen Therapy, High Flow, Adult	Blender, Humidifier	1	6	6			
A1.8.1 Intensive Care Unit	8.1.26	Respiratory Therapy Workroom	1	E270C	Oxygen Therapy, High Flow, Pediatric	Blender, Humidifier	1	6	6			
A1.8.1 Intensive Care Unit	8.1.26	Respiratory Therapy Workroom	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
A1.8.1 Intensive Care Unit	8.1.26	Respiratory Therapy Workroom	1	E443	Ventilator, Intensive Care		1	8	8			
A1.8.1 Intensive Care Unit	8.1.26	Respiratory Therapy Workroom	1	E446	Ventilator, Noninvasive Positive Pressure	BiPAP	1	2	1	1	1	
A1.8.1 Intensive Care Unit	8.1.26	Respiratory Therapy Workroom	1	E446	Ventilator, Noninvasive Positive Pressure	BiPAP	5	1		1		1
A1.8.1 Intensive Care Unit	8.1.26	Respiratory Therapy Workroom	1	E447	Ventilator, Transport	Internal Transport	1	8	8			
A1.8.1 Intensive Care Unit	8.1.26	Respiratory Therapy Workroom	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
A1.8.1 Intensive Care Unit	8.1.27	Office, RT Lead	1	F013	Chair, Guest		3	2	2			
A1.8.1 Intensive Care Unit	8.1.27	Office, RT Lead	1	F034	Chair, Task, Clinical		3	1	1			
A1.8.1 Intensive Care Unit	8.1.27	Office, RT Lead	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
A1.8.1 Intensive Care Unit	8.1.28	Alcove, Charting	4	F035	Chair, Task/Stool, High		3	4	4			
A1.8.1 Intensive Care Unit	8.1.28	Alcove, Charting	4	E499	Rack, Chart	Medium Size (Capacity: 36 Vertical Storage), 2 Shelves with adjustable wires (Elite Series Chart Rack Wires).Four 4" (10.2 cm) casters, 2 locking Classic Oak shelves	1	4	4			
1A.9 Food Services	9.20	Housekeeping Room, Distributed	1	E057	Cart, Housekeeping		2	1	1			
1A.9 Food Services	9.20	Housekeeping Room, Distributed	1	E116	Dispenser System, Chemical, Wall-Mounted		3	1	1			
1A.9 Food Services	9.20	Housekeeping Room, Distributed	1	E344	Shelving, HSKP		2	1	1			
1A.9 Food Services	9.21	Office, Manager, Food Services and Housekeeping Svs	1	F013	Chair, Guest		3	3	3			
1A.9 Food Services	9.21	Office, Manager, Food Services and Housekeeping Svs	1	F033	Chair, Task		3	1	1			
1A.9 Food Services	9.21	Office, Manager, Food Services and Housekeeping Svs	1	F046	Storage, Bookcase		3	1	1			
1A.9 Food Services	9.21	Office, Manager, Food Services and Housekeeping Svs	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.9 Food Services	9.21	Office, Manager, Food Services and Housekeeping Svs	1	F063	Table, Meeting, Round, Small	3-4 people	3	1	1			
1A.9 Food Services	9.21	Office, Manager, Food Services and Housekeeping Svs	1	F474	Whiteboard		2	1	1			

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1A.9 Food Services	9.21	Office, Manager, Food Services and Housekeeping Svs	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.9 Food Services	9.22	Workstation, Supervisor, Food Services	1	F033	Chair, Task		3	1	1			
1A.9 Food Services	9.22	Workstation, Supervisor, Food Services	1	F474	Whiteboard		2	1	1			
1A.9 Food Services	9.22	Workstation, Supervisor, Food Services	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.9 Food Services	9.23	Workstation, Shared	1	F033	Chair, Task		3	2	2			
1A.9 Food Services	9.23	Workstation, Shared	1	F474	Whiteboard		2	1	1			
1A.9 Food Services	9.23	Workstation, Shared	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.9 Food Services	9.24	Workstation, Shared Administrative Assistant	1	F033	Chair, Task		3	1	1			
1A.9 Food Services	9.24	Workstation, Shared Administrative Assistant	1	F474	Whiteboard		2	1	1			
1A.9 Food Services	9.24	Workstation, Shared Administrative Assistant	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.9 Food Services	9.25	Diet Workroom	1	F033	Chair, Task		3	2	2			
1A.9 Food Services	9.25	Diet Workroom	1	F474	Whiteboard		2	1	1			
1A.9 Food Services	9.25	Diet Workroom	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	2	2			
IMIT + Telehealth	10.01	Office: Service Desk	1	F033	Chair, Task		3	4	4			
IMIT + Telehealth	10.01	Office: Service Desk	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	4	4			
IMIT + Telehealth	10.02	Storage Room, Equipment	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
A1.11.1 Birthing Unit	11.1.01	Team Care Station	1	E012	Analyzer, Point-of-Care, Blood Glucose		1	1	1			
A1.11.1 Birthing Unit	11.1.01	Team Care Station	1	F034	Chair, Task, Clinical		3	6	6			
A1.11.1 Birthing Unit	11.1.01	Team Care Station	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
A1.11.1 Birthing Unit	11.1.01	Team Care Station	1	F476	Whiteboard, Magnetic		2	2	2			
A1.11.1 Birthing Unit	11.1.01	Team Care Station	1	F071	Workstation		3	1	1			
A1.11.1 Birthing Unit	11.1.01	Team Care Station	1	F075	Workstation, Small		3	4	4			
A1.11.1 Birthing Unit	11.1.02	Alcove, Computer Charting	7	E492	Workstation, Wall-Mounted		2	7	7			
A1.11.1 Birthing Unit	11.1.03	Staff Lounge/Break Room	1	F011	Chair, Dining		3	4	4			
A1.11.1 Birthing Unit	11.1.03	Staff Lounge/Break Room	1	F016	Chair, Lounge, 1 Seat		3	4	4			
A1.11.1 Birthing Unit	11.1.03	Staff Lounge/Break Room	1	E102	Coffee Machine		4	1	1			
A1.11.1 Birthing Unit	11.1.03	Staff Lounge/Break Room	1	E179	Ice Machine		4	1	1			
A1.11.1 Birthing Unit	11.1.03	Staff Lounge/Break Room	1	E238	Microwave		4	1	1			

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A1.11.1 Birthing Unit	11.1.03	Staff Lounge/Break Room	1	E327	Refrigerator/Freezer, Domestic, Upright		4	1	1			
A1.11.1 Birthing Unit	11.1.03	Staff Lounge/Break Room	1	F055	Table, Coffee		3	1	1			
A1.11.1 Birthing Unit	11.1.03	Staff Lounge/Break Room	1	F057	Table, Dining		3	1	1			
A1.11.1 Birthing Unit	11.1.03	Staff Lounge/Break Room	1	F059	Table, End		3	2	2			
A1.11.1 Birthing Unit	11.1.04	Staff Locker Room	1	E295	Rack, Boot	16 "z" type lockers	2	1	1			
A1.11.1 Birthing Unit	11.1.05	Office, Clinical Practice Leader	1	F013	Chair, Guest		3	2	2			
A1.11.1 Birthing Unit	11.1.05	Office, Clinical Practice Leader	1	F033	Chair, Task		3	1	1			
A1.11.1 Birthing Unit	11.1.05	Office, Clinical Practice Leader	1	F474	Whiteboard		2	1	1			
A1.11.1 Birthing Unit	11.1.05	Office, Clinical Practice Leader	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
A1.11.1 Birthing Unit	11.1.07	Medications Preparation Room	1	E016	Automation System, Medication Dispensing, Decentralized	Pyxis	3	1	1			
A1.11.1 Birthing Unit	11.1.07	Medications Preparation Room	1	E017	Automation System, Medication Dispensing, Decentralized	Pyxis	3	1	1			
A1.11.1 Birthing Unit	11.1.07	Medications Preparation Room	1	E070	Cart, Storage, Wire	A-Cart type	2	1	1			
A1.11.1 Birthing Unit	11.1.07	Medications Preparation Room	1	E083	Cassette, Ward Stock		2	1	1			
A1.11.1 Birthing Unit	11.1.07	Medications Preparation Room	1	E324C	Refrigerator, Pharmacy, Undercounter		2	1	1			
A1.11.1 Birthing Unit	11.1.07	Medications Preparation Room	1	F476	Whiteboard, Magnetic		2	1	1			
A1.11.1 Birthing Unit	11.1.08	Nourishment Station	1	E102	Coffee Machine		4	1	1			
A1.11.1 Birthing Unit	11.1.08	Nourishment Station	1	E238	Microwave		4	1	1			
A1.11.1 Birthing Unit	11.1.08	Nourishment Station	1	E317	Refrigerator, Domestic, Upright		4	1	1			
A1.11.1 Birthing Unit	11.1.09	Clean Supplies Room	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
A1.11.1 Birthing Unit	11.1.09	Clean Supplies Room	1	E450	Warming Unit, Blankets		5	1		1		1
A1.11.1 Birthing Unit	11.1.10	Soiled Utility Room	1	E168C	Hamper, Linen		2	3	3			
A1.11.1 Birthing Unit	11.1.10	Soiled Utility Room	1	E517C	Disinfector, Bedpan	Meiko Topline 20	3	1	1			
A1.11.1 Birthing Unit	11.1.10	Soiled Utility Room	1	E434	Truck, Utility, Refuse		1	2	2			
A1.11.1 Birthing Unit	11.1.13	Storage Room, Equipment	1	E031	Bed, Infant, Cooling	Cooling Cuddle Cot	1	1	1			
A1.11.1 Birthing Unit	11.1.13	Storage Room, Equipment	1	E061	Cart, Isolation, PPE		2	1	1			
A1.11.1 Birthing Unit	11.1.13	Storage Room, Equipment	1	E065	Cart, Oxygen Tank, Mobile		2	2	2			
A1.11.1 Birthing Unit	11.1.13	Storage Room, Equipment	1	E089	Chair, Commode		2	1	1			
A1.11.1 Birthing Unit	11.1.13	Storage Room, Equipment	1	E135	Entonox, Mobile		1	1	1			

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A1.11.1 Birthing Unit	11.1.13	Storage Room, Equipment	1	E194	Imaging, Scanning System, Ultrasonic, Portable		3	1	1			
A1.11.1 Birthing Unit	11.1.13	Storage Room, Equipment	1	E216	Light, Examination, Mobile		3	1		1	1	
A1.11.1 Birthing Unit	11.1.13	Storage Room, Equipment	1	E254	Monitor, Vital Signs, Mobile	Mobile. Model 68NXTX-B from Welch Allyn	3	1		1	1	
A1.11.1 Birthing Unit	11.1.13	Storage Room, Equipment	1	E288	Pump, Breast		1	1	1			
A1.11.1 Birthing Unit	11.1.13	Storage Room, Equipment	1	E289	Pump, Infusion		1	9		9	9	
A1.11.1 Birthing Unit	11.1.13	Storage Room, Equipment	1	E338	Scale, Patient, Platform, Electronic, Mobile		3	1	1			
A1.11.1 Birthing Unit	11.1.13	Storage Room, Equipment	1	E364	Stand, IV		1	6	6			
A1.11.1 Birthing Unit	11.1.13	Storage Room, Equipment	1	E397	Suction Unit, Mobile		1	1	1			
A1.11.1 Birthing Unit	11.1.13	Storage Room, Equipment	1	E424	Thermometer, Electronic, Infrared, Skin, Portable		1	3		3	3	
A1.11.1 Birthing Unit	11.1.14	Housekeeping Closet, Distributed	1	E057	Cart, Housekeeping		2	1		1	1	
A1.11.1 Birthing Unit	11.1.14	Housekeeping Closet, Distributed	1	E116	Dispenser System, Chemical, Wall-Mounted		3	1	1			
A1.11.1 Birthing Unit	11.1.14	Housekeeping Closet, Distributed	1	E344	Shelving, HSKP		2	1	1			
A1.11.1 Birthing Unit	11.1.15	Alcove, Wheelchair Storage	1	E468	Wheelchair, Adult		2	2	2			
A1.11.1 Birthing Unit	11.1.15	Alcove, Wheelchair Storage	1	E469	Wheelchair, Adult, Bariatric		2	1	1			
A1.11.1 Birthing Unit	11.1.16	Alcove, Stretcher Storage	1	E038	Board, Patient Transfer, Wall-Mounted		2	1	1			
A1.11.1 Birthing Unit	11.1.16	Alcove, Stretcher Storage	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	1	1			
A1.11.1 Birthing Unit	11.1.17	Quiet/Consult Room	1	F013	Chair, Guest		3	5	5			
A1.11.1 Birthing Unit	11.1.17	Quiet/Consult Room	1	F055	Table, Coffee		3	1	1			
A1.11.1 Birthing Unit	11.1.17	Quiet/Consult Room	1	F059	Table, End		3	1	1			
A1.11.1 Birthing Unit	11.1.18	Visitor/Patient Lounge	1	F009	Chair, Child		3	2	2			
A1.11.1 Birthing Unit	11.1.18	Visitor/Patient Lounge	1	F013	Chair, Guest		3	10	10			
A1.11.1 Birthing Unit	11.1.18	Visitor/Patient Lounge	1	F014	Chair, Guest, Bariatric		3	3	3			
A1.11.1 Birthing Unit	11.1.18	Visitor/Patient Lounge	1	F054	Table, Child		3	1	1			
A1.11.1 Birthing Unit	11.1.19	Postpartum C-Section	1	E506	Bed Dock Locator		4	1	1			
A1.11.1 Birthing Unit	11.1.19	Postpartum C-Section	1	F066	Table, Overbed		3	1	1			
A1.11.1 Birthing Unit	11.1.19	Postpartum C-Section	1	E024	Bed, Bassinet, Infant		1	1		1	1	
A1.11.1 Birthing Unit	11.1.19	Postpartum C-Section	1	E027	Bed, Electric, Patient		5	1		1		1
A1.11.1 Birthing Unit	11.1.19	Postpartum C-Section	1	F007	Chair, Breastfeeding		3	1	1			

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A1.11.1 Birthing Unit	11.1.19	Postpartum C-Section	1	F032	Chair, Sofa, Sleeper		3	1	1			
A1.11.1 Birthing Unit	11.1.19	Postpartum C-Section	1	E168C	Hamper, Linen		2	1	1			
A1.11.1 Birthing Unit	11.1.19	Postpartum C-Section	1	E555	Headwall System, Horizontal	Horizontal	4	1	1			
A1.11.1 Birthing Unit	11.1.19	Postpartum C-Section	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
A1.11.1 Birthing Unit	11.1.19	Postpartum C-Section	1	E256	Monitor, Vital Signs, Wall-Mounted		3	1	1			
A1.11.1 Birthing Unit	11.1.19	Postpartum C-Section	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1	1			
A1.11.1 Birthing Unit	11.1.19	Postpartum C-Section	1	E289	Pump, Infusion		1	1	1			
A1.11.1 Birthing Unit	11.1.19	Postpartum C-Section	1	E321	Refrigerator, Milk, Undercounter		2	1	1			
A1.11.1 Birthing Unit	11.1.19	Postpartum C-Section	1	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	1	1			
A1.11.1 Birthing Unit	11.1.19	Postpartum C-Section	1	E364	Stand, IV		1	1	1			
A1.11.1 Birthing Unit	11.1.19	Postpartum C-Section	1	E371	Stool, Exam		1	1	1			
A1.11.1 Birthing Unit	11.1.19	Postpartum C-Section	1	F477	Whiteboard, Magnetic, Small		2	1	1			
A1.11.1 Birthing Unit	11.1.19	Postpartum C-Section	1	F071	Workstation		3	1	1			
A1.11.1 Birthing Unit	11.1.20	Postpartum C-Section, Barrier Free	1	E506	Bed Dock Locator		4	1	1			
A1.11.1 Birthing Unit	11.1.20	Postpartum C-Section, Barrier Free	1	E024	Bed, Bassinet, Infant		1	1		1	1	
A1.11.1 Birthing Unit	11.1.20	Postpartum C-Section, Barrier Free	1	E028	Bed, Electric, Patient, Bariatric		3	1	1			
A1.11.1 Birthing Unit	11.1.20	Postpartum C-Section, Barrier Free	1	F008	Chair, Breastfeeding, Bariatric		3	1	1			
A1.11.1 Birthing Unit	11.1.20	Postpartum C-Section, Barrier Free	1	F032	Chair, Sofa, Sleeper		3	1	1			
A1.11.1 Birthing Unit	11.1.20	Postpartum C-Section, Barrier Free	1	E168C	Hamper, Linen		2	1	1			
A1.11.1 Birthing Unit	11.1.20	Postpartum C-Section, Barrier Free	1	E555	Headwall System, Horizontal	Horizontal	4	1	1			
A1.11.1 Birthing Unit	11.1.20	Postpartum C-Section, Barrier Free	1	E211	Lift, Patient Transfer, Bariatric, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
A1.11.1 Birthing Unit	11.1.20	Postpartum C-Section, Barrier Free	1	E256	Monitor, Vital Signs, Wall-Mounted		3	1	1			
A1.11.1 Birthing Unit	11.1.20	Postpartum C-Section, Barrier Free	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1	1			
A1.11.1 Birthing Unit	11.1.20	Postpartum C-Section, Barrier Free	1	E289	Pump, Infusion		1	1	1			
A1.11.1 Birthing Unit	11.1.20	Postpartum C-Section, Barrier Free	1	E321	Refrigerator, Milk, Undercounter		2	1	1			
A1.11.1 Birthing Unit	11.1.20	Postpartum C-Section, Barrier Free	1	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	1	1			
A1.11.1 Birthing Unit	11.1.20	Postpartum C-Section, Barrier Free	1	E364	Stand, IV		1	1	1			
A1.11.1 Birthing Unit	11.1.20	Postpartum C-Section, Barrier Free	1	E371	Stool, Exam		1	1	1			

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A1.11.1 Birthing Unit	11.1.20	Postpartum C-Section, Barrier Free	1	F477	Whiteboard, Magnetic, Small		2	1	1			
A1.11.1 Birthing Unit	11.1.20	Postpartum C-Section, Barrier Free	1	F071	Workstation		3	1	1			
A1.11.1 Birthing Unit	11.1.21	Antepartum, Barrier Free	1	E506	Bed Dock Locator		4	1	1			
A1.11.1 Birthing Unit	11.1.21	Antepartum, Barrier Free	1	F066	Table, Overbed		3	1	1			
A1.11.1 Birthing Unit	11.1.21	Antepartum, Barrier Free	1	E028	Bed, Electric, Patient, Bariatric		3	1	1			
A1.11.1 Birthing Unit	11.1.21	Antepartum, Barrier Free	1	F032	Chair, Sofa, Sleeper		3	1	1			
A1.11.1 Birthing Unit	11.1.21	Antepartum, Barrier Free	1	F028	Chair, Recliner		3	1	1			
A1.11.1 Birthing Unit	11.1.21	Antepartum, Barrier Free	1	E168C	Hamper, Linen		2	1	1			
A1.11.1 Birthing Unit	11.1.21	Antepartum, Barrier Free	1	E555	Headwall System, Horizontal	Horizontal	4	1	1			
A1.11.1 Birthing Unit	11.1.21	Antepartum, Barrier Free	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
A1.11.1 Birthing Unit	11.1.01	Team Care Station	1	E217	Light, Examination, Speculum		1	1	1			
A1.11.1 Birthing Unit	11.1.21	Antepartum, Barrier Free	1	E256	Monitor, Vital Signs, Wall-Mounted		3	1	1			
A1.11.1 Birthing Unit	11.1.21	Antepartum, Barrier Free	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1	1			
A1.11.1 Birthing Unit	11.1.21	Antepartum, Barrier Free	1	E289	Pump, Infusion		1	1	1			
A1.11.1 Birthing Unit	11.1.21	Antepartum, Barrier Free	1	E321	Refrigerator, Milk, Undercounter		2	1	1			
A1.11.1 Birthing Unit	11.1.21	Antepartum, Barrier Free	1	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	1	1			
A1.11.1 Birthing Unit	11.1.21	Antepartum, Barrier Free	1	E364	Stand, IV		1	1	1			
A1.11.1 Birthing Unit	11.1.21	Antepartum, Barrier Free	1	E371	Stool, Exam		1	1	1			
A1.11.1 Birthing Unit	11.1.21	Antepartum, Barrier Free	1	F477	Whiteboard, Magnetic, Small		2	1	1			
A1.11.1 Birthing Unit	11.1.21	Antepartum, Barrier Free	1	F071	Workstation		3	1	1			
A1.11.1 Birthing Unit	11.1.22	Triage/Assessment Room	2	E025	Bed, Electric, Birthing		5	1		1		1
A1.11.1 Birthing Unit	11.1.22	Triage/Assessment Room	2	E025	Bed, Electric, Birthing		3	1	1			
A1.11.1 Birthing Unit	11.1.22	Triage/Assessment Room	2	E064C	Cart, Linen		2	2	2			
A1.11.1 Birthing Unit	11.1.22	Triage/Assessment Room	2	F013	Chair, Guest		3	2	2			
A1.11.1 Birthing Unit	11.1.22	Triage/Assessment Room	2	F034	Chair, Task, Clinical		3	2	2			
A1.11.1 Birthing Unit	11.1.22	Triage/Assessment Room	2	E168C	Hamper, Linen		2	2	2			
A1.11.1 Birthing Unit	11.1.22	Triage/Assessment Room	2	E216	Light, Examination, Mobile		3	2	1	1	1	
A1.11.1 Birthing Unit	11.1.22	Triage/Assessment Room	2	E217	Light, Examination, Speculum		1	2	2			

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A1.11.1 Birthing Unit	11.1.22	Triage/Assessment Room	2	E247	Monitor, Physiologic, Fetal	Mobile on-cart with wi-fi capabilities	3	2	1	1	1	
A1.11.1 Birthing Unit	11.1.22	Triage/Assessment Room	2	E256	Monitor, Vital Signs, Wall-Mounted	Wall-mounted	3	2	2			
A1.11.1 Birthing Unit	11.1.22	Triage/Assessment Room	2	E334	Scale, Patient, Infant, Mobile		1	1	1			
A1.11.1 Birthing Unit	11.1.22	Triage/Assessment Room	2	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	2	2			
A1.11.1 Birthing Unit	11.1.22	Triage/Assessment Room	2	E371	Stool, Exam		1	2	2			
A1.11.1 Birthing Unit	11.1.22	Triage/Assessment Room	2	F066	Table, Overbed		3	2	2			
A1.11.1 Birthing Unit	11.1.22	Triage/Assessment Room	2	F477	Whiteboard, Magnetic, Small		2	2	2			
A1.11.1 Birthing Unit	11.1.22	Triage/Assessment Room	2	F076	Workstation, Small, Clinical	Mobile	3	2	2			
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	A002	Allowance, Slings, Birthing		1	3	3			
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	E024	Bed, Bassinet, Infant		1	3		3	3	
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	E025	Bed, Electric, Birthing		3	2		2	2	
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	E025	Bed, Electric, Birthing		5	1		1		1
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	E060	Cart, Instruments, Stainless Steel		2	6	6			
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	F028	Chair, Recliner		3	3	3			
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	F032	Chair, Sofa, Sleeper		3	3	3			
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	E113	Detector, Fetal Heart, Ultrasonic		1	3	1	2	2	
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	E136	Entonox, Wall-Mounted		5	3		3		3
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	E168C	Hamper, Linen		2	3	3			
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	3	3			
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	E215	Light, Examination, Ceiling-Mounted		3	3	1	2	2	
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	E217	Light, Examination, Speculum		1	3		3	3	
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	E247	Monitor, Physiologic, Fetal	wi-fi capabilities	3	3		3	3	
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	E256	Monitor, Vital Signs, Wall-Mounted		3	3	3			
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	3	3			
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	E289	Pump, Infusion		1	9	8	1	1	
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	E292	Pump, Infusion, Patient-Controlled		1	3	3			
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	E321	Refrigerator, Milk, Undercounter		2	3	3			
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	3	3			

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A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	E364	Stand, IV		1	6	6			
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	E371	Stool, Exam		1	3	3			
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	E372	Stool, Step		1	3	3			
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	F052	Table, Bedside		3	3	3			
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	F066	Table, Overbed		3	3	3			
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	E413	Table, Stainless Steel, Clinical, Mobile		3	3	3			
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	E456	Warming Unit, Radiant, Infant	Panda - Includes Neopuff, Scale, and X-Ray Tray	1	3		3	3	
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	F477	Whiteboard, Magnetic, Small		2	3	3			
A1.11.1 Birthing Unit	11.1.26	LDRP, Regular	3	F071	Workstation		3	1	1			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	A002	Allowance, Slings, Birthing		1	1	1			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	E024	Bed, Bassinet, Infant		1	1		1	1	
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	E026	Bed, Electric, Birthing, Bariatric		3	1	1			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	E060	Cart, Instruments, Stainless Steel		2	2	2			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	F013	Chair, Guest		3	2	2			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	F032	Chair, Sofa, Sleeper		3	1	1			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	E113	Detector, Fetal Heart, Ultrasonic		1	1	1			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	E136	Entonox, Wall-Mounted		2	1	1			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	E168C	Hamper, Linen		2	1	1			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	E211	Lift, Patient Transfer, Bariatric, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	E215	Light, Examination, Ceiling-Mounted		3	1	1			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	E217	Light, Examination, Speculum		1	1	1			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	E247	Monitor, Physiologic, Fetal	wi-fi capabilities	3	1	1			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	E256	Monitor, Vital Signs, Wall-Mounted		3	1	1			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1	1			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	E289	Pump, Infusion		1	3	3			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	E292	Pump, Infusion, Patient-Controlled		1	1	1			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	E321	Refrigerator, Milk, Undercounter		2	1	1			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	1	1			

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A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	E364	Stand, IV		1	2	2			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	E371	Stool, Exam		1	1	1			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	E372	Stool, Step		1	1	1			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	F052	Table, Bedside		3	1	1			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	F066	Table, Overbed		3	1	1			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	E456	Warming Unit, Radiant, Infant	Panda - Includes Neopuff, Scale, and X-Ray Tray	1	1		1	1	
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	E469	Wheelchair, Adult, Bariatric		2	1	1			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	F477	Whiteboard, Magnetic, Small		2	1	1			
A1.11.1 Birthing Unit	11.1.27	LDRP, Twin, Barrier Free	1	F071	Workstation		3	1	1			
A1.11.1 Birthing Unit	11.1.28	On-Call Suite	1	F004	Bed, Twin		3	1	1			
A1.11.1 Birthing Unit	11.1.28	On-Call Suite	1	F052	Table, Bedside		3	1	1			
A1.11.1 Birthing Unit	11.1.29	Alcove, Food Trays Storage	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
A1.11.1 Birthing Unit	11.1.30	Storage Room	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
A1.11.1 Birthing Unit	11.1.31	Team Care Station	1	E012	Analyzer, Point-of-Care, Blood Glucose		1	1	1			
A1.11.1 Birthing Unit	11.1.31	Team Care Station	1	F034	Chair, Task, Clinical		3	2	2			
A1.11.1 Birthing Unit	11.1.31	Team Care Station	1	E499	Rack, Chart	Medium Size (Capacity: 36 Vertical Storage), 2 Shelves with adjustable wires (Elite Series Chart Rack Wires).Four 4" (10.2 cm) casters, 2 locking.Classic Oak shelves	1	2	2			
A1.11.1 Birthing Unit	11.1.31	Team Care Station	1	E371	Stool, Exam		1	1	1			
A1.11.1 Birthing Unit	11.1.31	Team Care Station	1	F075	Workstation, Small		3	2	2			
A1.11.1 Birthing Unit	11.1.32	Infant Space, Regular Size	2	E024	Bed, Bassinet, Infant		1	2	2			
A1.11.1 Birthing Unit	11.1.32	Infant Space, Regular Size	2	F013	Chair, Guest		3	2	2			
A1.11.1 Birthing Unit	11.1.32	Infant Space, Regular Size	2	E196	Incubator, Infant	Giraffe Omnibed	1	2	1	1	1	
A1.11.1 Birthing Unit	11.1.32	Infant Space, Regular Size	2	E249	Monitor, Physiologic, Neonatal/Infant, Wall-Mounted		3	2	1	1	1	
A1.11.1 Birthing Unit	11.1.32	Infant Space, Regular Size	2	E279	Phototherapy Unit, Visible Light, Hyperbilirubinemia		1	1		1	1	
A1.11.1 Birthing Unit	11.1.32	Infant Space, Regular Size	2	E288	Pump, Breast		1	1	1			
A1.11.1 Birthing Unit	11.1.32	Infant Space, Regular Size	2	E289	Pump, Infusion		1	2	2			
A1.11.1 Birthing Unit	11.1.32	Infant Space, Regular Size	2	E293	Pump, Infusion, Syringe		1	2		2	2	
A1.11.1 Birthing Unit	11.1.32	Infant Space, Regular Size	2	E364	Stand, IV		1	2	2			
A1.11.1 Birthing Unit	11.1.32	Infant Space, Regular Size	2	F477	Whiteboard, Magnetic, Small		2	2	2			

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A1.11.1 Birthing Unit	11.1.33	Infant Space, Large Size	2	F013	Chair, Guest		3	2	2			
A1.11.1 Birthing Unit	11.1.33	Infant Space, Large Size	2	E177	Humidifier, Artificial Airway		1	2		2	2	
A1.11.1 Birthing Unit	11.1.33	Infant Space, Large Size	2	E196	Incubator, Infant	Giraffe Omnibed	1	2		2	2	
A1.11.1 Birthing Unit	11.1.33	Infant Space, Large Size	2	E249	Monitor, Physiologic, Neonatal/Infant, Wall-Mounted		3	2	2			
A1.11.1 Birthing Unit	11.1.33	Infant Space, Large Size	2	E279	Phototherapy Unit, Visible Light, Hyperbilirubinemia	Giraffe Spot	1	2		2	2	
A1.11.1 Birthing Unit	11.1.33	Infant Space, Large Size	2	E288	Pump, Breast		1	1	1			
A1.11.1 Birthing Unit	11.1.33	Infant Space, Large Size	2	E289	Pump, Infusion		1	4	4			
A1.11.1 Birthing Unit	11.1.33	Infant Space, Large Size	2	E293	Pump, Infusion, Syringe		1	4		4	4	
A1.11.1 Birthing Unit	11.1.33	Infant Space, Large Size	2	E334	Scale, Patient, Infant, Mobile		1	1	1			
A1.11.1 Birthing Unit	11.1.33	Infant Space, Large Size	2	E364	Stand, IV		1	2	2			
A1.11.1 Birthing Unit	11.1.33	Infant Space, Large Size	2	E444	Ventilator, Intensive Care, Neonatal/Pediatric		1	2		2	2	
A1.11.1 Birthing Unit	11.1.33	Infant Space, Large Size	2	E456	Warming Unit, Radiant, Infant	Panda - Includes Neopuff, Scale, and X-Ray Tray	1	1		1	1	
A1.11.1 Birthing Unit	11.1.33	Infant Space, Large Size	2	F477	Whiteboard, Magnetic, Small		2	2	2			
A1.11.1 Birthing Unit	11.1.34	Exam/Treatment Room	1	E506	Bed Dock Locator		4	1	1			
A1.11.1 Birthing Unit	11.1.34	Exam/Treatment Room	1	E036	Bilirubinometer, Cutaneous		2	1		1	1	
A1.11.1 Birthing Unit	11.1.34	Exam/Treatment Room	1	F013	Chair, Guest		3	2	2			
A1.11.1 Birthing Unit	11.1.34	Exam/Treatment Room	1	F034	Chair, Task, Clinical		3	1	1			
A1.11.1 Birthing Unit	11.1.34	Exam/Treatment Room	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	1	1			
A1.11.1 Birthing Unit	11.1.34	Exam/Treatment Room	1	E215	Light, Examination, Ceiling-Mounted		3	1	1			
A1.11.1 Birthing Unit	11.1.34	Exam/Treatment Room	1	E256	Monitor, Vital Signs, Wall-Mounted		3	1	1			
A1.11.1 Birthing Unit	11.1.34	Exam/Treatment Room	1	E263	Ophthalmoscope/Otoscope, Portable		1	1		1	1	
A1.11.1 Birthing Unit	11.1.34	Exam/Treatment Room	1	E267	Oximeter, Portable		1	1		1	1	
A1.11.1 Birthing Unit	11.1.34	Exam/Treatment Room	1	E279	Phototherapy Unit, Visible Light, Hyperbilirubinemia	Giraffe Spot	1	2	2			
A1.11.1 Birthing Unit	11.1.34	Exam/Treatment Room	1	E334	Scale, Patient, Infant, Mobile		5	1		1		1
A1.11.1 Birthing Unit	11.1.34	Exam/Treatment Room	1	E371	Stool, Exam		1	1	1			
A1.11.1 Birthing Unit	11.1.34	Exam/Treatment Room	1	E404	Table, Examination/Treatment, Height-Adjustable		3	1	1			
A1.11.1 Birthing Unit	11.1.34	Exam/Treatment Room	1	E413	Table, Stainless Steel, Clinical, Mobile		3	2	2			
A1.11.1 Birthing Unit	11.1.34	Exam/Treatment Room	1	E426	Thermometer, Electronic, Portable	Infant, Rectal	1	1	1			

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A1.11.1 Birthing Unit	11.1.34	Exam/Treatment Room	1	F076	Workstation, Small, Clinical		3	1	1			
A1.11.1 Birthing Unit	11.1.36	Alcove, Clean Supplies	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
A1.11.1 Birthing Unit	11.1.37	Alcove, Soiled Utility	1	E168C	Hamper, Linen		2	2	2			
A1.11.1 Birthing Unit	11.1.38	Medication Preparation Room	1	E083	Cassette, Ward Stock		2	1	1			
A1.11.1 Birthing Unit	11.1.38	Medication Preparation Room	1	E157	Freezer, Laboratory, Undercounter		2	1	1			
A1.11.1 Birthing Unit	11.1.38	Medication Preparation Room	1	E322	Refrigerator, Milk, Upright		2	1	1			
A1.11.1 Birthing Unit	11.1.38	Medication Preparation Room	1	E324C	Refrigerator, Pharmacy, Undercounter		2	1	1			
A1.11.1 Birthing Unit	11.1.38	Medication Preparation Room	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
A1.11.1 Birthing Unit	11.1.38	Medication Preparation Room	1	F476	Whiteboard, Magnetic		2	1	1			
A1.11.1 Birthing Unit	11.1.39	Storage Room, Incubators & Other Equipment	1	E269C	Oxygen Therapy, High Flow, Neonatal	Blender, Humidifier	1	2	2			
A1.11.1 Birthing Unit	11.1.39	Storage Room, Incubators & Other Equipment	1	E456	Warming Unit, Radiant, Infant	Panda - Includes Neopuff, Scale, and X-Ray Tray	1	1		1	1	
A1.11.1 Birthing Unit	11.1.40	Alcove, Crash Cart, Neonatal	1	E015	Aspirator, Airways		1	1	1			
A1.11.1 Birthing Unit	11.1.40	Alcove, Crash Cart, Neonatal	1	E051	Cart, Crash		2	1	1			
A1.11.1 Birthing Unit	11.1.40	Alcove, Crash Cart, Neonatal	1	E111C	Defibrillator, External, Manual	Lifepak 20e	1	1	1			
A1.11.1 Birthing Unit	11.1.41	Alcove, Water/Ice Machine	1	E179	Ice Machine		4	1	1			
A1.11.1 Birthing Unit	11.1.42	Alcove, POCT/Microscope	1	E010C	Analyzer, Laboratory, Urine, Semiautomated	Cobas U411	1	1		1	1	
A1.11.1 Birthing Unit	11.1.42	Alcove, POCT/Microscope	1	E232	Microscope, Laboratory, Single		1	1	1			
A1.11.2 Medical/Surgical IPU	11.2.01	Team Care Station	1	E012	Analyzer, Point-of-Care, Blood Glucose		1	2	2			
A1.11.2 Medical/Surgical IPU	11.2.01	Team Care Station	1	F034	Chair, Task, Clinical		3	5	5			
A1.11.2 Medical/Surgical IPU	11.2.01	Team Care Station	1	E246	Monitor, Physiologic, Central Station		3	1		1	1	
A1.11.2 Medical/Surgical IPU	11.2.01	Team Care Station	1	F048	Storage, Cabinet, Filing, 2H		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.01	Team Care Station	1	F476	Whiteboard, Magnetic		2	2	2			
A1.11.2 Medical/Surgical IPU	11.2.01	Team Care Station	1	F075	Workstation, Small		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.01	Team Care Station	1	F081	Workstation, w/pedestal, Height-Adjustable		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.02	Alcove, Computer Charting	11	F034	Chair, Task, Clinical		3	11	11			
A1.11.2 Medical/Surgical IPU	11.2.02	Alcove, Computer Charting	11	F075	Workstation, Small		3	11	11			
A1.11.2 Medical/Surgical IPU	11.2.04	Report/Conference/Education Room	1	F022	Chair, Meeting		3	10	10			
A1.11.2 Medical/Surgical IPU	11.2.04	Report/Conference/Education Room	1	F067	Table, Rectangular, Foldable, Mobile		3	2	2			

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A1.11.2 Medical/Surgical IPU	11.2.05	Workstation, Patient Care Coordinator	1	F033	Chair, Task		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.05	Workstation, Patient Care Coordinator	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.08	Medications Preparation Room	2	E016	Automation System, Medication Dispensing, Decentralized	Pyxis	3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.08	Medications Preparation Room	2	E017	Automation System, Medication Dispensing, Decentralized	Pyxis	3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.08	Medications Preparation Room	2	E019	Automation System, Medication Dispensing, Decentralized	Pyxis	3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.08	Medications Preparation Room	2	E070	Cart, Storage, Wire	A-Cart type	2	2	2			
A1.11.2 Medical/Surgical IPU	11.2.08	Medications Preparation Room	2	E083	Cassette, Ward Stock		2	2	2			
A1.11.2 Medical/Surgical IPU	11.2.08	Medications Preparation Room	2	E280	Pill Crusher		1	2	2			
A1.11.2 Medical/Surgical IPU	11.2.08	Medications Preparation Room	2	E324C	Refrigerator, Pharmacy, Undercounter		2	2	2			
A1.11.2 Medical/Surgical IPU	11.2.08	Medications Preparation Room	2	F476	Whiteboard, Magnetic		2	2	2			
A1.11.2 Medical/Surgical IPU	11.2.09	Nourishment Station	1	E102	Coffee Machine		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.09	Nourishment Station	1	E179	Ice Machine		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.09	Nourishment Station	1	E238	Microwave		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.09	Nourishment Station	1	E327	Refrigerator/Freezer, Domestic, Upright		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.10	Clean Supplies Room	1	E065	Cart, Oxygen Tank, Mobile		2	6	6			
A1.11.2 Medical/Surgical IPU	11.2.10	Clean Supplies Room	1	E066C	Cart, Supplies/Procedure	Wound Care, CBI	2	2	2			
A1.11.2 Medical/Surgical IPU	11.2.10	Clean Supplies Room	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.10	Clean Supplies Room	1	E450	Warming Unit, Blankets		1	1	1			
A1.11.2 Medical/Surgical IPU	11.2.11	Soiled Utility Room	1	E168C	Hamper, Linen		2	2	2			
A1.11.2 Medical/Surgical IPU	11.2.11	Soiled Utility Room	1	E519	Cart, Case, Closed		2	2	2			
A1.11.2 Medical/Surgical IPU	11.2.11	Soiled Utility Room	1	E282	PPE, Wall-mounted Gloves Boxes		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.11	Soiled Utility Room	1	E342C	Shelving, Wire		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.11	Soiled Utility Room	1	E116	Dispenser System, Chemical, Wall-Mounted		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.11	Soiled Utility Room	1	E517C	Disinfector, Bedpan	Meiko Topline 20	3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.11	Soiled Utility Room	1	E434	Truck, Utility, Refuse		1	2	2			
A1.11.2 Medical/Surgical IPU	11.2.12	Alcove, Equipment/ECG	2	E123C	Electrocardiograph (ECG)		1	1	1			
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E001C	Alarm, Bed/Chair, Portable		1	3	3			
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E089	Chair, Commode		2	5	5			

Furniture and Equipment List

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A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E090	Chair, Commode, Bariatric		2	2	2			
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E095	Chair, Patient, Orthopedics, Height-Adjustable		2	2	2			
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E112	Detector, Blood Flow, Ultrasonic		1	1		1	1	
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E191	Imaging, Scanning System, Ultrasonic, Bladder		1	1		1	1	
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E212	Lift, Patient Transfer, Mobile		1	1	1			
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E213	Lift, Sit-to-Stand, Mobile	Sabina, Sara Stedy	1	3	3			
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	A007	Allowance, Mats, Bedside		1	3	3			
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E228	Mattress System, Alternating-Pressure		1	5	5			
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E250	Monitor, Telemetry		5	8		8		8
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E254	Monitor, Vital Signs, Mobile	Mobile. Model 68NXTX-B from Welch Allyn	3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E261	Nebulizer		1	1		1	1	
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E267	Oximeter, Portable		1	2		2	2	
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E275	Patient Transfer, Air-Assisted Mattress	Hovermat	1	1	1			
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E289	Pump, Infusion		1	32	6	26	26	
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E290	Pump, Infusion, Enteral Feeding		1	3		3	3	
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E292	Pump, Infusion, Patient-Controlled		1	8	8			
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E293	Pump, Infusion, Syringe		1	2	2			
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E334	Scale, Patient, Infant, Mobile		1	1	1			
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E337	Scale, Patient, Platform, Electronic, Bariatric		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E358	Sphygmomanometer, Aneroid, Mobile		1	2	1	1	1	
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E364	Stand, IV		1	24	24			
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E424	Thermometer, Electronic, Infrared, Skin, Portable		1	4		4	4	
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E437	Vacuum, Negative Pressure Wound		1	1		1	1	
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E442	Vein Finder		5	1		1		1
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E472	Wheelchair, Hygiene/Commode		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.13	Storage Room, Equipment	1	E473	Wheelchair, Positionning	Broda	2	3	3			
A1.11.2 Medical/Surgical IPU	11.2.14	Housekeeping Closet, Distributed	1	E057	Cart, Housekeeping		2	1	1			

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A1.11.2 Medical/Surgical IPU	11.2.14	Housekeeping Closet, Distributed	1	E116	Dispenser System, Chemical, Wall-Mounted		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.14	Housekeeping Closet, Distributed	1	E344	Shelving, HSKP		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.16	Alcove, Wheelchair Storage	1	E468	Wheelchair, Adult	w/foot rest and oxygen tank holder	2	6	6			
A1.11.2 Medical/Surgical IPU	11.2.16	Alcove, Wheelchair Storage	1	E469	Wheelchair, Adult, Bariatric	w/foot rest and oxygen tank holder	2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.17	Alcove, Stretcher Storage	1	E038	Board, Patient Transfer, Wall-Mounted		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.17	Alcove, Stretcher Storage	1	E393	Stretcher, Mobile, Hospital, Bariatric		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.18	Quiet/Consult Room	1	F016	Chair, Lounge, 1 Seat		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.18	Quiet/Consult Room	1	F063	Table, Meeting, Round, Small		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.19	Visitor/Patient Lounge	1	F011	Chair, Dining		3	8	8			
A1.11.2 Medical/Surgical IPU	11.2.19	Visitor/Patient Lounge	1	F016	Chair, Lounge, 1 Seat		3	8	8			
A1.11.2 Medical/Surgical IPU	11.2.19	Visitor/Patient Lounge	1	F057	Table, Dining		3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.20	Patient Room, Standard	14	E506	Bed Dock Locator		4	14	14			
A1.11.2 Medical/Surgical IPU	11.2.20	Patient Room, Standard	14	E027	Bed, Electric, Patient		5	14		14		14
A1.11.2 Medical/Surgical IPU	11.2.20	Patient Room, Standard	14	F013	Chair, Guest		3	14	14			
A1.11.2 Medical/Surgical IPU	11.2.20	Patient Room, Standard	14	F025	Chair, Patient		3	14	14			
A1.11.2 Medical/Surgical IPU	11.2.20	Patient Room, Standard	14	E168C	Hamper, Linen		2	14	14			
A1.11.2 Medical/Surgical IPU	11.2.20	Patient Room, Standard	14	E555	Headwall System, Horizontal	Horizontal	4	14	14			
A1.11.2 Medical/Surgical IPU	11.2.20	Patient Room, Standard	14	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	14	14			
A1.11.2 Medical/Surgical IPU	11.2.20	Patient Room, Standard	14	E216	Light, Examination, Mobile		3	8	8			
A1.11.2 Medical/Surgical IPU	11.2.20	Patient Room, Standard	14	E256	Monitor, Vital Signs, Wall-Mounted		3	14	5	9	9	
A1.11.2 Medical/Surgical IPU	11.2.20	Patient Room, Standard	14	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	14	14			
A1.11.2 Medical/Surgical IPU	11.2.20	Patient Room, Standard	14	F052	Table, Bedside		3	14	14			
A1.11.2 Medical/Surgical IPU	11.2.20	Patient Room, Standard	14	F066	Table, Overbed		3	14	14			
A1.11.2 Medical/Surgical IPU	11.2.21	Patient Room, Barrier Free	4	E506	Bed Dock Locator		4	4	4			
A1.11.2 Medical/Surgical IPU	11.2.21	Patient Room, Barrier Free	4	E028	Bed, Electric, Patient, Bariatric		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.21	Patient Room, Barrier Free	4	F013	Chair, Guest		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.21	Patient Room, Barrier Free	4	F026	Chair, Patient, Bariatric		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.21	Patient Room, Barrier Free	4	E168C	Hamper, Linen		2	4	4			

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A1.11.2 Medical/Surgical IPU	11.2.21	Patient Room, Barrier Free	4	E555	Headwall System, Horizontal	Horizontal	4	4	4			
A1.11.2 Medical/Surgical IPU	11.2.21	Patient Room, Barrier Free	4	E211	Lift, Patient Transfer, Bariatric, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	4	4			
A1.11.2 Medical/Surgical IPU	11.2.21	Patient Room, Barrier Free	4	E216	Light, Examination, Mobile		3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.21	Patient Room, Barrier Free	4	E256	Monitor, Vital Signs, Wall-Mounted		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.21	Patient Room, Barrier Free	4	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	4	4			
A1.11.2 Medical/Surgical IPU	11.2.21	Patient Room, Barrier Free	4	F052	Table, Bedside		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.21	Patient Room, Barrier Free	4	F066	Table, Overbed		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.22	Patient Room, Palliative/Paed	1	E506	Bed Dock Locator		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.22	Patient Room, Palliative/Paed	1	E027	Bed, Electric, Patient		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.22	Patient Room, Palliative/Paed	1	F013	Chair, Guest		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.22	Patient Room, Palliative/Paed	1	F025	Chair, Patient		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.22	Patient Room, Palliative/Paed	1	F032	Chair, Sofa, Sleeper		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.22	Patient Room, Palliative/Paed	1	E168C	Hamper, Linen		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.22	Patient Room, Palliative/Paed	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	2	2			
A1.11.2 Medical/Surgical IPU	11.2.22	Patient Room, Palliative/Paed	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.22	Patient Room, Palliative/Paed	1	E216	Light, Examination, Mobile		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.22	Patient Room, Palliative/Paed	1	E256	Monitor, Vital Signs, Wall-Mounted		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.22	Patient Room, Palliative/Paed	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1	1			
A1.11.2 Medical/Surgical IPU	11.2.22	Patient Room, Palliative/Paed	1	F052	Table, Bedside		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.22	Patient Room, Palliative/Paed	1	F066	Table, Overbed		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.23	Palliative/Paed Family/Quiet Room	1	F016	Chair, Lounge, 1 Seat		3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.23	Palliative/Paed Family/Quiet Room	1	F019	Chair, Lounge, 2 Seat		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.23	Palliative/Paed Family/Quiet Room	1	F055	Table, Coffee		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.23	Palliative/Paed Family/Quiet Room	1	F059	Table, End		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.24	Multipurpose Paediatric Room	1	F013	Chair, Guest		3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.24	Multipurpose Paediatric Room	1	F067	Table, Rectangular, Foldable, Mobile		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.25	Patient Room, Positive Pressure Isolation Room	1	E506	Bed Dock Locator		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.25	Patient Room, Positive Pressure Isolation Room	1	E027	Bed, Electric, Patient		5	1		1		1

Furniture and Equipment List

Component Name	Room Ref SOA Dec 18 2020	Room Name SOA Dec 18 2020	Room Quantity SOA Dec 18 2020	Code	Item Description	Long Description / Reference Model	Responsibility Code	Extended Quantity	Quantity - New (N)	Quantity - Existing	Quantity - Existing Replace (R)	Quantity - Existing Transfer (T)
A1.11.2 Medical/Surgical IPU	11.2.25	Patient Room, Positive Pressure Isolation Room	1	F013	Chair, Guest		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.25	Patient Room, Positive Pressure Isolation Room	1	F025	Chair, Patient		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.25	Patient Room, Positive Pressure Isolation Room	1	E168C	Hamper, Linen		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.25	Patient Room, Positive Pressure Isolation Room	1	E168C	Hamper, Linen		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.25	Patient Room, Positive Pressure Isolation Room	1	E555	Headwall System, Horizontal	Horizontal	4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.25	Patient Room, Positive Pressure Isolation Room	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.25	Patient Room, Positive Pressure Isolation Room	1	E218	Light, Examination, Wall-Mounted		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.25	Patient Room, Positive Pressure Isolation Room	1	E256	Monitor, Vital Signs, Wall-Mounted		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.25	Patient Room, Positive Pressure Isolation Room	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1	1			
A1.11.2 Medical/Surgical IPU	11.2.25	Patient Room, Positive Pressure Isolation Room	1	E282	PPE, Wall-mounted Gloves Boxes		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.25	Patient Room, Positive Pressure Isolation Room	1	F052	Table, Bedside		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.25	Patient Room, Positive Pressure Isolation Room	1	F066	Table, Overbed		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.26	Patient Room, Negative Pressure Isolation Room	1	E506	Bed Dock Locator		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.26	Patient Room, Negative Pressure Isolation Room	1	E027	Bed, Electric, Patient		5	1		1		1
A1.11.2 Medical/Surgical IPU	11.2.26	Patient Room, Negative Pressure Isolation Room	1	F013	Chair, Guest		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.26	Patient Room, Negative Pressure Isolation Room	1	F025	Chair, Patient		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.26	Patient Room, Negative Pressure Isolation Room	1	E168C	Hamper, Linen		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.26	Patient Room, Negative Pressure Isolation Room	1	E168C	Hamper, Linen		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.26	Patient Room, Negative Pressure Isolation Room	1	E555	Headwall System, Horizontal	Horizontal	4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.26	Patient Room, Negative Pressure Isolation Room	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.26	Patient Room, Negative Pressure Isolation Room	1	E218	Light, Examination, Wall-Mounted		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.26	Patient Room, Negative Pressure Isolation Room	1	E256	Monitor, Vital Signs, Wall-Mounted		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.26	Patient Room, Negative Pressure Isolation Room	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1	1			
A1.11.2 Medical/Surgical IPU	11.2.26	Patient Room, Negative Pressure Isolation Room	1	E282	PPE, Wall-mounted Gloves Boxes		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.26	Patient Room, Negative Pressure Isolation Room	1	F052	Table, Bedside		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.26	Patient Room, Negative Pressure Isolation Room	1	F066	Table, Overbed		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.27	Patient Room, Negative Pressure Barrier Free Isolation Room	1	E506	Bed Dock Locator		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.27	Patient Room, Negative Pressure Barrier Free Isolation Room	1	E028	Bed, Electric, Patient, Bariatric		3	1	1			

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A1.11.2 Medical/Surgical IPU	11.2.27	Patient Room, Negative Pressure Barrier Free Isolation Room	1	F013	Chair, Guest		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.27	Patient Room, Negative Pressure Barrier Free Isolation Room	1	F026	Chair, Patient, Bariatric		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.27	Patient Room, Negative Pressure Barrier Free Isolation Room	1	E168C	Hamper, Linen		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.27	Patient Room, Negative Pressure Barrier Free Isolation Room	1	E168C	Hamper, Linen		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.27	Patient Room, Negative Pressure Barrier Free Isolation Room	1	E555	Headwall System, Horizontal	Horizontal	4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.27	Patient Room, Negative Pressure Barrier Free Isolation Room	1	E211	Lift, Patient Transfer, Bariatric, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.27	Patient Room, Negative Pressure Barrier Free Isolation Room	1	E216	Light, Examination, Mobile		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.27	Patient Room, Negative Pressure Barrier Free Isolation Room	1	E256	Monitor, Vital Signs, Wall-Mounted		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.27	Patient Room, Negative Pressure Barrier Free Isolation Room	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1	1			
A1.11.2 Medical/Surgical IPU	11.2.27	Patient Room, Negative Pressure Barrier Free Isolation Room	1	E282	PPE, Wall-mounted Gloves Boxes		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.27	Patient Room, Negative Pressure Barrier Free Isolation Room	1	F052	Table, Bedside		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.27	Patient Room, Negative Pressure Barrier Free Isolation Room	1	F066	Table, Overbed		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.29	Storage Room, Large Equipment	1	E034	Bed, Patient, Pediatric Crib		3	2	1	1	1	
A1.11.2 Medical/Surgical IPU	11.2.29	Storage Room, Large Equipment	1	E034	Bed, Patient, Pediatric Crib		5	2		2		2
A1.11.2 Medical/Surgical IPU	11.2.29	Storage Room, Large Equipment	1	E091	Chair, Geriatric, Recliner		2	3	3			
A1.11.2 Medical/Surgical IPU	11.2.29	Storage Room, Large Equipment	1	E358	Sphygmomanometer, Aneroid, Mobile		1	1	1			
A1.11.2 Medical/Surgical IPU	11.2.30	Therapy Tub Room	1	E168C	Hamper, Linen		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.30	Therapy Tub Room	1	E211	Lift, Patient Transfer, Bariatric, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.30	Therapy Tub Room	1	E374	Storage, Cabinet	for clean linen	2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.30	Therapy Tub Room	1	E435C	Tub, Therapy		5	1		1		1
A1.11.2 Medical/Surgical IPU	11.2.31	Suite of Secure Rooms	1	F016	Chair, Lounge, 1 Seat		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.31	Suite of Secure Rooms	1	E168C	Hamper, Linen		2	2	2			
A1.11.2 Medical/Surgical IPU	11.2.31	Suite of Secure Rooms	1	E507	Headwall System, Concealed	With lockable security console. Gases: 1 ea of Oxyegn, Medical Air and Vacuum	4	2	2			
A1.11.2 Medical/Surgical IPU	11.2.31	Suite of Secure Rooms	1	E216	Light, Examination, Mobile		3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.31	Suite of Secure Rooms	1	E229	Mattress, Seclusion		1	2	2			
A1.11.2 Medical/Surgical IPU	11.2.31	Suite of Secure Rooms	1	E254	Monitor, Vital Signs, Mobile	Mobile. Model 68NXTX-B from Welch Allyn	3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.31	Suite of Secure Rooms	1	E263	Ophthalmoscope/Otoscope, Portable		1	2	2			
A1.11.2 Medical/Surgical IPU	11.2.32	Team Care Station	1	E012	Analyzer, Point-of-Care, Blood Glucose		1	2	2			

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A1.11.2 Medical/Surgical IPU	11.2.32	Team Care Station	1	F034	Chair, Task, Clinical		3	5	5			
A1.11.2 Medical/Surgical IPU	11.2.32	Team Care Station	1	E246	Monitor, Physiologic, Central Station		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.32	Team Care Station	1	F048	Storage, Cabinet, Filing, 2H		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.32	Team Care Station	1	F476	Whiteboard, Magnetic		2	2	2			
A1.11.2 Medical/Surgical IPU	11.2.32	Team Care Station	1	F075	Workstation, Small		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.32	Team Care Station	1	F081	Workstation, w/pedestal, Height-Adjustable		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.33	Alcove, Computer Charting	11	F034	Chair, Task, Clinical		3	11	11			
A1.11.2 Medical/Surgical IPU	11.2.33	Alcove, Computer Charting	11	F075	Workstation, Small		3	11	11			
A1.11.2 Medical/Surgical IPU	11.2.35	Report/Conference/Education Room	1	F022	Chair, Meeting		3	10	10			
A1.11.2 Medical/Surgical IPU	11.2.35	Report/Conference/Education Room	1	F067	Table, Rectangular, Foldable, Mobile		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.36	Workstation, Patient Care Coordinator	1	F033	Chair, Task		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.36	Workstation, Patient Care Coordinator	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.39	Medications Preparation Room	2	E016	Automation System, Medication Dispensing, Decentralized	Pyxis	3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.39	Medications Preparation Room	2	E017	Automation System, Medication Dispensing, Decentralized	Pyxis	3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.39	Medications Preparation Room	2	E019	Automation System, Medication Dispensing, Decentralized	Pyxis	3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.39	Medications Preparation Room	2	E070	Cart, Storage, Wire	A-Cart type	2	2	2			
A1.11.2 Medical/Surgical IPU	11.2.39	Medications Preparation Room	2	E083	Cassette, Ward Stock		2	2	2			
A1.11.2 Medical/Surgical IPU	11.2.39	Medications Preparation Room	2	E280	Pill Crusher		1	2	2			
A1.11.2 Medical/Surgical IPU	11.2.39	Medications Preparation Room	2	E324C	Refrigerator, Pharmacy, Undercounter		2	2	2			
A1.11.2 Medical/Surgical IPU	11.2.39	Medications Preparation Room	2	F476	Whiteboard, Magnetic		2	2	2			
A1.11.2 Medical/Surgical IPU	11.2.40	Nourishment Station	1	E102	Coffee Machine		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.40	Nourishment Station	1	E179	Ice Machine		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.40	Nourishment Station	1	E238	Microwave		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.40	Nourishment Station	1	E327	Refrigerator/Freezer, Domestic, Upright		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.41	Clean Supplies Room	1	E065	Cart, Oxygen Tank, Mobile		2	6	6			
A1.11.2 Medical/Surgical IPU	11.2.41	Clean Supplies Room	1	E066C	Cart, Supplies/Procedure	Wound Care, CBI	2	2	2			
A1.11.2 Medical/Surgical IPU	11.2.41	Clean Supplies Room	1	E080	Cart, Utility		2	2	2			
A1.11.2 Medical/Surgical IPU	11.2.41	Clean Supplies Room	1	E342C	Shelving, Wire	A-Cart type	2	1	1			

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A1.11.2 Medical/Surgical IPU	11.2.41	Clean Supplies Room	1	E450	Warming Unit, Blankets		5	1		1		1
A1.11.2 Medical/Surgical IPU	11.2.42	Soiled Utility Room	1	E168C	Hamper, Linen		2	3	3			
A1.11.2 Medical/Surgical IPU	11.2.42	Soiled Utility Room	1	E517C	Disinfector, Bedpan	Meiko Topline 20	3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.42	Soiled Utility Room	1	E434	Truck, Utility, Refuse		1	2	2			
A1.11.2 Medical/Surgical IPU	11.2.43	Alcove, Crash Cart	2	E015	Aspirator, Airways		1	2	2			
A1.11.2 Medical/Surgical IPU	11.2.43	Alcove, Crash Cart	2	E051	Cart, Crash	Pediatric	2	2	2			
A1.11.2 Medical/Surgical IPU	11.2.43	Alcove, Crash Cart	2	E111C	Defibrillator, External, Manual	Lifepak 20e	1	2	1	1	1	
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E001C	Alarm, Bed/Chair, Portable		1	3	3			
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E089	Chair, Commode		2	5	5			
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E090	Chair, Commode, Bariatric		2	2	2			
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E095	Chair, Patient, Orthopedics, Height-Adjustable		2	3	3			
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E191	Imaging, Scanning System, Ultrasonic, Bladder		1	1		1	1	
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E212	Lift, Patient Transfer, Mobile		1	1	1			
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E213	Lift, Sit-to-Stand, Mobile	Sabina, Sara Stedy	1	2	2			
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	A007	Allowance, Mats, Bedside		1	3	3			
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E228	Mattress System, Alternating-Pressure		1	5	5			
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E254	Monitor, Vital Signs, Mobile	Mobile. Model 68NXTX-B from Welch Allyn	3	2		2	2	
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E261	Nebulizer		1	1	1			
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E267	Oximeter, Portable		1	2	2			
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E289	Pump, Infusion		1	32	32			
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E290	Pump, Infusion, Enteral Feeding		1	2		2	2	
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E292	Pump, Infusion, Patient-Controlled		1	4		4	4	
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E293	Pump, Infusion, Syringe		1	2	2			
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E334	Scale, Patient, Infant, Mobile		1	1	1			
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E337	Scale, Patient, Platform, Electronic, Bariatric		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E358	Sphygmomanometer, Aneroid, Mobile		1	2	2			
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E364	Stand, IV		1	21	21			

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A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E424	Thermometer, Electronic, Infrared, Skin, Portable		1	4	1	3	3	
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E437	Vacuum, Negative Pressure Wound		5	1		1		1
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E472	Wheelchair, Hygiene/Commode		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.44	Storage Room, Equipment	1	E473	Wheelchair, Positionning	Broda	2	3	3			
A1.11.2 Medical/Surgical IPU	11.2.45	Housekeeping Closet, Distributed	1	E057	Cart, Housekeeping		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.45	Housekeeping Closet, Distributed	1	E116	Dispenser System, Chemical, Wall-Mounted		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.45	Housekeeping Closet, Distributed	1	E344	Shelving, HSKP		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.47	Alcove, Wheelchair Storage	1	E468	Wheelchair, Adult		2	6	6			
A1.11.2 Medical/Surgical IPU	11.2.47	Alcove, Wheelchair Storage	1	E469	Wheelchair, Adult, Bariatric		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.48	Alcove, Stretcher Storage	1	E038	Board, Patient Transfer, Wall-Mounted		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.48	Alcove, Stretcher Storage	1	E393	Stretcher, Mobile, Hospital, Bariatric		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.49	Quiet/Consult Room	1	F013	Chair, Guest		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.49	Quiet/Consult Room	1	F063	Table, Meeting, Round, Small		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.50	Visitor/Patient Lounge	1	F011	Chair, Dining		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.50	Visitor/Patient Lounge	1	F016	Chair, Lounge, 1 Seat		3	8	8			
A1.11.2 Medical/Surgical IPU	11.2.50	Visitor/Patient Lounge	1	F057	Table, Dining		3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.51	Patient Room, Standard	10	E506	Bed Dock Locator		4	10	10			
A1.11.2 Medical/Surgical IPU	11.2.51	Patient Room, Standard	10	E027	Bed, Electric, Patient		5	10		10		10
A1.11.2 Medical/Surgical IPU	11.2.51	Patient Room, Standard	10	F013	Chair, Guest		3	10	10			
A1.11.2 Medical/Surgical IPU	11.2.51	Patient Room, Standard	10	F025	Chair, Patient		3	10	10			
A1.11.2 Medical/Surgical IPU	11.2.51	Patient Room, Standard	10	E168C	Hamper, Linen		2	10	10			
A1.11.2 Medical/Surgical IPU	11.2.51	Patient Room, Standard	10	E555	Headwall System, Horizontal	Horizontal	4	10	10			
A1.11.2 Medical/Surgical IPU	11.2.51	Patient Room, Standard	10	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	10	10			
A1.11.2 Medical/Surgical IPU	11.2.51	Patient Room, Standard	10	E216	Light, Examination, Mobile		3	5	5			
A1.11.2 Medical/Surgical IPU	11.2.51	Patient Room, Standard	10	E256	Monitor, Vital Signs, Wall-Mounted		3	10	10			
A1.11.2 Medical/Surgical IPU	11.2.51	Patient Room, Standard	10	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	10	10			
A1.11.2 Medical/Surgical IPU	11.2.51	Patient Room, Standard	10	F052	Table, Bedside		3	10	10			
A1.11.2 Medical/Surgical IPU	11.2.51	Patient Room, Standard	10	F066	Table, Overbed		3	10	10			

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A1.11.2 Medical/Surgical IPU	11.2.52	Patient Room, Barrier Free	4	E506	Bed Dock Locator		4	4	4			
A1.11.2 Medical/Surgical IPU	11.2.52	Patient Room, Barrier Free	4	E028	Bed, Electric, Patient, Bariatric		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.52	Patient Room, Barrier Free	4	F013	Chair, Guest		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.52	Patient Room, Barrier Free	4	F026	Chair, Patient, Bariatric		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.52	Patient Room, Barrier Free	4	E168C	Hamper, Linen		2	4	4			
A1.11.2 Medical/Surgical IPU	11.2.52	Patient Room, Barrier Free	4	E555	Headwall System, Horizontal	Horizontal	4	4	4			
A1.11.2 Medical/Surgical IPU	11.2.52	Patient Room, Barrier Free	4	E211	Lift, Patient Transfer, Bariatric, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	4	4			
A1.11.2 Medical/Surgical IPU	11.2.52	Patient Room, Barrier Free	4	E216	Light, Examination, Mobile		3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.52	Patient Room, Barrier Free	4	E256	Monitor, Vital Signs, Wall-Mounted		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.52	Patient Room, Barrier Free	4	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	4	4			
A1.11.2 Medical/Surgical IPU	11.2.52	Patient Room, Barrier Free	4	F052	Table, Bedside		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.52	Patient Room, Barrier Free	4	F066	Table, Overbed		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.53	Patient Room, Palliative/Paed	1	E506	Bed Dock Locator		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.53	Patient Room, Palliative/Paed	1	E027	Bed, Electric, Patient		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.53	Patient Room, Palliative/Paed	1	F013	Chair, Guest		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.53	Patient Room, Palliative/Paed	1	F016	Chair, Lounge, 1 Seat		3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.53	Patient Room, Palliative/Paed	1	F019	Chair, Lounge, 2 Seat		3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.53	Patient Room, Palliative/Paed	1	F025	Chair, Patient		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.53	Patient Room, Palliative/Paed	1	F032	Chair, Sofa, Sleeper		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.53	Patient Room, Palliative/Paed	1	E168C	Hamper, Linen		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.53	Patient Room, Palliative/Paed	1	E555	Headwall System, Horizontal	Horizontal	4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.53	Patient Room, Palliative/Paed	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.53	Patient Room, Palliative/Paed	1	E216	Light, Examination, Mobile		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.53	Patient Room, Palliative/Paed	1	E256	Monitor, Vital Signs, Wall-Mounted		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.53	Patient Room, Palliative/Paed	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1	1			
A1.11.2 Medical/Surgical IPU	11.2.53	Patient Room, Palliative/Paed	1	F052	Table, Bedside		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.53	Patient Room, Palliative/Paed	1	F055	Table, Coffee		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.53	Patient Room, Palliative/Paed	1	F059	Table, End		3	1	1			

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A1.11.2 Medical/Surgical IPU	11.2.53	Patient Room, Palliative/Paed	1	F066	Table, Overbed		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.54	Palliative/Paed Family/Quiet Room	1	F016	Chair, Lounge, 1 Seat		3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.54	Palliative/Paed Family/Quiet Room	1	F019	Chair, Lounge, 2 Seat		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.54	Palliative/Paed Family/Quiet Room	1	F055	Table, Coffee		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.54	Palliative/Paed Family/Quiet Room	1	F059	Table, End		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.55	Multipurpose Paediatric Room	1	F013	Chair, Guest		3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.55	Multipurpose Paediatric Room	1	F067	Table, Rectangular, Foldable, Mobile		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.56	Patient Room, Positive Pressure Isolation Room	1	E506	Bed Dock Locator		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.56	Patient Room, Positive Pressure Isolation Room	1	E027	Bed, Electric, Patient		5	1		1		1
A1.11.2 Medical/Surgical IPU	11.2.56	Patient Room, Positive Pressure Isolation Room	1	F013	Chair, Guest		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.56	Patient Room, Positive Pressure Isolation Room	1	F025	Chair, Patient		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.56	Patient Room, Positive Pressure Isolation Room	1	E168C	Hamper, Linen		2	2	2			
A1.11.2 Medical/Surgical IPU	11.2.56	Patient Room, Positive Pressure Isolation Room	1	E555	Headwall System, Horizontal	Horizontal	4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.56	Patient Room, Positive Pressure Isolation Room	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.56	Patient Room, Positive Pressure Isolation Room	1	E218	Light, Examination, Wall-Mounted		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.56	Patient Room, Positive Pressure Isolation Room	1	E256	Monitor, Vital Signs, Wall-Mounted		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.56	Patient Room, Positive Pressure Isolation Room	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1	1			
A1.11.2 Medical/Surgical IPU	11.2.56	Patient Room, Positive Pressure Isolation Room	1	E282	PPE, Wall-mounted Gloves Boxes		2	3	3			
A1.11.2 Medical/Surgical IPU	11.2.56	Patient Room, Positive Pressure Isolation Room	1	F052	Table, Bedside		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.56	Patient Room, Positive Pressure Isolation Room	1	F066	Table, Overbed		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.57	Patient Room, Negative Pressure Isolation Room	1	E506	Bed Dock Locator		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.57	Patient Room, Negative Pressure Isolation Room	1	E027	Bed, Electric, Patient		5	1		1		1
A1.11.2 Medical/Surgical IPU	11.2.57	Patient Room, Negative Pressure Isolation Room	1	F013	Chair, Guest		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.57	Patient Room, Negative Pressure Isolation Room	1	F025	Chair, Patient		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.57	Patient Room, Negative Pressure Isolation Room	1	E168C	Hamper, Linen		2	3	3			
A1.11.2 Medical/Surgical IPU	11.2.57	Patient Room, Negative Pressure Isolation Room	1	E168C	Hamper, Linen		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.57	Patient Room, Negative Pressure Isolation Room	1	E555	Headwall System, Horizontal	Horizontal	4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.57	Patient Room, Negative Pressure Isolation Room	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			

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A1.11.2 Medical/Surgical IPU	11.2.57	Patient Room, Negative Pressure Isolation Room	1	E218	Light, Examination, Wall-Mounted		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.57	Patient Room, Negative Pressure Isolation Room	1	E256	Monitor, Vital Signs, Wall-Mounted		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.57	Patient Room, Negative Pressure Isolation Room	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1	1			
A1.11.2 Medical/Surgical IPU	11.2.57	Patient Room, Negative Pressure Isolation Room	1	E282	PPE, Wall-mounted Gloves Boxes		2	3	3			
A1.11.2 Medical/Surgical IPU	11.2.57	Patient Room, Negative Pressure Isolation Room	1	F052	Table, Bedside		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.57	Patient Room, Negative Pressure Isolation Room	1	F066	Table, Overbed		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.58	Patient Room, Negative Pressure Barrier Free Isolation Room	1	E506	Bed Dock Locator		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.58	Patient Room, Negative Pressure Barrier Free Isolation Room	1	E028	Bed, Electric, Patient, Bariatric		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.58	Patient Room, Negative Pressure Barrier Free Isolation Room	1	F013	Chair, Guest		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.58	Patient Room, Negative Pressure Barrier Free Isolation Room	1	F026	Chair, Patient, Bariatric		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.58	Patient Room, Negative Pressure Barrier Free Isolation Room	1	E168C	Hamper, Linen		2	3	3			
A1.11.2 Medical/Surgical IPU	11.2.58	Patient Room, Negative Pressure Barrier Free Isolation Room	1	E168C	Hamper, Linen		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.58	Patient Room, Negative Pressure Barrier Free Isolation Room	1	E555	Headwall System, Horizontal	Horizontal	4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.58	Patient Room, Negative Pressure Barrier Free Isolation Room	1	E211	Lift, Patient Transfer, Bariatric, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.58	Patient Room, Negative Pressure Barrier Free Isolation Room	1	E216	Light, Examination, Mobile		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.58	Patient Room, Negative Pressure Barrier Free Isolation Room	1	E256	Monitor, Vital Signs, Wall-Mounted		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.58	Patient Room, Negative Pressure Barrier Free Isolation Room	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1	1			
A1.11.2 Medical/Surgical IPU	11.2.58	Patient Room, Negative Pressure Barrier Free Isolation Room	1	E282	PPE, Wall-mounted Gloves Boxes		2	3	3			
A1.11.2 Medical/Surgical IPU	11.2.58	Patient Room, Negative Pressure Barrier Free Isolation Room	1	F052	Table, Bedside		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.58	Patient Room, Negative Pressure Barrier Free Isolation Room	1	F066	Table, Overbed		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.60	Storage Room, Large Equipment	1	E034	Bed, Patient, Pediatric Crib		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.60	Storage Room, Large Equipment	1	E091	Chair, Geriatric, Recliner		2	2	2			
A1.11.2 Medical/Surgical IPU	11.2.61	Therapy Tub Room	1	E168C	Hamper, Linen		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.61	Therapy Tub Room	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.61	Therapy Tub Room	1	E374	Storage, Cabinet	for clean linen	2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.61	Therapy Tub Room	1	E435C	Tub, Therapy		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.63	Alcove, Clean Supplies	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.64	Alcove, Soiled Holding	1	E168C	Hamper, Linen		2	2	2			

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A1.11.2 Medical/Surgical IPU	11.2.65	Patient Room	3	E506	Bed Dock Locator		4	3	3			
A1.11.2 Medical/Surgical IPU	11.2.65	Patient Room	3	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	3	3			
A1.11.2 Medical/Surgical IPU	11.2.65	Patient Room	3	E027	Bed, Electric, Patient		5	3		3		3
A1.11.2 Medical/Surgical IPU	11.2.65	Patient Room	3	F013	Chair, Guest		3	3	3			
A1.11.2 Medical/Surgical IPU	11.2.65	Patient Room	3	F025	Chair, Patient		3	3	3			
A1.11.2 Medical/Surgical IPU	11.2.65	Patient Room	3	E168C	Hamper, Linen		2	3	3			
A1.11.2 Medical/Surgical IPU	11.2.65	Patient Room	3	E555	Headwall System, Horizontal	Horizontal	4	3	3			
A1.11.2 Medical/Surgical IPU	11.2.65	Patient Room	3	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	3	3			
A1.11.2 Medical/Surgical IPU	11.2.65	Patient Room	3	E216	Light, Examination, Mobile		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.65	Patient Room	3	E245	Monitor, Physiologic, Wall-Mounted		3	3	3			
A1.11.2 Medical/Surgical IPU	11.2.65	Patient Room	3	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	3	3			
A1.11.2 Medical/Surgical IPU	11.2.65	Patient Room	3	F052	Table, Bedside		3	3	3			
A1.11.2 Medical/Surgical IPU	11.2.65	Patient Room	3	F066	Table, Overbed		3	3	3			
A1.11.2 Medical/Surgical IPU	11.2.65	Patient Room	3	E446	Ventilator, Noninvasive Positive Pressure	BiPAP	1	1	1			
A1.11.2 Medical/Surgical IPU	11.2.66	Staff Lounge/Break Room	1	F011	Chair, Dining		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.66	Staff Lounge/Break Room	1	F016	Chair, Lounge, 1 Seat		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.66	Staff Lounge/Break Room	1	F019	Chair, Lounge, 2 Seat		3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.66	Staff Lounge/Break Room	1	E102	Coffee Machine		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.66	Staff Lounge/Break Room	1	E179	Ice Machine		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.66	Staff Lounge/Break Room	1	E238	Microwave		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.66	Staff Lounge/Break Room	1	E327	Refrigerator/Freezer, Domestic, Upright		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.66	Staff Lounge/Break Room	1	F055	Table, Coffee		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.66	Staff Lounge/Break Room	1	F057	Table, Dining		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.66	Staff Lounge/Break Room	1	F059	Table, End		3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.67	Office, Multi-Use	1	F013	Chair, Guest		3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.67	Office, Multi-Use	1	F033	Chair, Task		3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.67	Office, Multi-Use	1	F474	Whiteboard		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.67	Office, Multi-Use	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	2	2			

Furniture and Equipment List

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A1.11.2 Medical/Surgical IPU	11.2.68	Office, Nurse Manager	1	F013	Chair, Guest		3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.68	Office, Nurse Manager	1	F033	Chair, Task		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.68	Office, Nurse Manager	1	F474	Whiteboard		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.68	Office, Nurse Manager	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.69	Office, Patient Care Coordinators	1	F013	Chair, Guest		3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.69	Office, Patient Care Coordinators	1	F033	Chair, Task		3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.69	Office, Patient Care Coordinators	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
A1.11.2 Medical/Surgical IPU	11.2.69	Office, Patient Care Coordinators	1	F474	Whiteboard		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.69	Office, Patient Care Coordinators	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.70	Office, Clinical Pharmacist	1	F013	Chair, Guest		3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.70	Office, Clinical Pharmacist	1	F033	Chair, Task		3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.70	Office, Clinical Pharmacist	1	F474	Whiteboard		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.70	Office, Clinical Pharmacist	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	2	2			
A1.11.2 Medical/Surgical IPU	11.2.71	Education Room/Physician & Learners Workroom	1	F013	Chair, Guest		3	15	15			
A1.11.2 Medical/Surgical IPU	11.2.71	Education Room/Physician & Learners Workroom	1	F067	Table, Rectangular, Foldable, Mobile		3	4	4			
A1.11.2 Medical/Surgical IPU	11.2.74	Servery	1	E238	Microwave		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.74	Servery	1	E327	Refrigerator/Freezer, Domestic, Upright		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.75	Equipment Cleaning Room	1	E460	Washer, Pressure		2	1	1			
A1.11.2 Medical/Surgical IPU	11.2.77	Alcove, Water/Ice Machine	1	E179	Ice Machine		4	1	1			
A1.11.2 Medical/Surgical IPU	11.2.78	Alcove, Water/Ice Machine	1	E179	Ice Machine		4	1	1			
A1.11.3 Psychiatry IPU	11.3.02	Waiting Area	1	F038	Chair, Waiting, Bariatric, Weighted		3	2	2			
A1.11.3 Psychiatry IPU	11.3.02	Waiting Area	1	F039	Chair, Waiting, Weighted		3	1	1			
A1.11.3 Psychiatry IPU	11.3.04	Welcome/Multi-Use/Orientation Room	1	F017	Chair, Lounge, 1 Seat, Bariatric, Weighted		3	2	2			
A1.11.3 Psychiatry IPU	11.3.04	Welcome/Multi-Use/Orientation Room	1	F018	Chair, Lounge, 1 Seat, Weighted		3	4	4			
A1.11.3 Psychiatry IPU	11.3.04	Welcome/Multi-Use/Orientation Room	1	F056	Table, Coffee, Large		3	1	1			
A1.11.3 Psychiatry IPU	11.3.04	Welcome/Multi-Use/Orientation Room	1	F071	Workstation	Small touch-down WS	3	1	1			
A1.11.3 Psychiatry IPU	11.3.05	Team Care Station	1	F034	Chair, Task, Clinical		3	6	6			
A1.11.3 Psychiatry IPU	11.3.05	Team Care Station	1	E342C	Shelving, Wire	A-Cart type	2	3	3			

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A1.11.3 Psychiatry IPU	11.3.05	Team Care Station	1	F071	Workstation		3	3	3			
A1.11.3 Psychiatry IPU	11.3.05	Team Care Station	1	F075	Workstation, Small		3	3	3			
A1.11.3 Psychiatry IPU	11.3.06	Medications Preparation Room	1	E016	Automation System, Medication Dispensing, Decentralized	Pyxis	3	1	1			
A1.11.3 Psychiatry IPU	11.3.06	Medications Preparation Room	1	E017	Automation System, Medication Dispensing, Decentralized	Pyxis	3	1	1			
A1.11.3 Psychiatry IPU	11.3.06	Medications Preparation Room	1	E019	Automation System, Medication Dispensing, Decentralized	Pyxis	3	1	1			
A1.11.3 Psychiatry IPU	11.3.06	Medications Preparation Room	1	E070	Cart, Storage, Wire	A-Cart type	2	1	1			
A1.11.3 Psychiatry IPU	11.3.06	Medications Preparation Room	1	E083	Cassette, Ward Stock		2	1	1			
A1.11.3 Psychiatry IPU	11.3.06	Medications Preparation Room	1	E324C	Refrigerator, Pharmacy, Undercounter		2	1	1			
A1.11.3 Psychiatry IPU	11.3.06	Medications Preparation Room	1	F476	Whiteboard, Magnetic		2	1	1			
A1.11.3 Psychiatry IPU	11.3.09	Team Meeting/Conference/ Group Room No.1	1	F022	Chair, Meeting		3	20	20			
A1.11.3 Psychiatry IPU	11.3.09	Team Meeting/Conference/ Group Room No.1	1	F061	Table, Meeting, Round, Large		3	4	4			
A1.11.3 Psychiatry IPU	11.3.10	Office, Team Leader	1	F015	Chair, Guest, Weighted		3	2	2			
A1.11.3 Psychiatry IPU	11.3.10	Office, Team Leader	1	F034	Chair, Task, Clinical		3	1	1			
A1.11.3 Psychiatry IPU	11.3.10	Office, Team Leader	1	F474	Whiteboard		2	1	1			
A1.11.3 Psychiatry IPU	11.3.10	Office, Team Leader	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
A1.11.3 Psychiatry IPU	11.3.11	Interview/Consult Room, Psychiatrists	1	F064	Table, Meeting, Round, Small, Weighted		3	1	1			
A1.11.3 Psychiatry IPU	11.3.11	Interview/Consult Room, Psychiatrists	1	F015	Chair, Guest, Weighted		3	2	2			
A1.11.3 Psychiatry IPU	11.3.11	Interview/Consult Room, Psychiatrists	1	F033	Chair, Task		3	1	1			
A1.11.3 Psychiatry IPU	11.3.11	Interview/Consult Room, Psychiatrists	1	F077	Workstation, Small, w/hutch, w/pedestal		3	1	1			
A1.11.3 Psychiatry IPU	11.3.12	Office, Workroom	1	F013	Chair, Guest		3	2	2			
A1.11.3 Psychiatry IPU	11.3.12	Office, Workroom	1	F034	Chair, Task, Clinical		3	2	2			
A1.11.3 Psychiatry IPU	11.3.12	Office, Workroom	1	F474	Whiteboard		2	2	2			
A1.11.3 Psychiatry IPU	11.3.12	Office, Workroom	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	2	2			
A1.11.3 Psychiatry IPU	11.3.13	Interview/Consult Room, Social Work	1	F064	Table, Meeting, Round, Small, Weighted		3	1	1			
A1.11.3 Psychiatry IPU	11.3.13	Interview/Consult Room, Social Work	1	F015	Chair, Guest, Weighted		3	2	2			
A1.11.3 Psychiatry IPU	11.3.13	Interview/Consult Room, Social Work	1	F034	Chair, Task, Clinical		3	1	1			
A1.11.3 Psychiatry IPU	11.3.13	Interview/Consult Room, Social Work	1	F474	Whiteboard		2	1	1			
A1.11.3 Psychiatry IPU	11.3.13	Interview/Consult Room, Social Work	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			

Furniture and Equipment List

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A1.11.3 Psychiatry IPU	11.3.14	Patient Room, Standard	18	E035	Bed, Twin, Psychiatry		1	18	18			
A1.11.3 Psychiatry IPU	11.3.14	Patient Room, Standard	18	F018	Chair, Lounge, 1 Seat, Weighted		3	18	18			
A1.11.3 Psychiatry IPU	11.3.14	Patient Room, Standard	18	E507	Headwall System, Concealed	With lockable security console. Gases: 1 ea of Oxyegn, Medical Air and Vacuum	4	18	18			
A1.11.3 Psychiatry IPU	11.3.14	Patient Room, Standard	18	F052	Table, Bedside		3	18	18			
A1.11.3 Psychiatry IPU	11.3.14	Patient Room, Standard	18	F082	Table, Weighted		3	18	18			
A1.11.3 Psychiatry IPU	11.3.16	Patient Room, Barrier free	2	E035	Bed, Twin, Psychiatry		1	2	2			
A1.11.3 Psychiatry IPU	11.3.16	Patient Room, Barrier free	2	F018	Chair, Lounge, 1 Seat, Weighted		3	2	2			
A1.11.3 Psychiatry IPU	11.3.16	Patient Room, Barrier free	2	E507	Headwall System, Concealed	With lockable security console. Gases: 1 ea of Oxyegn, Medical Air and Vacuum	4	2	2			
A1.11.3 Psychiatry IPU	11.3.16	Patient Room, Barrier free	2	F052	Table, Bedside		3	2	2			
A1.11.3 Psychiatry IPU	11.3.16	Patient Room, Barrier free	2	F082	Table, Weighted		3	2	2			
A1.11.3 Psychiatry IPU	11.3.18	Tub Room	1	E435C	Tub, Therapy		3	1	1			
A1.11.3 Psychiatry IPU	11.3.18	Tub Room	1	E064C	Cart, Linen		2	1	1			
A1.11.3 Psychiatry IPU	11.3.20	Alcove, Sitting	4	F018	Chair, Lounge, 1 Seat, Weighted		3	4	4			
A1.11.3 Psychiatry IPU	11.3.21	Secure/Observation Room	4	E229	Mattress, Seclusion		1	4	4			
A1.11.3 Psychiatry IPU	11.3.24	Family Room	1	F018	Chair, Lounge, 1 Seat, Weighted		3	6	6			
A1.11.3 Psychiatry IPU	11.3.24	Family Room	1	F062	Table, Meeting, Round, Large, Weighted		3	1	1			
A1.11.3 Psychiatry IPU	11.3.25	Multi-Sensory Room	1	E1000	No Equipment by Colliers		#N/A					
A1.11.3 Psychiatry IPU	11.3.26	Interview/Consultation/Assessment Room	1	F018	Chair, Lounge, 1 Seat, Weighted		3	4	4			
A1.11.3 Psychiatry IPU	11.3.26	Interview/Consultation/Assessment Room	1	F033	Chair, Task		3	1	1			
A1.11.3 Psychiatry IPU	11.3.26	Interview/Consultation/Assessment Room	1	F064	Table, Meeting, Round, Small, Weighted		3	1	1			
A1.11.3 Psychiatry IPU	11.3.26	Interview/Consultation/Assessment Room	1	F071	Workstation		3	1	1			
A1.11.3 Psychiatry IPU	11.3.27	Group Room No.2	1	F022	Chair, Meeting		3	10	10			
A1.11.3 Psychiatry IPU	11.3.27	Group Room No.2	1	F067	Table, Rectangular, Foldable, Mobile		3	2	2			
A1.11.3 Psychiatry IPU	11.3.28	Lounge/TV Area	1	F017	Chair, Lounge, 1 Seat, Bariatric, Weighted		3	2	2			
A1.11.3 Psychiatry IPU	11.3.28	Lounge/TV Area	1	F018	Chair, Lounge, 1 Seat, Weighted		3	8	8			
A1.11.3 Psychiatry IPU	11.3.28	Lounge/TV Area	1	F019	Chair, Lounge, 2 Seat		3	2	2			
A1.11.3 Psychiatry IPU	11.3.28	Lounge/TV Area	1	F020	Chair, Lounge, 3 Seat		3	2	2			
A1.11.3 Psychiatry IPU	11.3.28	Lounge/TV Area	1	F056	Table, Coffee, Large	with storage	3	2	2			

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A1.11.3 Psychiatry IPU	11.3.29	Dining Area	1	F012	Chair, Dining, Weighted		3	30	30			
A1.11.3 Psychiatry IPU	11.3.29	Dining Area	1	E238	Microwave		4	1	1			
A1.11.3 Psychiatry IPU	11.3.29	Dining Area	1	E391	Stove, Electric, w/Hood Fan		3	1	1			
A1.11.3 Psychiatry IPU	11.3.29	Dining Area	1	E317	Refrigerator, Domestic, Upright		4	1	1			
A1.11.3 Psychiatry IPU	11.3.29	Dining Area	1	F058	Table, Dining, Weighted		3	5	5			
A1.11.3 Psychiatry IPU	11.3.33	Activity Room, Recreation Therapy	1	F003	Arts, Table		3	1	1			
A1.11.3 Psychiatry IPU	11.3.33	Activity Room, Recreation Therapy	1	F015	Chair, Guest, Weighted		3	4	4			
A1.11.3 Psychiatry IPU	11.3.33	Activity Room, Recreation Therapy	1	F018	Chair, Lounge, 1 Seat, Weighted		3	8	8			
A1.11.3 Psychiatry IPU	11.3.33	Activity Room, Recreation Therapy	1	F019	Chair, Lounge, 2 Seat		3	2	2			
A1.11.3 Psychiatry IPU	11.3.33	Activity Room, Recreation Therapy	1	E140	Exerciser, Bike, Upright		2	2	2			
A1.11.3 Psychiatry IPU	11.3.33	Activity Room, Recreation Therapy	1	E146	Exerciser, Treadmill		2	2	2			
A1.11.3 Psychiatry IPU	11.3.33	Activity Room, Recreation Therapy	1	E160	Games, Air Hockey Table, Covered		2	1	1			
A1.11.3 Psychiatry IPU	11.3.33	Activity Room, Recreation Therapy	1	E162	Games, Foosball Table, Covered		2	1	1			
A1.11.3 Psychiatry IPU	11.3.33	Activity Room, Recreation Therapy	1	E164	Games, Video		2	2	2			
A1.11.3 Psychiatry IPU	11.3.33	Activity Room, Recreation Therapy	1	E259	Musical Instruments, Piano		1	1	1			
A1.11.3 Psychiatry IPU	11.3.34	Soiled Utility Room	1	E168C	Hamper, Linen		2	1	1			
A1.11.3 Psychiatry IPU	11.3.34	Soiled Utility Room	1	E517C	Disinfector, Bedpan	Meiko Topline 20	3	1	1			
A1.11.3 Psychiatry IPU	11.3.34	Soiled Utility Room	1	E434	Truck, Utility, Refuse		1	2	2			
A1.11.3 Psychiatry IPU	11.3.35	Clean Supplies Room	1	E342C	Shelving, Wire	A-Cart type	2	2	2			
A1.11.3 Psychiatry IPU	11.3.36	Housekeeping Closet, Distributed	1	E057	Cart, Housekeeping		2	1	1			
A1.11.3 Psychiatry IPU	11.3.36	Housekeeping Closet, Distributed	1	E116	Dispenser System, Chemical, Wall-Mounted		3	1	1			
A1.11.3 Psychiatry IPU	11.3.36	Housekeeping Closet, Distributed	1	E344	Shelving, HSKP		2	1	1			
A1.11.3 Psychiatry IPU	11.3.37	Storage Room, Equipment/Patient Belongings	1	E482	Electroconvulsive Therapy Instrument		2	1	1			
A1.11.3 Psychiatry IPU	11.3.37	Storage Room, Equipment/Patient Belongings	1	E212	Lift, Patient Transfer, Mobile		1	1	1			
A1.11.3 Psychiatry IPU	11.3.37	Storage Room, Equipment/Patient Belongings	1	E342C	Shelving, Wire	A-Cart type	2	5	5			
A1.11.3 Psychiatry IPU	11.3.39	Staff Lounge/Lockers	1	F012	Chair, Dining, Weighted		3	4	4			
A1.11.3 Psychiatry IPU	11.3.39	Staff Lounge/Lockers	1	F028	Chair, Recliner		3	4	4			
A1.11.3 Psychiatry IPU	11.3.39	Staff Lounge/Lockers	1	E102	Coffee Machine		4	1	1			

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A1.11.3 Psychiatry IPU	11.3.39	Staff Lounge/Lockers	1	E179	Ice Machine		4	1	1			
A1.11.3 Psychiatry IPU	11.3.39	Staff Lounge/Lockers	1	E238	Microwave		4	1	1			
A1.11.3 Psychiatry IPU	11.3.39	Staff Lounge/Lockers	1	E316	Refrigerator, Domestic, Undercounter		4	1	1			
A1.11.3 Psychiatry IPU	11.3.39	Staff Lounge/Lockers	1	F057	Table, Dining		3	1	1			
1A.12 Laboratory Services	12.01	Entry/Exit	1	E168C	Hamper, Linen		2	1	1			
1A.12 Laboratory Services	12.02	In-Facility receiving station	1	F035	Chair, Task/Stool, High		3	1	1			
1A.12 Laboratory Services	12.02	In-Facility receiving station	1	F078	Workstation, Small, w/pedestal		3	1	1			
1A.12 Laboratory Services	12.03	Referred-in/out sample handling	1	E047	Cart	Rubbermaid, 2 shelves	2	2	2			
1A.12 Laboratory Services	12.03	Referred-in/out sample handling	1	F035	Chair, Task/Stool, High		3	1	1			
1A.12 Laboratory Services	12.04	Specimen Accessioning	1	E044	Cabinet, Biological Safety	vented out (not to be recirculated)	3	1	1			
1A.12 Laboratory Services	12.04	Specimen Accessioning	1	E049	Cart, Collection, Laboratory		2	4	4			
1A.12 Laboratory Services	12.04	Specimen Accessioning	1	E080	Cart, Utility		2	2	2			
1A.12 Laboratory Services	12.04	Specimen Accessioning	1	E084C	Centrifuge, Tabletop	Rotofix 32A	1	1	1			
1A.12 Laboratory Services	12.04	Specimen Accessioning	1	E086C	Centrifuge, Tabletop, Refrigerated	Rotina 380R	1	1	1			
1A.12 Laboratory Services	12.04	Specimen Accessioning	1	E153C	Freezer -20, Laboratory, Upright		2	1	1			
1A.12 Laboratory Services	12.04	Specimen Accessioning	1	E197C	Incubator, Laboratory	(system includes lightbox, incubator, certrifuge and washing	1	1	1			
1A.12 Laboratory Services	12.04	Specimen Accessioning	1	E319C	Refrigerator, Laboratory, Upright		2	1	1			
1A.12 Laboratory Services	12.04	Specimen Accessioning	1	F048	Storage, Cabinet, Filing, 2H		3	1	1			
1A.12 Laboratory Services	12.04	Specimen Accessioning	1	F060	Table, Laboratory, Height-Adjustable		3	1	1			
1A.12 Laboratory Services	12.05	Automated Workstation	1	E003C	Analyzer, Laboratory, Clinical Chemistry	Integra 400 plus	1	2		2	2	
1A.12 Laboratory Services	12.05	Automated Workstation	1	E004C	Analyzer, Laboratory, Clinical Chemistry/Immunoassay	Cobas E411	1	1		1	1	
1A.12 Laboratory Services	12.05	Automated Workstation	1	E486C	Lab Water System, Reverse Osmosis		3	1	1	2	2	
1A.12 Laboratory Services	12.05	Automated Workstation	1	E086C	Centrifuge, Tabletop, Refrigerated	Rotina 380R	1	1		1	1	
1A.12 Laboratory Services	12.05	Automated Workstation	1	E084C	Centrifuge, Tabletop	Rotofix 32A	1	1		1	1	
1A.12 Laboratory Services	12.06	Blood Gas Workstation	1	E002C	Analyzer, Laboratory, Blood Gas	GEM4000	1	1		1	1	
1A.12 Laboratory Services	12.07	Urinalysis Station	1	E010C	Analyzer, Laboratory, Urine, Semiautomated	Cobas U411	1	1		1	1	0
1A.12 Laboratory Services	12.07	Urinalysis Station	1	E084C	Centrifuge, Tabletop	Rotofix 32A	1	1	1			
1A.12 Laboratory Services	12.07	Urinalysis Station	1	E232	Microscope, Laboratory, Single		1	1		1	1	

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1A.12 Laboratory Services	12.07	Urinalysis Station	1	E375C	Storage, Cabinet, Chemicals	Mini Double model	2	1	1			
1A.12 Laboratory Services	12.08	Support Area	1	E545	Analyzer, Laboratory, Protein, Fetal Fibronectin, POC	Fetal Fibronection - point of care	1	1		1	1	
1A.12 Laboratory Services	12.08	Support Area	1	E007C	Analyzer, Laboratory, Immunoassay, Photometric, Enzym	H232	1	1		1	1	
1A.12 Laboratory Services	12.08	Support Area	1	E013C	Analyzer, Point-of-Care, Whole Blood, Multianalyte	i-Stat	1	1	0	1	1	
1A.12 Laboratory Services	12.08	Support Area	1	E154	Freezer -30, Laboratory, Upright	w/drawers	2	1	1			
1A.12 Laboratory Services	12.08	Support Area	1	E320C	Refrigerator, Laboratory, Upright, Double Doors		2	2	2			
1A.12 Laboratory Services	12.09	Senior Technologist Workstation	1	F035	Chair, Task/Stool, High		3	1	1			
1A.12 Laboratory Services	12.09	Senior Technologist Workstation	1	F077	Workstation, Small, w/hutch, w/pedestal		3	1	1			
1A.12 Laboratory Services	12.10	Haematology Workstation	1	E005C	Analyzer, Laboratory, Hematology, Cell Counting, Automa	XS1000	1	1		1	1	
1A.12 Laboratory Services	12.10	Haematology Workstation	1	E005C	Analyzer, Laboratory, Hematology, Cell Counting, Automa	XS1000	5	1		1		1
1A.12 Laboratory Services	12.10	Haematology Workstation	1	E241	Mixer, Blood		1	1		1	1	
1A.12 Laboratory Services	12.10	Haematology Workstation	1	E318	Refrigerator, Laboratory, Undercounter		2	1	1			
1A.12 Laboratory Services	12.10	Haematology Workstation	1	E377	Storage, Cabinet, Flammable		2	1	1			
1A.12 Laboratory Services	12.10	Haematology Workstation	1	F060	Table, Laboratory, Height-Adjustable		3	1	1			
1A.12 Laboratory Services	12.11	Coagulation Station	1	E006	Analyzer, Laboratory, Hematology, Coagulation	Stago	5	2		1	1	1
1A.12 Laboratory Services	12.11	Coagulation Station	1	E084C	Centrifuge, Tabletop	Rotofix 32A	1	1		1	1	
1A.12 Laboratory Services	12.12	Slide Stainer Workstation	1	E352C	Slide Stainer, Hematology		1	1		1	1	
1A.12 Laboratory Services	12.14	Microscopy Workstation	1	E231	Microscope, Laboratory, Dual		1	1	1			
1A.12 Laboratory Services	12.15	Senior Technologist Workstation	1	F035	Chair, Task/Stool, High		3	1	1			
1A.12 Laboratory Services	12.15	Senior Technologist Workstation	1	F077	Workstation, Small, w/hutch, w/pedestal		3	1	1			
1A.12 Laboratory Services	12.16	Support Area	1	E157	Freezer, Laboratory, Undercounter		2	1	1			
1A.12 Laboratory Services	12.16	Support Area	1	E320C	Refrigerator, Laboratory, Upright, Double Doors		2	1	1			
1A.12 Laboratory Services	12.16	Support Area	1	E342C	Shelving, Wire		2	1	1			
1A.12 Laboratory Services	12.17	Receiving Area / Issuing Area	1	F035	Chair, Task/Stool, High		3	2	2			
1A.12 Laboratory Services	12.17	Receiving Area / Issuing Area	1	F060	Table, Laboratory, Height-Adjustable		3	1	1			
1A.12 Laboratory Services	12.18	Blood Products Refrigerated Storage	1	E480C	Analyzer, Laboratory, Immunohematology, Automated	Echo Lumena	1	1	1			
1A.12 Laboratory Services	12.18	Blood Products Refrigerated Storage	1	E022	Bath, Water		1	1	1			
1A.12 Laboratory Services	12.18	Blood Products Refrigerated Storage	1	E023	Bath, Water, Plasma-Thawing		1	1		1	1	

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1A.12 Laboratory Services	12.18	Blood Products Refrigerated Storage	1	E084C	Centrifuge, Tabletop	Rotofix 32A	1	1		1	1	
1A.12 Laboratory Services	12.18	Blood Products Refrigerated Storage	1	E085	Centrifuge, Tabletop, Cell Washing		1	1		1	1	
1A.12 Laboratory Services	12.18	Blood Products Refrigerated Storage	1	E153C	Freezer -20, Laboratory, Upright		2	1	1			
1A.12 Laboratory Services	12.18	Blood Products Refrigerated Storage	1	E197C	Incubator, Laboratory	(system includes lightbox, incubator, certrifuge and washing :	1	1	1			
1A.12 Laboratory Services	12.18	Blood Products Refrigerated Storage	1	E198	Incubator, Laboratory, Shaker/Rotator, Platelet		5	1		1		1
1A.12 Laboratory Services	12.18	Blood Products Refrigerated Storage	1	E214C	Light, Box		2	1	1			
1A.12 Laboratory Services	12.18	Blood Products Refrigerated Storage	1	E232	Microscope, Laboratory, Single		1	1		1	1	
1A.12 Laboratory Services	12.18	Blood Products Refrigerated Storage	1	E320C	Refrigerator, Laboratory, Upright, Double Doors		2	1	1			
1A.12 Laboratory Services	12.19	Senior Technologist Workstation	1	F035	Chair, Task/Stool, High		3	1	1			
1A.12 Laboratory Services	12.20	Entry/Exit	1	E168C	Hamper, Linen		2	1	1			
1A.12 Laboratory Services	12.21	Receiving, Log-in Area	1	F035	Chair, Task/Stool, High		3	2	2			
1A.12 Laboratory Services	12.21	Receiving, Log-in Area	1	E008C	Analyzer, Laboratory, Microbiology, Blood Culture, Autom	BactAlert	5	1		1		1
1A.12 Laboratory Services	12.21	Receiving, Log-in Area	1	F060	Table, Laboratory, Height-Adjustable		3	2	2			
1A.12 Laboratory Services	12.22	Plating	1	E044	Cabinet, Biological Safety	Vented to outside	3	1	1			
1A.12 Laboratory Services	12.22	Plating	1	E009C	Analyzer, Laboratory, Microbiology, Susceptibility, Autom	Vitek2, includes vortex, densitometer, computer station	1	2	1	1		1
1A.12 Laboratory Services	12.22	Plating	1	E084C	Centrifuge, Tabletop	Rotofix 32A	1	1		1	1	
1A.12 Laboratory Services	12.22	Plating	1	E485C	Incubator, Laboratory, CO2		1	4	4			
1A.12 Laboratory Services	12.23	Gram Staining	1	E546	Gram Stainer		1	1	1			
1A.12 Laboratory Services	12.24	Microscope Bench	1	E231	Microscope, Laboratory, Dual		1	1	1			
1A.12 Laboratory Services	12.24	Microscope Bench	1	E232	Microscope, Laboratory, Single		1	1		1	1	
1A.12 Laboratory Services	12.26	PCR Room	1	E044	Cabinet, Biological Safety		5	1		1		1
1A.12 Laboratory Services	12.26	PCR Room	1	E231	Microscope, Laboratory, Dual		1	1		1	1	
1A.12 Laboratory Services	12.26	PCR Room	1	E262C	Analyzer, Laboratory, PCR	Hologic Panther Fusion	1	1	1			
1A.12 Laboratory Services	12.27	Mass Spectometry Bench	1	F035	Chair, Task/Stool, High		3	4	4			
1A.12 Laboratory Services	12.27	Mass Spectometry Bench	1	E520	Light, Magnifier		1	1	1			
1A.12 Laboratory Services	12.27	Mass Spectometry Bench	1	E232	Microscope, Laboratory, Single		1	2	1	1	1	
1A.12 Laboratory Services	12.27	Mass Spectometry Bench	1	E357	Spectrometer, Mass, Laboratory		1	1	1			
1A.12 Laboratory Services	12.28	Support	1	E153C	Freezer -20, Laboratory, Upright		2	1	1			

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1A.12 Laboratory Services	12.28	Support	1	E156	Freezer, Laboratory, Ultralow Temperature, Upright		2	1	1			
1A.12 Laboratory Services	12.28	Support	1	E314RC	Refrigerator, Built-in	Size: 10 X 10	2	1	1			
1A.12 Laboratory Services	12.28	Support	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.12 Laboratory Services	12.28	Support	1	F044	Shelving, Modular, 7H		3	1	1			
1A.12 Laboratory Services	12.28	Support	1	E342C	Shelving, Wire		2	1	1			
1A.12 Laboratory Services	12.29	Entry/Exit	1	E168C	Hamper, Linen		2	1	1			
1A.12 Laboratory Services	12.30	Receiving, Log-in Area	1	F035	Chair, Task/Stool, High		3	1	1			
1A.12 Laboratory Services	12.30	Receiving, Log-in Area	1	E521	Refrigerator/Freezer, Laboratory, Upright		3	1	1			
1A.12 Laboratory Services	12.31	Gross Cutting	1	E067	Cart, Stainless Steel	A-Cart type	2	1	1			
1A.12 Laboratory Services	12.31	Gross Cutting	1	E547	Lab Labeller, Cassette		1	1	1			
1A.12 Laboratory Services	12.31	Gross Cutting	1	F035	Chair, Task/Stool, High		3	2	2			
1A.12 Laboratory Services	12.31	Gross Cutting	1	E117	Dispenser, Formalin		2	1	1			
1A.12 Laboratory Services	12.31	Gross Cutting	1	E219	Light, Laboratory, Examination		1	1	1			
1A.12 Laboratory Services	12.31	Gross Cutting	1	E220	Light, Laboratory, Magnifying Glass		1	1	1			
1A.12 Laboratory Services	12.31	Gross Cutting	1	E332	Scale, Clinical, Laboratory		1	1		1	1	
1A.12 Laboratory Services	12.31	Gross Cutting	1	E522	Grossing Workstation	Height Adjustable Grossing Workstation with shelving and sin	3	1	1			
1A.12 Laboratory Services	12.32	Support	1	E380	Storage, Cabinet, Specimen	Vented	2	1	1			
1A.12 Laboratory Services	12.32	Support	1	E540	Lab Cabinet, Storage, Slide		2	5	5			
1A.12 Laboratory Services	12.32	Support	1	E541	Lab Cabinet, Paraffin Block		2	10	10			
1A.12 Laboratory Services	12.33	Specimen/Tissue Processing	1	E047	Cart		2	1	1			
1A.12 Laboratory Services	12.33	Specimen/Tissue Processing	1	E377	Storage, Cabinet, Flammable		2	1	1			
1A.12 Laboratory Services	12.33	Specimen/Tissue Processing	1	E236	Microtome, Cryostat		1	1		1	1	
1A.12 Laboratory Services	12.33	Specimen/Tissue Processing	1	E430	Tissue Processor		1	1		1	1	
1A.12 Laboratory Services	12.34	Recycling Room	1	E312	Recycler, Alcohol/Xylene		2	2	2			
1A.12 Laboratory Services	12.34	Recycling Room	1	E313	Recycler, Formalin		2	1	1			
1A.12 Laboratory Services	12.34	Recycling Room	1	E343	Shelving, Closed		2	1	1			
1A.12 Laboratory Services	12.34	Recycling Room	1	E377	Storage, Cabinet, Flammable		2	2	2			
1A.12 Laboratory Services	12.35	Embedding Stations	1	F035	Chair, Task/Stool, High		3	2	2			

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1A.12 Laboratory Services	12.35	Embedding Stations	1	E103	Cold Plate		1	2	2			
1A.12 Laboratory Services	12.35	Embedding Stations	1	E429	Tissue Embedding Equipment		1	2	1	1	1	
1A.12 Laboratory Services	12.36	Microtome Area	1	E022	Bath, Water		1	3	3			
1A.12 Laboratory Services	12.36	Microtome Area	1	E174	Hood, Fume	1500mm wide. Sink to be base-building and storage cabinet r	3	1	1			
1A.12 Laboratory Services	12.36	Microtome Area	1	F035	Chair, Task/Stool, High		3	3	3			
1A.12 Laboratory Services	12.36	Microtome Area	1	E237	Microtome, Rotary		1	3	1	2	2	
1A.12 Laboratory Services	12.37	Routine Staining	1	E022	Bath, Water		1	1		1	1	
1A.12 Laboratory Services	12.37	Routine Staining	1	E084C	Centrifuge, Tabletop	Rotofix 32A	1	1		1	1	
1A.12 Laboratory Services	12.37	Routine Staining	1	E120	Dryer, Slide		1	1		1	1	
1A.12 Laboratory Services	12.37	Routine Staining	1	E231	Microscope, Laboratory, Dual		1	1		1	1	
1A.12 Laboratory Services	12.37	Routine Staining	1	E239	Microwave, Laboratory		1	1		1	1	
1A.12 Laboratory Services	12.37	Routine Staining	1	E523	Multi-Stainer Workstation		1	2		2	2	
1A.12 Laboratory Services	12.39	Clean up area	1	E115	Dishwasher, Laboratory		2	1	1			
1A.12 Laboratory Services	12.41	Office, Pathologist	2	F013	Chair, Guest		3	4	4			
1A.12 Laboratory Services	12.41	Office, Pathologist	2	F033	Chair, Task		3	2	2			
1A.12 Laboratory Services	12.41	Office, Pathologist	2	E233	Microscope, Laboratory, Single, w/integrated camera		1	2		2	2	
1A.12 Laboratory Services	12.41	Office, Pathologist	2	F046	Storage, Bookcase		3	2	2			
1A.12 Laboratory Services	12.41	Office, Pathologist	2	F474	Whiteboard		2	2	2			
1A.12 Laboratory Services	12.41	Office, Pathologist	2	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	2	2			
1A.12 Laboratory Services	12.42	Office, Pathology Clerk	1	F033	Chair, Task		3	1	1			
1A.12 Laboratory Services	12.42	Office, Pathology Clerk	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.12 Laboratory Services	12.42	Office, Pathology Clerk	1	F474	Whiteboard		2	1	1			
1A.12 Laboratory Services	12.42	Office, Pathology Clerk	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		5	1	0	1		1
1A.12 Laboratory Services	12.43	Wash-Up Room	1	E115	Dishwasher, Laboratory		2	1	1			
1A.12 Laboratory Services	12.44	Staff Room	1	E063	Cart, Linen, Lab Coats		2	1	1			
1A.12 Laboratory Services	12.45	Staff Lounge	1	F016	Chair, Lounge, 1 Seat		3	4	4			
1A.12 Laboratory Services	12.45	Staff Lounge	1	F019	Chair, Lounge, 2 Seat		3	2	2			
1A.12 Laboratory Services	12.45	Staff Lounge	1	E238	Microwave		4	1	1			

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1A.12 Laboratory Services	12.45	Staff Lounge	1	E316	Refrigerator, Domestic, Undercounter		4	1	1			
1A.12 Laboratory Services	12.46	Clean Supplies Room	1	F044	Shelving, Modular, 7H		3	1	1			
1A.12 Laboratory Services	12.47	Soiled Utility Room	1	E168C	Hamper, Linen		2	1	1			
1A.12 Laboratory Services	12.47	Soiled Utility Room	1	E434	Truck, Utility, Refuse		1	1	1			
1A.12 Laboratory Services	12.48	Paper Products Storeroom	1	F085	Shelving, Laminate Bookcase		3	1	1			
1A.12 Laboratory Services	12.49	Office: Manager	1	F013	Chair, Guest		3	2	2			
1A.12 Laboratory Services	12.49	Office: Manager	1	F033	Chair, Task		3	1	1			
1A.12 Laboratory Services	12.49	Office: Manager	1	F046	Storage, Bookcase		3	2	2			
1A.12 Laboratory Services	12.49	Office: Manager	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.12 Laboratory Services	12.49	Office: Manager	1	F474	Whiteboard		2	1	1			
1A.12 Laboratory Services	12.49	Office: Manager	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.12 Laboratory Services	12.50	Office: Regional Tech	1	F013	Chair, Guest		3	2	2			
1A.12 Laboratory Services	12.50	Office: Regional Tech	1	F033	Chair, Task		3	1	1			
1A.12 Laboratory Services	12.50	Office: Regional Tech	1	F046	Storage, Bookcase		3	1	1			
1A.12 Laboratory Services	12.50	Office: Regional Tech	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.12 Laboratory Services	12.50	Office: Regional Tech	1	F474	Whiteboard		2	1	1			
1A.12 Laboratory Services	12.50	Office: Regional Tech	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.12 Laboratory Services	12.51	Office: Tech III	1	F013	Chair, Guest		3	2	2			
1A.12 Laboratory Services	12.51	Office: Tech III	1	F033	Chair, Task		3	1	1			
1A.12 Laboratory Services	12.51	Office: Tech III	1	F046	Storage, Bookcase		3	1	1			
1A.12 Laboratory Services	12.51	Office: Tech III	1	F474	Whiteboard		2	1	1			
1A.12 Laboratory Services	12.51	Office: Tech III	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.12 Laboratory Services	12.52	Clean Lab Coats	1	E296	Rack, Coat		2	1	1			
1A.12 Laboratory Services	12.53	Reception	1	F013	Chair, Guest		3	6	6			
1A.12 Laboratory Services	12.53	Reception	1	F014	Chair, Guest, Bariatric		3	2	2			
1A.12 Laboratory Services	12.53	Reception	1	F033	Chair, Task		3	1	1			
1A.12 Laboratory Services	12.53	Reception	1	F059	Table, End		3	2	2			
1A.12 Laboratory Services	12.53	Reception	1	F081	Workstation, w/pedestal, Height-Adjustable		3	1	1			

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1A.12 Laboratory Services	12.54	Collections	1	E524	Cart, Phlebotomy, 4 drawers	4 drawers	2	1	1			
1A.12 Laboratory Services	12.54	Collections	1	E096	Chair, Phlebotomy	Reclining and H.ADJ	2	3	3			
1A.12 Laboratory Services	12.55	Specimen Preparation Area	1	F035	Chair, Task/Stool, High		3	3	3			
1A.12 Laboratory Services	12.55	Specimen Preparation Area	1	E319C	Refrigerator, Laboratory, Upright		2	1	1			
1A.12 Laboratory Services	12.56	Viewing Suite/Entrance	1	F016	Chair, Lounge, 1 Seat		3	2	2			
1A.12 Laboratory Services	12.56	Viewing Suite/Entrance	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	1	1			
1A.12 Laboratory Services	12.56	Viewing Suite/Entrance	1	F059	Table, End		3	1	1			
1A.12 Laboratory Services	12.57	Body Holding Room	1	F033	Chair, Task		3	1	1			
1A.12 Laboratory Services	12.57	Body Holding Room	1	E107C	Crypt, Refrigerated, Built-in	8 spaces (6 regular, 2 bariatric)	4	1	1			
1A.12 Laboratory Services	12.57	Body Holding Room	1	E525C	Lifter, Cadaver	Mopec JD-5001	3	1	1			
1A.12 Laboratory Services	12.57	Body Holding Room	1	E393	Stretcher, Mobile, Hospital, Bariatric		3	1	1			
1A.12 Laboratory Services	12.57	Body Holding Room	1	F040	Desk		3	1	1			
1A.12 Laboratory Services	12.58	Autospy Room	1	E041	Bucket, Autopsy, Stainless Steel		1	2	2			
1A.12 Laboratory Services	12.58	Autospy Room	1	E068	Cart, Stainless Steel, 3'x2'		2	1	1			
1A.12 Laboratory Services	12.58	Autospy Room	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
1A.12 Laboratory Services	12.58	Autospy Room	1	E330	Saw, Postmortem		5	1		1		1
1A.12 Laboratory Services	12.58	Autospy Room	1	E332	Scale, Clinical, Laboratory		1	1		1	1	
1A.12 Laboratory Services	12.58	Autospy Room	1	E402C	Table, Autopsy, Height-Adjustable		3	1		1	1	
1A.12 Laboratory Services	12.59	Supplies Storage	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.13 Main Entry Facilities	13.02	Information/Wayfinding Kiosk	1	F033	Chair, Task		3	2	2			
1A.13 Main Entry Facilities	13.02	Information/Wayfinding Kiosk	1	E297	Rack, Display		2	2	2			
1A.13 Main Entry Facilities	13.02	Information/Wayfinding Kiosk	1	F070	Table, Rectangular, Small		3	2	2			
1A.13 Main Entry Facilities	13.02	Information/Wayfinding Kiosk	1	F071	Workstation		3	2	2			
1A.13 Main Entry Facilities	13.03	Waiting Area	1	F036	Chair, Waiting	Clusters of 2-4	3	12	12			
1A.13 Main Entry Facilities	13.03	Waiting Area	1	F037	Chair, Waiting, Bariatric		3	4	4			
1A.13 Main Entry Facilities	13.04	Alcove, Wheelchair	4	E539	Wheelchair, Adult, Staxi		2	4	4			
1A.13 Main Entry Facilities	13.13	Café (allowance)	1	F011	Chair, Dining		3	40	1			
1A.13 Main Entry Facilities	13.13	Café (allowance)	1	F057	Table, Dining		3	10	1			

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1A.13 Main Entry Facilities	13.15	Main Registration Centre	1	F033	Chair, Task		3	2	2			
1A.13 Main Entry Facilities	13.15	Main Registration Centre	1	E386	Storage, Safe		2	1	1			
1A.13 Main Entry Facilities	13.15	Main Registration Centre	1	F069	Table, Rectangular, Large	For chart assembly	3	1	1			
1A.13 Main Entry Facilities	13.15	Main Registration Centre	1	F040	Desk	L-Shaped desk	3	2	2			
1A.13 Main Entry Facilities	13.16	Waiting	1	F036	Chair, Waiting		3	2	2			
1A.13 Main Entry Facilities	13.16	Waiting	1	F037	Chair, Waiting, Bariatric		3	2	2			
1A.13 Main Entry Facilities	13.16	Waiting	1	F059	Table, End		3	1	1			
1A.13 Main Entry Facilities	13.17	Secure Mail & Courier Room	1	F489	Mail Slots, 50		2	1	1			
1A.13 Main Entry Facilities	13.18	Office: Coordinator HIMS	1	F013	Chair, Guest		3	2	2			
1A.13 Main Entry Facilities	13.18	Office: Coordinator HIMS	1	F033	Chair, Task		3	1	1			
1A.13 Main Entry Facilities	13.18	Office: Coordinator HIMS	1	F063	Table, Meeting, Round, Small	2-3 people	3	1	1			
1A.13 Main Entry Facilities	13.18	Office: Coordinator HIMS	1	F474	Whiteboard		2	1	1			
1A.13 Main Entry Facilities	13.18	Office: Coordinator HIMS	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.13 Main Entry Facilities	13.19	Cash Register/Workstation	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.13 Main Entry Facilities	13.20	Gift Shop Area	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.13 Main Entry Facilities	13.21	Storage Room	1	E342C	Shelving, Wire	7' height	2	3	3			
1A.13 Main Entry Facilities	13.21	Storage Room	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.13 Main Entry Facilities	13.21	Storage Room	1	E386	Storage, Safe		2	1	1			
1A.13 Main Entry Facilities	13.21	Storage Room	1	F067	Table, Rectangular, Foldable, Mobile		3	1	1			
1A.13 Main Entry Facilities	13.22	Office	1	F013	Chair, Guest		3	2	2			
1A.13 Main Entry Facilities	13.22	Office	1	F033	Chair, Task		3	2	2			
1A.13 Main Entry Facilities	13.22	Office	1	E299	Rack, Pamphlet	wall-mounted	2	1	1			
1A.13 Main Entry Facilities	13.22	Office	1	F046	Storage, Bookcase		3	1	1			
1A.13 Main Entry Facilities	13.22	Office	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.13 Main Entry Facilities	13.22	Office	1	F474	Whiteboard		2	1	1			
1A.13 Main Entry Facilities	13.22	Office	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	2	2			
1A.13 Main Entry Facilities	13.23	Storage Room	1	E342C	Shelving, Wire	A-Cart type	2	3	3			
1A.13 Main Entry Facilities	13.23	Storage Room	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			

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1A.13 Main Entry Facilities	13.23	Storage Room	1	E386	Storage, Safe		2	1	1			
1A.13 Main Entry Facilities	13.23	Storage Room	1	F067	Table, Rectangular, Foldable, Mobile		3	1	1			
1A.13 Main Entry Facilities	13.25	Large Group Sacred Space	1	F030	Chair, Side, Stackable		3	30	30			
1A.13 Main Entry Facilities	13.25	Large Group Sacred Space	1	F031	Chair, Side, Stackable, Bariatric		3	5	5			
1A.13 Main Entry Facilities	13.25	Large Group Sacred Space	1	F067	Table, Rectangular, Foldable, Mobile		3	6	6			
1A.13 Main Entry Facilities	13.25	Large Group Sacred Space	1	F491	Table, Round		3	1	1			
1A.13 Main Entry Facilities	13.26	Storage	1	E342C	Shelving, Wire	A-Cart type	2	3	3			
1A.13 Main Entry Facilities	13.26	Storage	1	E372	Stool, Step		1	1	1			
1A.13 Main Entry Facilities	13.27	Small Consultation Room/Sacred Space	1	F016	Chair, Lounge, 1 Seat		3	2	2			
1A.13 Main Entry Facilities	13.27	Small Consultation Room/Sacred Space	1	F019	Chair, Lounge, 2 Seat		3	1	1			
1A.13 Main Entry Facilities	13.27	Small Consultation Room/Sacred Space	1	F059	Table, End		3	2	2			
1A.13 Main Entry Facilities	13.28	Kitchenette	1	E102	Coffee Machine		4	1	1			
1A.13 Main Entry Facilities	13.28	Kitchenette	1	E238	Microwave		4	1	1			
1A.13 Main Entry Facilities	13.28	Kitchenette	1	E179	Ice Machine		4	1	1			
1A.13 Main Entry Facilities	13.30	Workroom	1	F013	Chair, Guest		3	4	4			
1A.13 Main Entry Facilities	13.30	Workroom	1	E102	Coffee Machine		4	1	1			
1A.13 Main Entry Facilities	13.30	Workroom	1	E238	Microwave		4	1	1			
1A.13 Main Entry Facilities	13.30	Workroom	1	E316	Refrigerator, Domestic, Undercounter		4	1	1			
1A.13 Main Entry Facilities	13.30	Workroom	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.13 Main Entry Facilities	13.30	Workroom	1	F070	Table, Rectangular, Small		3	1	1			
1A.13 Main Entry Facilities	13.30	Workroom	1	F075	Workstation, Small		3	1	1			
1A.13 Main Entry Facilities	13.30	Workroom	1	F033	Chair, Task		3	5	5			
1A.14 Medical Imaging	14.01	Reception/Registration	1	F033	Chair, Task		3	6	6			
1A.14 Medical Imaging	14.01	Reception/Registration	1	F474	Whiteboard		2	1	1			
1A.14 Medical Imaging	14.01	Reception/Registration	1	F049	Storage, Cabinet, Filing, 4H		3	2	2			
1A.14 Medical Imaging	14.01	Reception/Registration	1	F051	Storage, Office Supplies		3	1	1			
1A.14 Medical Imaging	14.01	Reception/Registration	1	F081	Workstation, w/pedestal, Height-Adjustable		3	6	6			
1A.14 Medical Imaging	14.02	General Waiting	1	F036	Chair, Waiting		3	14	14			

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1A.14 Medical Imaging	14.02	General Waiting	1	F037	Chair, Waiting, Bariatric		3	2	2			
1A.14 Medical Imaging	14.02	General Waiting	1	F059	Table, End		3	6	6			
1A.14 Medical Imaging	14.04	General Radiography	1	E038	Board, Patient Transfer, Wall-Mounted	Slider Board	2	2	2			
1A.14 Medical Imaging	14.04	General Radiography	1	E066C	Cart, Supplies/Procedure		2	2	2			
1A.14 Medical Imaging	14.04	General Radiography	1	F013	Chair, Guest		3	2	2			
1A.14 Medical Imaging	14.04	General Radiography	1	F033	Chair, Task		3	2	2			
1A.14 Medical Imaging	14.04	General Radiography	1	E183C	Imaging, Radiographic System, Digital		5	1		1		1
1A.14 Medical Imaging	14.04	General Radiography	1	E183C	Imaging, Radiographic System, Digital		3	1		1	1	
1A.14 Medical Imaging	14.04	General Radiography	1	E195	Immobilization, Pediatric	Pigg-O-Stat	1	1	1			
1A.14 Medical Imaging	14.04	General Radiography	1	E209	Lead Apron		1	4	4			
1A.14 Medical Imaging	14.04	General Radiography	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	2	2			
1A.14 Medical Imaging	14.04	General Radiography	1	E281	Positioning Aids	Foam, Multiple	1	2	2			
1A.14 Medical Imaging	14.04	General Radiography	1	E298	Rack, Lead Aprons, Wall-Mounted		2	2	2			
1A.14 Medical Imaging	14.04	General Radiography	1	E371	Stool, Exam	with locking wheels	1	2	2			
1A.14 Medical Imaging	14.04	General Radiography	1	F071	Workstation		3	2	2			
1A.14 Medical Imaging	14.05	Tech Review Station	1	F033	Chair, Task		3	1	1			
1A.14 Medical Imaging	14.05	Tech Review Station	1	F075	Workstation, Small		3	1	1			
1A.14 Medical Imaging	14.06	Fluoroscopy/Multi-Purpose	1	E066C	Cart, Supplies/Procedure		2	2	2			
1A.14 Medical Imaging	14.06	Fluoroscopy/Multi-Purpose	1	F013	Chair, Guest		3	1	1			
1A.14 Medical Imaging	14.06	Fluoroscopy/Multi-Purpose	1	E038	Board, Patient Transfer, Wall-Mounted	Slider Board	2	2	2			
1A.14 Medical Imaging	14.06	Fluoroscopy/Multi-Purpose	1	F033	Chair, Task		3	1	1			
1A.14 Medical Imaging	14.06.02	Fluoroscopy/Multi-Purpose/Control Rm	1	E187	Imaging, Radiographic/Fluoroscopic System, Multipurpose, Digital		3	1		1	1	
1A.14 Medical Imaging	14.06	Fluoroscopy/Multi-Purpose	1	E200	Injector, Contrast Media, Ceiling-Mounted		3	1	1	0	0	
1A.14 Medical Imaging	14.06	Fluoroscopy/Multi-Purpose	1	E209	Lead Apron		1	2	2			
1A.14 Medical Imaging	14.06	Fluoroscopy/Multi-Purpose	1	E216	Light, Examination, Mobile		3	1	1			
1A.14 Medical Imaging	14.06	Fluoroscopy/Multi-Purpose	1	E254	Monitor, Vital Signs, Mobile	Mobile. Model 68NXTX-B from Welch Allyn	3	1		1	1	
1A.14 Medical Imaging	14.06	Fluoroscopy/Multi-Purpose	1	E298	Rack, Lead Aprons, Wall-Mounted	Hanger type	2	1	1			
1A.14 Medical Imaging	14.06	Fluoroscopy/Multi-Purpose	1	E371	Stool, Exam	lock wheels	1	1	1			

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1A.14 Medical Imaging	14.06.02	Fluoroscopy/Multi-Purpose/Control Rm	1	F051	Storage, Office Supplies	With Drawers	3	1	1			
1A.14 Medical Imaging	14.06.02	Fluoroscopy/Multi-Purpose/Control Rm	1	F071	Workstation		3	1	1			
1A.14 Medical Imaging	14.07	Change and Waiting	1	F036	Chair, Waiting		3	3	3			
1A.14 Medical Imaging	14.07	Change and Waiting	1	F037	Chair, Waiting, Bariatric		3	1	1			
1A.14 Medical Imaging	14.07	Change and Waiting	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	1	1			
1A.14 Medical Imaging	14.08	Clean Supplies Room	1	E070	Cart, Storage, Wire	A-Cart type	2	1	1			
1A.14 Medical Imaging	14.08	Clean Supplies Room	1	E451	Warming Unit, Blankets, Countertop		5	1		1		1
1A.14 Medical Imaging	14.09	Soiled Utility Room	2	E434	Truck, Utility, Refuse		1	2	2			
1A.14 Medical Imaging	14.09	Soiled Utility Room	2	E168C	Hamper, Linen		2	2	2			
1A.14 Medical Imaging	14.09	Soiled Utility Room	2	E342C	Shelving, Wire		2	2	2			
1A.14 Medical Imaging	14.10	Mobile X-Ray Alcove	2	E185	Imaging, Radiographic Unit, Mobile		3	2	1	1	1	
1A.14 Medical Imaging	14.11	Preparation/IV Injection Area	1	E407	Table, Mayo	Zone 2	2	1	1			
1A.14 Medical Imaging	14.11	Preparation/IV Injection Area	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
1A.14 Medical Imaging	14.11	Preparation/IV Injection Area	1	E216	Light, Examination, Mobile	Zone 2	3	1	1			
1A.14 Medical Imaging	14.11	Preparation/IV Injection Area	1	E371	Stool, Exam	with locking wheels	1	1	1			
1A.14 Medical Imaging	14.11	Preparation/IV Injection Area	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	2	2			
1A.14 Medical Imaging	14.11	Preparation/IV Injection Area	1	E451	Warming Unit, Blankets, Countertop		5	1		1		1
1A.14 Medical Imaging	14.11	Preparation/IV Injection Area	1	E396	Stretcher, Transfer, Dockable, MRI Safe	Zone 2, price included in MRI	5	1		1		1
1A.14 Medical Imaging	14.12	Exam/Consult Room	1	F013	Chair, Guest		3	2	2			
1A.14 Medical Imaging	14.12	Exam/Consult Room	1	F014	Chair, Guest, Bariatric		3	1	1			
1A.14 Medical Imaging	14.12	Exam/Consult Room	1	F034	Chair, Task, Clinical		3	1	1			
1A.14 Medical Imaging	14.12	Exam/Consult Room	1	F063	Table, Meeting, Round, Small		3	1	1			
1A.14 Medical Imaging	14.12	Exam/Consult Room	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	1	1			
1A.14 Medical Imaging	14.12	Exam/Consult Room	1	F075	Workstation, Small		3	1	1			
1A.14 Medical Imaging	14.13	Change and Waiting	1	F036	Chair, Waiting		3	4	4			
1A.14 Medical Imaging	14.13	Change and Waiting	1	F037	Chair, Waiting, Bariatric		3	1	1			
1A.14 Medical Imaging	14.13.03	Change and Waiting/sub-waiting, stretcher	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
1A.14 Medical Imaging	14.13	Change and Waiting	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	2	2			

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1A.14 Medical Imaging	14.13	Change and Waiting	1	F059	Table, End		3	1	1			
1A.14 Medical Imaging	14.17	CT Suite	1	E038	Board, Patient Transfer, Wall-Mounted	Slider Board	2	1	1			
1A.14 Medical Imaging	14.17	CT Suite	1	E407	Table, Mayo		2	1	1			
1A.14 Medical Imaging	14.17	CT Suite	1	F013	Chair, Guest		3	1	1			
1A.14 Medical Imaging	14.17	CT Suite	1	F033	Chair, Task		3	3	3			
1A.14 Medical Imaging	14.17	CT Suite	1	E188D	Imaging, Scanning System, Computed Tomography	GE Rev Apex with in-room Monitor to be mounted on injector ceiling track	3	1		1	1	
1A.14 Medical Imaging	14.17	CT Suite	1	E200	Injector, Contrast Media, Ceiling-Mounted	to be mounted on a 6" track	3	1		1	1	
1A.14 Medical Imaging	14.17	CT Suite	1	E209	Lead Apron		1	3	3			
1A.14 Medical Imaging	14.17	CT Suite	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
1A.14 Medical Imaging	14.17	CT Suite	1	E216	Light, Examination, Mobile		3	1	1			
1A.14 Medical Imaging	14.17	CT Suite	1	E254	Monitor, Vital Signs, Mobile	Mobile. Model 68NXTX-B from Welch Allyn	3	1		1	1	
1A.14 Medical Imaging	14.17	CT Suite	1	E298	Rack, Lead Aprons, Wall-Mounted		2	1	1			
1A.14 Medical Imaging	14.17	CT Suite	1	E337	Scale, Patient, Platform, Electronic, Bariatric	w/handrail	3	1	1			
1A.14 Medical Imaging	14.17	CT Suite	1	E358	Sphygmomanometer, Aneroid, Mobile		1	1	1			
1A.14 Medical Imaging	14.17	CT Suite	1	E453	Warming Unit, Contrast, Countertop		1	1	1			
1A.14 Medical Imaging	14.17	CT Suite	1	F474	Whiteboard		2	1	1			
1A.14 Medical Imaging	14.17	CT Suite	1	F476	Whiteboard, Magnetic		2	1	1			
1A.14 Medical Imaging	14.17	CT Suite	1	F477	Whiteboard, Magnetic, Small		2	1	1			
1A.14 Medical Imaging	14.17	CT Suite	1	F071	Workstation		3	3	3			
1A.14 Medical Imaging	14.18.02	MRI Suite/Control Rm	1	E072	Cart, Supplies, MRI Safe		2	1	1			
1A.14 Medical Imaging	14.18	MRI Suite	1	E038	Board, Patient Transfer, Wall-Mounted	Slider Board	2	1	1			
1A.14 Medical Imaging	14.18	MRI Suite	1	F033	Chair, Task		3	2	2			
1A.14 Medical Imaging	14.18	MRI Suite	1	E150	Fire Extinguisher, MRI Safe		5	1		1		1
1A.14 Medical Imaging	14.18	MRI Suite	1	E556	Imaging, Scanning System, Magnetic Resonance Imaging	1.5T - Siemens Magnetom Aera with existing chiller	5	1		1		1
1A.14 Medical Imaging	14.18	MRI Suite	1	E201	Injector, Contrast Media, Mobile, MRI Safe		5	1		1		1
1A.14 Medical Imaging	14.18.02	MRI Suite/Control Rm	1	E248	Monitor, Physiologic, MRI Safe		5	1		1		1
1A.14 Medical Imaging	14.18.02	MRI Suite/Control Rm	1	E255	Monitor, Vital Signs, Mobile, MRI Safe		3	1	1			
1A.14 Medical Imaging	14.18.02	MRI Suite/Control Rm	1	E291	Pump, Infusion, MRI Safe		1	2	2			

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1A.14 Medical Imaging	14.18.02	MRI Suite/Control Rm	1	E365	Stand, IV, MRI Safe		5	1		1		1
1A.14 Medical Imaging	14.18	MRI Suite	1	E385	Storage, MRI Coils	2 spine, 1 peripheral angio/extremity, 1 body 6, 1 flex large, 1	2	1	1			
1A.14 Medical Imaging	14.18.02	MRI Suite/Control Rm	1	E445	Ventilator, MRI Safe		1	1	1			
1A.14 Medical Imaging	14.18	MRI Suite	1	E470	Wheelchair, Adult, MRI Safe	Zone 2	2	1	1			
1A.14 Medical Imaging	14.18	MRI Suite	1	F071	Workstation		3	2	2			
1A.14 Medical Imaging	14.19	Ultrasound Diagnostic Room	3	E526	Imaging, Stretcher, Echo		3	3	3			
1A.14 Medical Imaging	14.19	Ultrasound Diagnostic Room	3	E066C	Cart, Supplies/Procedure		2	3	3			
1A.14 Medical Imaging	14.19	Ultrasound Diagnostic Room	3	F013	Chair, Guest		3	3	3			
1A.14 Medical Imaging	14.19	Ultrasound Diagnostic Room	3	E099	Chair, Task, Ultrasound		2	3	3			
1A.14 Medical Imaging	14.19	Ultrasound Diagnostic Room	3	E193	Imaging, Scanning System, Ultrasonic, General		3	3		3	3	
1A.14 Medical Imaging	14.19	Ultrasound Diagnostic Room	3	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	3	3			
1A.14 Medical Imaging	14.19	Ultrasound Diagnostic Room	3	E342C	Shelving, Wire		2	3	3			
1A.14 Medical Imaging	14.19	Ultrasound Diagnostic Room	3	E168C	Hamper, Linen		2	3	3			
1A.14 Medical Imaging	14.19	Ultrasound Diagnostic Room	3	E282	PPE, Wall-mounted Gloves Boxes		2	3	3			
1A.14 Medical Imaging	14.19	Ultrasound Diagnostic Room	3	E528	Imaging, Warmer, Gel, Wall Mounted		2	3	3			
1A.14 Medical Imaging	14.19	Ultrasound Diagnostic Room	3	E529	Imaging, Ultrasound, Probe Holder, Wall Mounted		2	3	3			
1A.14 Medical Imaging	14.21	Ultrasound Echocardiography	1	E168C	Hamper, Linen		2	2	2			
1A.14 Medical Imaging	14.21	Ultrasound Echocardiography	1	E282	PPE, Wall-mounted Gloves Boxes		2	2	2			
1A.14 Medical Imaging	14.21	Ultrasound Echocardiography	1	E529	Imaging, Ultrasound, Probe Holder, Wall Mounted		2	2	2			
1A.14 Medical Imaging	14.21	Ultrasound Echocardiography	1	E528	Imaging, Warmer, Gel, Wall Mounted		2	2	2			
1A.14 Medical Imaging	14.21	Ultrasound Echocardiography	1	E029	Bed, Exam, Echocardiography		3	2	2			
1A.14 Medical Imaging	14.21	Ultrasound Echocardiography	1	F035	Chair, Task/Stool, High		3	2	2			
1A.14 Medical Imaging	14.21	Ultrasound Echocardiography	1	E099	Chair, Task, Ultrasound		2	2	2			
1A.14 Medical Imaging	14.21	Ultrasound Echocardiography	1	E192	Imaging, Scanning System, Ultrasonic, Cardiac		3	2		2	2	
1A.14 Medical Imaging	14.21	Ultrasound Echocardiography	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	2	2			
1A.14 Medical Imaging	14.27	Tech Work Area	1	E315	Refrigerator, Contrast, Undercounter		4	1	1			
1A.14 Medical Imaging	14.21	Ultrasound Echocardiography	1	E405	Table, Injection		2	4	4			
1A.14 Medical Imaging	14.22	Ultrasound Interventional Room	1	E168C	Hamper, Linen		2	1	1			

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1A.14 Medical Imaging	14.22	Ultrasound Interventional Room	1	E528	Imaging, Warmer, Gel, Wall Mounted		2	1	1			
1A.14 Medical Imaging	14.22	Ultrasound Interventional Room	1	E529	Imaging, Ultrasound, Probe Holder, Wall Mounted		2	1	1			
1A.14 Medical Imaging	14.22	Ultrasound Interventional Room	1	E282	PPE, Wall-mounted Gloves Boxes		2	1	1			
1A.14 Medical Imaging	14.22	Ultrasound Interventional Room	1	E030	Bed, Exam, Ultrasound		3	1	1			
1A.14 Medical Imaging	14.22	Ultrasound Interventional Room	1	E066C	Cart, Supplies/Procedure		2	1	1			
1A.14 Medical Imaging	14.22	Ultrasound Interventional Room	1	F013	Chair, Guest		3	1	1			
1A.14 Medical Imaging	14.22	Ultrasound Interventional Room	1	E099	Chair, Task, Ultrasound		2	1	1			
1A.14 Medical Imaging	14.22	Ultrasound Interventional Room	1	E193	Imaging, Scanning System, Ultrasonic, General		3	1	1			
1A.14 Medical Imaging	14.22	Ultrasound Interventional Room	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
1A.14 Medical Imaging	14.22	Ultrasound Interventional Room	1	E216	Light, Examination, Mobile		3	1	1			
1A.14 Medical Imaging	14.22	Ultrasound Interventional Room	1	E254	Monitor, Vital Signs, Mobile	Mobile. Model 68NXTX-B from Welch Allyn	3	1		1	1	
1A.14 Medical Imaging	14.23	Change and Waiting	1	F036	Chair, Waiting		3	9	9			
1A.14 Medical Imaging	14.23	Change and Waiting	1	F037	Chair, Waiting, Bariatric		3	1	1			
1A.14 Medical Imaging	14.23	Change and Waiting	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	1	1			
1A.14 Medical Imaging	14.23	Change and Waiting	1	F059	Table, End		3	2	2			
1A.14 Medical Imaging	14.27	Tech Work Area	1	E530	Disinfector, Ultrasound Probe, Trophon		1	1	1			
1A.14 Medical Imaging	14.27	Tech Work Area	1	F035	Chair, Task/Stool, High		3	3	3			
1A.14 Medical Imaging	14.27	Tech Work Area	1	F081	Workstation, w/pedestal, Height-Adjustable	with binder storage	3	3	3			
1A.14 Medical Imaging	14.28	Diagnostic Screening / Biopsy Room	1	E066C	Cart, Supplies/Procedure		2	1	1			
1A.14 Medical Imaging	14.28	Diagnostic Screening / Biopsy Room	1	E298	Rack, Lead Aprons, Wall-Mounted		2	1	1			
1A.14 Medical Imaging	14.28	Diagnostic Screening / Biopsy Room	1	E209	Lead Apron	Hanger type	1	1	1			
1A.14 Medical Imaging	14.28	Diagnostic Screening / Biopsy Room	1	E087	Chair, Biopsy		2	1	1			
1A.14 Medical Imaging	14.28	Diagnostic Screening / Biopsy Room	1	F013	Chair, Guest		3	1	1			
1A.14 Medical Imaging	14.28	Diagnostic Screening / Biopsy Room	1	E094	Chair, Mammography		2	1	1			
1A.14 Medical Imaging	14.28	Diagnostic Screening / Biopsy Room	1	E184C	Imaging, Radiographic System, Digital, Mammographic	Includes stand-alone control station. Make & Model:	5	1		1		1
1A.14 Medical Imaging	14.28	Diagnostic Screening / Biopsy Room	1	E186C	Imaging, Radiographic Unit, Specimen	Trident Hologic	5	1		1		1
1A.14 Medical Imaging	14.28	Diagnostic Screening / Biopsy Room	1	E366C	Stereotactic System, Image-Guided, Biopsy, Mammograp	Hologic Atec Saphire	5	1		1		1
1A.14 Medical Imaging	14.28	Diagnostic Screening / Biopsy Room	1	E387	Storage, Shelving Unit, Paddles, Mammography		5	1	0	1		1

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1A.14 Medical Imaging	14.28	Diagnostic Screening / Biopsy Room	1	E492	Workstation, Wall-Mounted		2	1	1			
1A.14 Medical Imaging	14.29	Bone Mineral Densitometry Room	1	F040	Desk		3	1	1			
1A.14 Medical Imaging	14.29	Bone Mineral Densitometry Room	1	F013	Chair, Guest		3	1	1			
1A.14 Medical Imaging	14.29	Bone Mineral Densitometry Room	1	F034	Chair, Task, Clinical		3	1	1			
1A.14 Medical Imaging	14.29	Bone Mineral Densitometry Room	1	E181	Imaging, Bone Mineral Densitometry		3	1	1			
1A.14 Medical Imaging	14.29	Bone Mineral Densitometry Room	1	E531	Scale, Clinical, Weight/Height		1	1	1			
1A.14 Medical Imaging	14.29	Bone Mineral Densitometry Room	1	E281	Positioning Aids		1	1	1			
1A.14 Medical Imaging	14.29	Bone Mineral Densitometry Room	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.14 Medical Imaging	14.29	Bone Mineral Densitometry Room	1	E372	Stool, Step		1	1	1			
1A.14 Medical Imaging	14.29	Bone Mineral Densitometry Room	1	F071	Workstation	with storage above for manuals	3	2	2			
1A.14 Medical Imaging	14.30	Interview / Exam Room	1	F013	Chair, Guest		3	2	2			
1A.14 Medical Imaging	14.30	Interview / Exam Room	1	F034	Chair, Task, Clinical		3	1	1			
1A.14 Medical Imaging	14.30	Interview / Exam Room	1	F063	Table, Meeting, Round, Small		3	1	1			
1A.14 Medical Imaging	14.30	Interview / Exam Room	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	1	1			
1A.14 Medical Imaging	14.30	Interview / Exam Room	1	F071	Workstation		3	1	1			
1A.14 Medical Imaging	14.31	Change and Waiting	1	F036	Chair, Waiting		3	2	2			
1A.14 Medical Imaging	14.31	Change and Waiting	1	F037	Chair, Waiting, Bariatric		3	1	1			
1A.14 Medical Imaging	14.31	Change and Waiting	1	F059	Table, End		3	1	1			
1A.14 Medical Imaging	14.32	Tech Work Area	1	F033	Chair, Task		3	1	1			
1A.14 Medical Imaging	14.32	Tech Work Area	1	F081	Workstation, w/pedestal, Height-Adjustable		3	1	1			
1A.14 Medical Imaging	14.34.02	SPECT-CT Suite/Control Rm	1	F474	Whiteboard		2	1	1			
1A.14 Medical Imaging	14.34.02	SPECT-CT Suite/Control Rm	1	F034	Chair, Task, Clinical		3	2	2			
1A.14 Medical Imaging	14.34	SPECT-CT Suite	1	E533	Technetium Gas System		1	1	1			
1A.14 Medical Imaging	14.34	SPECT-CT Suite	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 2 : O2, Vac	4	1	1			
1A.14 Medical Imaging	14.34.02	SPECT-CT Suite/Control Rm	1	E532	File Holder, Wall-Mounted		1	1	1			
1A.14 Medical Imaging	14.34	SPECT-CT Suite	1	E200	Injector, Contrast Media, Ceiling-Mounted		5	1		1		1
1A.14 Medical Imaging	14.34	SPECT-CT Suite	1	E038	Board, Patient Transfer, Wall-Mounted	Slider Board	2	1	1			
1A.14 Medical Imaging	14.34	SPECT-CT Suite	1	E050C	Cart, Collimator		2	3	3			

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1A.14 Medical Imaging	14.34	SPECT-CT Suite	1	E062	Cart, IV		2	1	1			
1A.14 Medical Imaging	14.34.02	SPECT-CT Suite/Control Rm	1	F490	Stool, Rolling, with Lockable Casters		3	2	2			
1A.14 Medical Imaging	14.34	SPECT-CT Suite	1	E106	Container, Sharps, Lead Lined		2	1	1			
1A.14 Medical Imaging	14.34	SPECT-CT Suite	1	E190	Imaging, Scanning System, SPECT-CT	Includes heart monitor	5	1		1		1
1A.14 Medical Imaging	14.34.01	SPECT-CT Suite/Camera Rm	1	E209	Lead Apron	In Camera Rm	1	2	2			
1A.14 Medical Imaging	14.34	SPECT-CT Suite	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
1A.14 Medical Imaging	14.34	SPECT-CT Suite	1	E289	Pump, Infusion		1	1	1			
1A.14 Medical Imaging	14.34.01	SPECT-CT Suite/Camera Rm	1	E298	Rack, Lead Aprons, Wall-Mounted		2	1	1			
1A.14 Medical Imaging	14.34.01	SPECT-CT Suite/Camera Rm	1	E168C	Hamper, Linen		2	1	1			
1A.14 Medical Imaging	14.34	SPECT-CT Suite	1	E364	Stand, IV		1	1	1			
1A.14 Medical Imaging	14.34	SPECT-CT Suite	1	E372	Stool, Step		1	1	1			
1A.14 Medical Imaging	14.34	SPECT-CT Suite	1	E405	Table, Injection		2	1	1			
1A.14 Medical Imaging	14.34	SPECT-CT Suite	1	F076	Workstation, Small, Clinical		3	2	2			
1A.14 Medical Imaging	14.35	Prep/Injection/Set-Up Room	1	E062	Cart, IV		2	1	1			
1A.14 Medical Imaging	14.35	Prep/Injection/Set-Up Room	1	F028	Chair, Recliner		3	1	1			
1A.14 Medical Imaging	14.35	Prep/Injection/Set-Up Room	1	E100	Chair, Thryoid	w/headrest	2	1		1	1	
1A.14 Medical Imaging	14.35	Prep/Injection/Set-Up Room	1	E106	Container, Sharps, Lead Lined		2	1	1			
1A.14 Medical Imaging	14.35	Prep/Injection/Set-Up Room	1	E254	Monitor, Vital Signs, Mobile	Mobile. Model 68NXTX-B from Welch Allyn	3	1		1	1	
1A.14 Medical Imaging	14.35	Prep/Injection/Set-Up Room	1	E336	Scale, Patient, Platform, Electronic		3	1		1	1	
1A.14 Medical Imaging	14.35	Prep/Injection/Set-Up Room	1	E405	Table, Injection		2	1	1			
1A.14 Medical Imaging	14.35	Prep/Injection/Set-Up Room	1	E428C	Thyroid Uptake System (complete with probe)		1	1		1	1	
1A.14 Medical Imaging	14.35	Prep/Injection/Set-Up Room	1	E467	Well Counter		2	1		1	1	
1A.14 Medical Imaging	14.35	Prep/Injection/Set-Up Room	1	E468	Wheelchair, Adult		2	1	1			
1A.14 Medical Imaging	14.36	Sterile Room	1	E084C	Centrifuge, Tabletop	Rotofix 32A	1	1	1			
1A.14 Medical Imaging	14.36	Sterile Room	1	E106	Container, Sharps, Lead Lined		2	1	1			
1A.14 Medical Imaging	14.36	Sterile Room	1	E467	Well Counter		2	1	1			
1A.14 Medical Imaging	14.36	Sterile Room	1	E521	Refrigerator/Freezer, Laboratory, Upright		3	1	1			
1A.14 Medical Imaging	14.36	Sterile Room	1	E175C	Hood, Laminar Flow	Vented as per code. The windows are leaded but the hood not. Model selected is FHR1-50LAF	3	1	1			

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1A.14 Medical Imaging	14.37	Hot Lab/Decay Storage	1	E021	Bath, Hot Water, Lead Lined	Hot Lab	5	1		1		1
1A.14 Medical Imaging	14.37	Hot Lab/Decay Storage	1	E046	Calibrator, Dose	Hot Lab	2	1	1			
1A.14 Medical Imaging	14.37	Hot Lab/Decay Storage	1	F033	Chair, Task	Hot Lab	3	1	1			
1A.14 Medical Imaging	14.37	Hot Lab/Decay Storage	1	E106	Container, Sharps, Lead Lined	Hot Lab	2	1	1			
1A.14 Medical Imaging	14.37	Hot Lab/Decay Storage	1	E119	Dose Drawing Station, Glass, Lead Lined	Hot Lab	2	1	1			
1A.14 Medical Imaging	14.37	Hot Lab/Decay Storage	1	E165	Geiger Counter	Hot Lab	2	1	1			
1A.14 Medical Imaging	14.37	Hot Lab/Decay Storage	1	E166	Generator Shield	Hot Lab	2	1	1			
1A.14 Medical Imaging	14.37	Hot Lab/Decay Storage	1	E558	Hood, Fume, Radiolsotope	Yes the fume hood is to be vented directly outside. Ventilation requirements as per Section E of GD-52 The room not the hood, requires 2 sinks – one hot (radioactive) and one cold (non-radioactive / HHS)	3	1	1			
1A.14 Medical Imaging	14.37	Hot Lab/Decay Storage	1	E176	Hot Plate	Hot Lab	2	1	1			
1A.14 Medical Imaging	14.37	Hot Lab/Decay Storage	1	E209	Lead Apron	Hot Lab	1	3	3			
1A.14 Medical Imaging	14.37	Hot Lab/Decay Storage	1	E232	Microscope, Laboratory, Single	Hot Lab, w/ Haemocytometer	1	1	1			
1A.14 Medical Imaging	14.37	Hot Lab/Decay Storage	1	E242	Monitor, Environmental, Alpha, Beta/Gamma, Wall-Mount	Hot Lab, Berthold Monitor	3	1	1			
1A.14 Medical Imaging	14.37	Hot Lab/Decay Storage	1	E243	Monitor, Environmental, Radiation, Wall-Mounted	Hot Storage	3	2	2			
1A.14 Medical Imaging	14.37	Hot Lab/Decay Storage	1	E298	Rack, Lead Aprons, Wall-Mounted	Hot Lab	2	1	1			
1A.14 Medical Imaging	14.37	Hot Lab/Decay Storage	1	E308	Receptacle, Waste, Lead Lined	Hot Storage	2	1	1			
1A.14 Medical Imaging	14.37	Hot Lab/Decay Storage	1	E316	Refrigerator, Domestic, Undercounter	Hot Lab	4	1	1			
1A.14 Medical Imaging	14.37	Hot Lab/Decay Storage	1	E342C	Shelving, Wire	A-Cart type	2	2	2			
1A.14 Medical Imaging	14.37	Hot Lab/Decay Storage	1	E400	Syringe Shield	Hot Lab	2	6	6			
1A.14 Medical Imaging	14.37	Hot Lab/Decay Storage	1	E440	Vault, Decay, Large	Hot Storage	2	1	1			
1A.14 Medical Imaging	14.37	Hot Lab/Decay Storage	1	E441	Vault, Decay, Small	Hot Lab	2	1	1			
1A.14 Medical Imaging	14.37	Hot Lab/Decay Storage	1	F071	Workstation	Hot Lab	3	1	1			
1A.14 Medical Imaging	14.37	Hot Lab/Decay Storage	1	E062	Cart, IV		2	1	1			
1A.14 Medical Imaging	14.39	Change and Waiting	1	F036	Chair, Waiting		3	2	2			
1A.14 Medical Imaging	14.39	Change and Waiting	1	F037	Chair, Waiting, Bariatric		3	2	2			
1A.14 Medical Imaging	14.39	Change and Waiting	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	1	1			
1A.14 Medical Imaging	14.39	Change and Waiting	1	F059	Table, End		3	1	1			
1A.14 Medical Imaging	14.40	Tech Workstation	1	F033	Chair, Task		3	1	1			
1A.14 Medical Imaging	14.40	Tech Workstation	1	F081	Workstation, w/pedestal, Height-Adjustable		3	1	1			

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1A.14 Medical Imaging	14.42	Alcove, Soiled Utility	1	E168C	Hamper, Linen		2	1	1			
1A.14 Medical Imaging	14.43	Office, Manager	1	F013	Chair, Guest		3	2	2			
1A.14 Medical Imaging	14.43	Office, Manager	1	F033	Chair, Task		3	1	1			
1A.14 Medical Imaging	14.43	Office, Manager	1	F048	Storage, Cabinet, Filing, 2H	2 drawer lockable	3	1	1			
1A.14 Medical Imaging	14.43	Office, Manager	1	F046	Storage, Bookcase		3	1	1			
1A.14 Medical Imaging	14.43	Office, Manager	1	F474	Whiteboard		2	1	1			
1A.14 Medical Imaging	14.43	Office, Manager	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.14 Medical Imaging	14.44	Office, Senior Technologist	1	F013	Chair, Guest		3	3	3			
1A.14 Medical Imaging	14.44	Office, Senior Technologist	1	F033	Chair, Task		3	1	1			
1A.14 Medical Imaging	14.44	Office, Senior Technologist	1	F070	Table, Rectangular, Small		3	1	1			
1A.14 Medical Imaging	14.44	Office, Senior Technologist	1	F046	Storage, Bookcase		3	1	1			
1A.14 Medical Imaging	14.44	Office, Senior Technologist	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.14 Medical Imaging	14.44	Office, Senior Technologist	1	F476	Whiteboard, Magnetic		2	1	1			
1A.14 Medical Imaging	14.44	Office, Senior Technologist	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.14 Medical Imaging	14.45	Office/Consult, Radiologist	3	F019	Chair, Lounge, 2 Seat		3	3	3			
1A.14 Medical Imaging	14.45	Office/Consult, Radiologist	3	F033	Chair, Task		3	3	3			
1A.14 Medical Imaging	14.45	Office/Consult, Radiologist	3	F474	Whiteboard		2	3	3			
1A.14 Medical Imaging	14.45	Office/Consult, Radiologist	3	F479	Workstation, Radiologist, Height-Adjustable	Not L-Shaped	4	3	3			
1A.14 Medical Imaging	14.46	Office, PACS/Transcription	1	F033	Chair, Task		3	2	2			
1A.14 Medical Imaging	14.46	Office, PACS/Transcription	1	F474	Whiteboard		2	2	2			
1A.14 Medical Imaging	14.46	Office, PACS/Transcription	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	2	2			
1A.14 Medical Imaging	14.47	Alcove, Crash Cart	1	E015	Aspirator, Airways		1	1	1			
1A.14 Medical Imaging	14.47	Alcove, Crash Cart	1	E051	Cart, Crash	General	2	1	1			
1A.14 Medical Imaging	14.47	Alcove, Crash Cart	1	E111C	Defibrillator, External, Manual	Lifepak 20e	1	1	1			
1A.14 Medical Imaging	14.48	Conference Room	1	F022	Chair, Meeting		3	10	10			
1A.14 Medical Imaging	14.46	Office, PACS/Transcription	1	F474	Whiteboard		2	1	1			
1A.14 Medical Imaging	14.48	Conference Room	1	F086	Table, Meeting, Rectangular		3	2	2			
1A.14 Medical Imaging	14.49	Staff Lounge/Break Room	1	F011	Chair, Dining		3	4	4			

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1A.14 Medical Imaging	14.49	Staff Lounge/Break Room	1	F016	Chair, Lounge, 1 Seat		3	2	2			
1A.14 Medical Imaging	14.49	Staff Lounge/Break Room	1	F019	Chair, Lounge, 2 Seat		3	1	1			
1A.14 Medical Imaging	14.49	Staff Lounge/Break Room	1	E102	Coffee Machine		4	1	1			
1A.14 Medical Imaging	14.49	Staff Lounge/Break Room	1	E238	Microwave		4	1	1			
1A.14 Medical Imaging	14.49	Staff Lounge/Break Room	1	E327	Refrigerator/Freezer, Domestic, Upright		4	1	1			
1A.14 Medical Imaging	14.49	Staff Lounge/Break Room	1	F474	Whiteboard		2	1	1			
1A.14 Medical Imaging	14.49	Staff Lounge/Break Room	1	F057	Table, Dining		3	1	1			
1A.14 Medical Imaging	14.50	Student Work Area	1	F033	Chair, Task		3	2	2			
1A.14 Medical Imaging	14.50	Student Work Area	1	F072	Workstation, Cubicle, w/hutch, w/pedestal, Height-Adjustable		3	2	2			
1A.14 Medical Imaging	14.51	Housekeeping Closet, Distributed	1	E057	Cart, Housekeeping		2	1		1	1	
1A.14 Medical Imaging	14.51	Housekeeping Closet, Distributed	1	E116	Dispenser System, Chemical, Wall-Mounted		3	1	1			
1A.14 Medical Imaging	14.51	Housekeeping Closet, Distributed	1	E344	Shelving, HSKP		2	1	1			
1A.15 Pharmacy	15.01	Receiving/Breakdown Area	1	E073	Cart, Supplies, Stainless Steel		2	2	2			
1A.15 Pharmacy	15.01	Receiving/Breakdown Area	1	F035	Chair, Task/Stool, High		3	1	1			
1A.15 Pharmacy	15.01	Receiving/Breakdown Area	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.15 Pharmacy	15.01	Receiving/Breakdown Area	1	E410	Table, Pharmacy	Includes drawers (2x3", 1x6")	2	2	2			
1A.15 Pharmacy	15.01	Receiving/Breakdown Area	1	F476	Whiteboard, Magnetic		2	1	1			
1A.15 Pharmacy	15.01	Receiving/Breakdown Area	1	F081	Workstation, w/pedestal, Height-Adjustable		3	1	1			
1A.15 Pharmacy	15.02	Technician Purchaser Workstation	1	F033	Chair, Task		3	1	1			
1A.15 Pharmacy	15.02	Technician Purchaser Workstation	1	F050	Storage, Cabinet, Filing, 4H, Narrow		3	1	1			
1A.15 Pharmacy	15.02	Technician Purchaser Workstation	1	F072	Workstation, Cubicle, w/hutch, w/pedestal, Height-Adjusta	Task light under hutch	3	1	1			
1A.15 Pharmacy	15.03	Bulk Storage	1	E158C	Freezer, Pharmacy, Upright	Helmer HLF-125 with temperature monitoring through Hospital's BMS	2	2	2			
1A.15 Pharmacy	15.03	Bulk Storage	1	E326C	Refrigerator, Pharmacy, Upright, Double Door	Model : HPR256-GX with temperature monitor	2	3	3			
1A.15 Pharmacy	15.04	Active Storage, 60 days Inventory Area	1	E039	BoxPicker	For planning purposes	3	1	1			
1A.15 Pharmacy	15.04	Active Storage, 60 days Inventory Area	1	E067	Cart, Stainless Steel	A-Cart type	2	3	3			
1A.15 Pharmacy	15.04	Active Storage, 60 days Inventory Area	1	F035	Chair, Task/Stool, High		3	2	2			
1A.15 Pharmacy	15.05	Narcotic Vault	1	F035	Chair, Task/Stool, High		3	1	1			
1A.15 Pharmacy	15.05	Narcotic Vault	1	E310	Receptacle, Waste, Narcotics	Stericycle, for narcotic destruction	2	3	3			

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1A.15 Pharmacy	15.05	Narcotic Vault	1	E324C	Refrigerator, Pharmacy, Undercounter	Model : HPR105-GX with temperature monitor	2	1	1			
1A.15 Pharmacy	15.05	Narcotic Vault	1	F048	Storage, Cabinet, Filing, 2H		3	1	1			
1A.15 Pharmacy	15.06	Compounding	1	E332	Scale, Clinical, Laboratory		1	1	1			
1A.15 Pharmacy	15.06	Compounding	1	E377	Storage, Cabinet, Flammable	dimensions: 3X3 wall-mounted	2	1	1			
1A.15 Pharmacy	15.06	Compounding	1	F071	Workstation		3	1	1			
1A.15 Pharmacy	15.07	Packaging Station	1	E067	Cart, Stainless Steel	A-Cart type	2	1	1			
1A.15 Pharmacy	15.07	Packaging Station	1	F035	Chair, Task/Stool, High		3	1	1			
1A.15 Pharmacy	15.07	Packaging Station	1	A005	Allowance, Mat, Anti-Fatigue		1	2	2			
1A.15 Pharmacy	15.07	Packaging Station	1	E271C	Packager, Automated		3	1	1			
1A.15 Pharmacy	15.07	Packaging Station	1	E272	Packager, Liquid, Unit Dose		3	1	1			
1A.15 Pharmacy	15.07	Packaging Station	1	E340C	Sealer, Heat	SafeSeal	1	1	1			
1A.15 Pharmacy	15.07	Packaging Station	1	E448C	Verifier, Automated	PAcVision system	3	1	1			
1A.15 Pharmacy	15.09	Order Entry Review Stations	1	F035	Chair, Task/Stool, High		3	4	4			
1A.15 Pharmacy	15.09	Order Entry Review Stations	1	E520	Light, Magnifier		1	1	1			
1A.15 Pharmacy	15.09	Order Entry Review Stations	1	E343	Shelving, Closed		2	1	1			
1A.15 Pharmacy	15.09	Order Entry Review Stations	1	F050	Storage, Cabinet, Filing, 4H, Narrow		3	2	2			
1A.15 Pharmacy	15.09	Order Entry Review Stations	1	F477	Whiteboard, Magnetic, Small		2	2	2			
1A.15 Pharmacy	15.09	Order Entry Review Stations	1	F078	Workstation, Small, w/pedestal	with panels	3	4	4			
1A.15 Pharmacy	15.10	Picking Station	1	A005	Allowance, Mat, Anti-Fatigue		1	3	3			
1A.15 Pharmacy	15.10	Picking Station	1	E324C	Refrigerator, Pharmacy, Undercounter	Model : HPR105-GX with temperature monitor	2	3	3			
1A.15 Pharmacy	15.10	Picking Station	1	E332	Scale, Clinical, Laboratory		1	1	1			
1A.15 Pharmacy	15.10	Picking Station	1	EXXX	Equipment TBD		#N/A	2	2			
1A.15 Pharmacy	15.11	Cart/Totes Holding Area	1	E052	Cart, Distribution, Pharmacy		2	4	4			
1A.15 Pharmacy	15.13	Waiting, Seats	3	F036	Chair, Waiting		3	3	3			
1A.15 Pharmacy	15.13	Waiting, Seats	3	E299	Rack, Pamphlet		2	1	1			
1A.15 Pharmacy	15.13	Waiting, Seats	3	E342C	Shelving, Wire		2	1	1			
1A.15 Pharmacy	15.13	Waiting, Seats	3	F059	Table, End		3	1	1			
1A.15 Pharmacy	15.13	Waiting, Seats	3	F477	Whiteboard, Magnetic, Small		2	1	1			

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1A.15 Pharmacy	15.14	Counselling Room	1	F013	Chair, Guest		3	3	3			
1A.15 Pharmacy	15.14	Counselling Room	1	F033	Chair, Task		3	4	4			
1A.15 Pharmacy	15.14	Counselling Room	1	E299	Rack, Pamphlet		2	1	1			
1A.15 Pharmacy	15.14	Counselling Room	1	F046	Storage, Bookcase		3	1	1			
1A.15 Pharmacy	15.14	Counselling Room	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.15 Pharmacy	15.14	Counselling Room	1	F063	Table, Meeting, Round, Small		3	1	1			
1A.15 Pharmacy	15.14	Counselling Room	1	F476	Whiteboard, Magnetic		2	1	1			
1A.15 Pharmacy	15.15	Change Room	1	F006	Chair, Bench, Locker		3	1	1			
1A.15 Pharmacy	15.15	Change Room	1	E168C	Hamper, Linen		2	1	1			
1A.15 Pharmacy	15.15	Change Room	1	E342C	Shelving, Wire	A-Cart type	2	2	2			
1A.15 Pharmacy	15.16	IV Staging & Prep/Checking (ISO 8)	1	E282	PPE, Wall-mounted Gloves Boxes		2	1	1			
1A.15 Pharmacy	15.16	IV Staging & Prep/Checking (ISO 8)	1	F072	Workstation, Cubicle, w/hutch, w/pedestal, Height-Adjusta	Task light under hutch	3	2	2			
1A.15 Pharmacy	15.17	Non-Hazardous Anteroom	1	E061	Cart, Isolation, PPE		2	2	2			
1A.15 Pharmacy	15.17	Non-Hazardous Anteroom	1	E168C	Hamper, Linen		2	1	1			
1A.15 Pharmacy	15.17	Non-Hazardous Anteroom	1	E342C	Shelving, Wire	Stainless Steel	2	1	1			
1A.15 Pharmacy	15.18	Non-Hazardous Cleanroom	1	E549	Hood, Laminar Flow	Model BCG601	3	2	2			
1A.15 Pharmacy	15.18	Non-Hazardous Cleanroom	1	E551	Lift, Electric-Hydraulic	Electric Hydraulic lift for E549	3	2	2			
1A.15 Pharmacy	15.18	Non-Hazardous Cleanroom	1	E067	Cart, Stainless Steel	A-Cart type	2	2	2			
1A.15 Pharmacy	15.18	Non-Hazardous Cleanroom	1	F035	Chair, Task/Stool, High	NAPRA standards	3	2	2			
1A.15 Pharmacy	15.18	Non-Hazardous Cleanroom	1	E552	Cabinet, Pass-Thru, Pharmacy, Wall-Mounted	Recirculating HEPA filtration, 24" W x 24"D x 36" H. With rack and BioSafe Shelf	2	1	1			
1A.15 Pharmacy	15.16	IV Staging & Prep/Checking (ISO 8)	1	E061	Cart, Isolation, PPE		2	2	2			
1A.15 Pharmacy	15.19	Anteroom for Hazardous Cleanroom	1	F035	Chair, Task/Stool, High		3	1	1			
1A.15 Pharmacy	15.19	Anteroom for Hazardous Cleanroom	1	E342C	Shelving, Wire	Stainless Steel	2	1	1			
1A.15 Pharmacy	15.20	Hazardous Cleanroom	1	E550	Hood, Laminar Flow	Model EG6320	3	2	2			
1A.15 Pharmacy	15.20	Hazardous Cleanroom	1	E551	Lift, Electric-Hydraulic	Electric Hydraulic lift for E550	3	2	2			
1A.15 Pharmacy	15.20	Hazardous Cleanroom	1	E067	Cart, Stainless Steel	A-Cart type	2	2	2			
1A.15 Pharmacy	15.20	Hazardous Cleanroom	1	F035	Chair, Task/Stool, High	NAPRA standards	3	2	2			
1A.15 Pharmacy	15.20	Hazardous Cleanroom	1	E552	Cabinet, Pass-Thru, Pharmacy, Wall-Mounted	Recirculating HEPA filtration, 24" W x 24"D x 36" H. With rack and BioSafe Shelf	2	1	1			

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1A.15 Pharmacy	15.21	Hazardous Drug Storage	1	E326C	Refrigerator, Pharmacy, Upright, Double Door	Model : HPR256-GX with temperature monitor	2	1	1			
1A.15 Pharmacy	15.21	Hazardous Drug Storage	1	E410	Table, Pharmacy		2	1	1			
1A.15 Pharmacy	15.21	Hazardous Drug Storage	1	E553	Cabinet, Pass-Thru, Pharmacy, Floor-Mounted	CleanSeam Pass-Through Chamber: 36" W x 36"D x 48" H.	2	1	1			
1A.15 Pharmacy	15.22	Office, Manager	1	F013	Chair, Guest		3	2	2			
1A.15 Pharmacy	15.22	Office, Manager	1	F033	Chair, Task		3	1	1			
1A.15 Pharmacy	15.22	Office, Manager	1	F046	Storage, Bookcase		3	1	1			
1A.15 Pharmacy	15.22	Office, Manager	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.15 Pharmacy	15.22	Office, Manager	1	F063	Table, Meeting, Round, Small		3	1	1			
1A.15 Pharmacy	15.22	Office, Manager	1	F474	Whiteboard		2	1	1			
1A.15 Pharmacy	15.22	Office, Manager	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable	Task light under hutch	3	1	1			
1A.15 Pharmacy	15.23	Telehealth Equipment	1	F033	Chair, Task		3	1	1			
1A.15 Pharmacy	15.23	Telehealth Equipment	1	F063	Table, Meeting, Round, Small		3	1	1			
1A.15 Pharmacy	15.23	Telehealth Equipment	1	F476	Whiteboard, Magnetic		2	1	1			
1A.15 Pharmacy	15.24	Office, Academic Detailing Pharmacist	1	F013	Chair, Guest		3	2	2			
1A.15 Pharmacy	15.24	Office, Academic Detailing Pharmacist	1	F033	Chair, Task		3	1	1			
1A.15 Pharmacy	15.24	Office, Academic Detailing Pharmacist	1	F047	Storage, Bookcase, Narrow		3	1	1			
1A.15 Pharmacy	15.24	Office, Academic Detailing Pharmacist	1	F050	Storage, Cabinet, Filing, 4H, Narrow		3	1	1			
1A.15 Pharmacy	15.24	Office, Academic Detailing Pharmacist	1	F474	Whiteboard		2	1	1			
1A.15 Pharmacy	15.24	Office, Academic Detailing Pharmacist	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable	Task light under hutch	3	1	1			
1A.15 Pharmacy	15.25	Office, Technician Supervisor	1	F013	Chair, Guest		3	2	2			
1A.15 Pharmacy	15.25	Office, Technician Supervisor	1	F033	Chair, Task		3	1	1			
1A.15 Pharmacy	15.25	Office, Technician Supervisor	1	F047	Storage, Bookcase, Narrow		3	1	1			
1A.15 Pharmacy	15.25	Office, Technician Supervisor	1	F050	Storage, Cabinet, Filing, 4H, Narrow		3	1	1			
1A.15 Pharmacy	15.25	Office, Technician Supervisor	1	F474	Whiteboard		2	1	1			
1A.15 Pharmacy	15.25	Office, Technician Supervisor	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable	Task light under hutch	3	1	1			
1A.15 Pharmacy	15.26	Clinical Resource Room	1	F013	Chair, Guest		3	6	6			
1A.15 Pharmacy	15.26	Clinical Resource Room	1	F033	Chair, Task		3	2	2			
1A.15 Pharmacy	15.26	Clinical Resource Room	1	E342C	Shelving, Wire	A-Cart type	2	1	1			

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1A.15 Pharmacy	15.26	Clinical Resource Room	1	F067	Table, Rectangular, Foldable, Mobile		3	2	2			
1A.15 Pharmacy	15.26	Clinical Resource Room	1	F476	Whiteboard, Magnetic		2	2	2			
1A.15 Pharmacy	15.27	Pharmacists Workstations	3	F033	Chair, Task		3	3	3			
1A.15 Pharmacy	15.27	Pharmacists Workstations	3	F047	Storage, Bookcase, Narrow		3	1	1			
1A.15 Pharmacy	15.27	Pharmacists Workstations	3	F476	Whiteboard, Magnetic		2	1	1			
1A.15 Pharmacy	15.27	Pharmacists Workstations	3	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable	Task light under hutch	3	3	3			
1A.15 Pharmacy	15.28	Housekeeping Closet, Distributed	1	E057	Cart, Housekeeping		2	2	2			
1A.15 Pharmacy	15.28	Housekeeping Closet, Distributed	1	E116	Dispenser System, Chemical, Wall-Mounted		3	1	1			
1A.15 Pharmacy	15.28	Housekeeping Closet, Distributed	1	E344	Shelving, HSKP		2	1	1			
1A.15 Pharmacy	15.29	Coat Storage	1	E295	Rack, Boot		2	1	1			
1A.15 Pharmacy	15.29	Coat Storage	1	E296	Rack, Coat		2	1	1			
1A.16 Rehabilitation Services	16.01	Reception	1	F033	Chair, Task		3	2	2			
1A.16 Rehabilitation Services	16.01	Reception	1	F046	Storage, Bookcase		3	1	1			
1A.16 Rehabilitation Services	16.01	Reception	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.16 Rehabilitation Services	16.01	Reception	1	F081	Workstation, w/pedestal, Height-Adjustable		3	2	2			
1A.16 Rehabilitation Services	16.02	Waiting	1	F027	Chair, Patient, Hip	Height Adjustable	3	1	1			
1A.16 Rehabilitation Services	16.02	Waiting	1	F036	Chair, Waiting		3	2	2			
1A.16 Rehabilitation Services	16.02	Waiting	1	F037	Chair, Waiting, Bariatric		3	2	2			
1A.16 Rehabilitation Services	16.02	Waiting	1	E295	Rack, Boot		2	1	1			
1A.16 Rehabilitation Services	16.02	Waiting	1	E296	Rack, Coat		2	1	1			
1A.16 Rehabilitation Services	16.04	Treatment Cubicles	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	2	2			
1A.16 Rehabilitation Services	16.04	Treatment Cubicles	1	E371	Stool, Exam		1	3	3			
1A.16 Rehabilitation Services	16.04	Treatment Cubicles	1	E534	Step Stool, Exercise		1	3	3			
1A.16 Rehabilitation Services	16.04	Treatment Cubicles	1	E399C	Suspension Rack, Mobile		2	1	1			
1A.16 Rehabilitation Services	16.04	Treatment Cubicles	1	E415	Table, Treatment, Hi-Lo, Double		5	1		1		1
1A.16 Rehabilitation Services	16.04	Treatment Cubicles	1	E415	Table, Treatment, Hi-Lo, Double		2	1		1	1	
1A.16 Rehabilitation Services	16.04	Treatment Cubicles	1	E416	Table, Treatment, Plinth, Single		2	2	2			
1A.16 Rehabilitation Services	16.05	Storage	1	E342C	Shelving, Wire	A-Cart type	2	1	1			

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1A.16 Rehabilitation Services	16.05	Storage	1	E382	Storage, Crutches		2	1	1			
1A.16 Rehabilitation Services	16.05	Storage	1	E535	Walker, Platform	Platform	2	2	2			
1A.16 Rehabilitation Services	16.05	Storage	1	E536	Standing Frame		2	1	1			
1A.16 Rehabilitation Services	16.05	Storage	1	A004	Allowance, Floor Mats		1	1	1			
1A.16 Rehabilitation Services	16.05	Storage	1	E390	Storage, Walkers		2	1	1			
1A.16 Rehabilitation Services	16.06	Gymnasium	1	E168C	Hamper, Linen		2	1	1			
1A.16 Rehabilitation Services	16.06	Gymnasium	1	E282	PPE, Wall-mounted Gloves Boxes		2	1	1			
1A.16 Rehabilitation Services	16.06	Gymnasium	1	E137	Exerciser, Arm Ergometer		2	1	1			
1A.16 Rehabilitation Services	16.06	Gymnasium	1	E138	Exerciser, Balance, Parallel Bars, Electric, Floor-Mounted		2	1		1	1	
1A.16 Rehabilitation Services	16.06	Gymnasium	1	E139	Exerciser, Bike, Recumbent		2	1	1			
1A.16 Rehabilitation Services	16.06	Gymnasium	1	E139	Exerciser, Bike, Recumbent		5	1		1		1
1A.16 Rehabilitation Services	16.06	Gymnasium	1	E140	Exerciser, Bike, Upright		2	2		2	2	
1A.16 Rehabilitation Services	16.06	Gymnasium	1	E142	Exerciser, Nu Step		2	1	1			
1A.16 Rehabilitation Services	16.06	Gymnasium	1	E142	Exerciser, Nu Step		5	2		2		2
1A.16 Rehabilitation Services	16.06	Gymnasium	1	E143	Exerciser, Pulleys, Wall-Mounted		2	1	1			
1A.16 Rehabilitation Services	16.06	Gymnasium	1	E144C	Exerciser, Shoulder Ladder, Wall-Mounted		2	1	1			
1A.16 Rehabilitation Services	16.06	Gymnasium	1	E145	Exerciser, Stairs, Handrail		2	1	1			
1A.16 Rehabilitation Services	16.06	Gymnasium	1	E146	Exerciser, Treadmill		5	1		1		1
1A.16 Rehabilitation Services	16.06	Gymnasium	1	E148	Exerciser, Weight Machine		2	1	1			
1A.16 Rehabilitation Services	16.06	Gymnasium	1	E240	Mirror, Mobile		1	2	2			
1A.16 Rehabilitation Services	16.06	Gymnasium	1	E337	Scale, Patient, Platform, Electronic, Bariatric	w/handrail	3	1	1			
1A.16 Rehabilitation Services	16.06	Gymnasium	1	E339	Scale, Patient, Wheelchair		3	1	1			
1A.16 Rehabilitation Services	16.06	Gymnasium	1	E436	Ultrasound Therapy System, Physical Therapy		2	1		1	1	
1A.16 Rehabilitation Services	16.07	UV Booth	1	F013	Chair, Guest		3	1	1			
1A.16 Rehabilitation Services	16.09	ADL Suite	1	F011	Chair, Dining		3	2	2			
1A.16 Rehabilitation Services	16.09	ADL Suite	1	E238	Microwave		4	1	1			
1A.16 Rehabilitation Services	16.09	ADL Suite	1	E327	Refrigerator/Freezer, Domestic, Upright		4	1	1			
1A.16 Rehabilitation Services	16.09	ADL Suite	1	E391	Stove, Electric, w/Hood Fan		3	1	1			

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1A.16 Rehabilitation Services	16.09	ADL Suite	1	F057	Table, Dining		3	1	1			
1A.16 Rehabilitation Services	16.10	Treatment/Splinting	1	E171	Heat Gun		1	1	1			
1A.16 Rehabilitation Services	16.10	Treatment/Splinting	1	E361	Splinting, Hood Fan		2	1	1			
1A.16 Rehabilitation Services	16.10	Treatment/Splinting	1	E362	Splinting, Pan		2	1	1			
1A.16 Rehabilitation Services	16.10	Treatment/Splinting	1	E371	Stool, Exam		1	1	1			
1A.16 Rehabilitation Services	16.10	Treatment/Splinting	1	E537	Splinting Table		3	1	1			
1A.16 Rehabilitation Services	16.15	Equipment Storage	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.16 Rehabilitation Services	16.15	Equipment Storage	1	E449	Walker		2	2	2			
1A.16 Rehabilitation Services	16.15	Equipment Storage	1	E468	Wheelchair, Adult		2	2	2			
1A.16 Rehabilitation Services	16.16	Shared Office/Workroom	1	F033	Chair, Task		3	7	7			
1A.16 Rehabilitation Services	16.16	Shared Office/Workroom	1	E295	Rack, Boot		2	1	1			
1A.16 Rehabilitation Services	16.16	Shared Office/Workroom	1	E296	Rack, Coat		2	1	1			
1A.16 Rehabilitation Services	16.16	Shared Office/Workroom	1	F049	Storage, Cabinet, Filing, 4H		3	4	4			
1A.16 Rehabilitation Services	16.16	Shared Office/Workroom	1	F474	Whiteboard		2	1	1			
1A.16 Rehabilitation Services	16.16	Shared Office/Workroom	1	F077	Workstation, Small, w/hutch, w/pedestal		3	6	6			
1A.16 Rehabilitation Services	16.16	Shared Office/Workroom	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.17 Renal Services	17.01	Waiting Zone	1	F036	Chair, Waiting		3	10	10			
1A.17 Renal Services	17.01	Waiting Zone	1	F037	Chair, Waiting, Bariatric		3	4	4			
1A.17 Renal Services	17.08	Dialysis Station, Barrier Free	3	E336	Scale, Patient, Platform, Electronic		3	1		1	1	
1A.17 Renal Services	17.01	Waiting Zone	1	E339	Scale, Patient, Wheelchair		3	1		1	1	
1A.17 Renal Services	17.02	Office, Program Lead	1	F013	Chair, Guest		3	2	2			
1A.17 Renal Services	17.02	Office, Program Lead	1	F033	Chair, Task		3	1	1			
1A.17 Renal Services	17.02	Office, Program Lead	1	F474	Whiteboard		2	1	1			
1A.17 Renal Services	17.02	Office, Program Lead	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.17 Renal Services	17.03	Office, Shared/Drop-In	1	F033	Chair, Task		3	2	2			
1A.17 Renal Services	17.03	Office, Shared/Drop-In	1	F474	Whiteboard		2	1	1			
1A.17 Renal Services	17.03	Office, Shared/Drop-In	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	2	2			
1A.17 Renal Services	17.04	Team Care Station	1	E012	Analyzer, Point-of-Care, Blood Glucose		1	1	1			

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1A.17 Renal Services	17.04	Team Care Station	1	F013	Chair, Guest		3	2	2			
1A.17 Renal Services	17.04	Team Care Station	1	F034	Chair, Task, Clinical		3	4	4			
1A.17 Renal Services	17.04	Team Care Station	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.17 Renal Services	17.04	Team Care Station	1	F075	Workstation, Small	single pedestal	3	4	4			
1A.17 Renal Services	17.04	Team Care Station	1	E492	Workstation, Wall-Mounted		2	2	2			
1A.17 Renal Services	17.05	Medications Preparation Room (without an ADC)	1	E070	Cart, Storage, Wire	A-Cart type	2	1	1			
1A.17 Renal Services	17.05	Medications Preparation Room (without an ADC)	1	E083	Cassette, Ward Stock		2	1	1			
1A.17 Renal Services	17.05	Medications Preparation Room (without an ADC)	1	E325C	Refrigerator, Pharmacy, Upright	Pyxis Full Fridge Std Type	2	1	1			
1A.17 Renal Services	17.05	Medications Preparation Room (without an ADC)	1	F476	Whiteboard, Magnetic		2	1	1			
1A.17 Renal Services	17.05	Medications Preparation Room (without an ADC)	1	E018	Automation System, Medication Dispensing, Decentralized	2drawer countertop	3	1	1			
1A.17 Renal Services	17.06	Nourishment Station	1	E102	Coffee Machine		4	1	1			
1A.17 Renal Services	17.06	Nourishment Station	1	E179	Ice Machine		4	1	1			
1A.17 Renal Services	17.06	Nourishment Station	1	E316	Refrigerator, Domestic, Undercounter		4	1	1			
1A.17 Renal Services	17.07	Dialysis Station, Regular	9	E047	Cart		2	4	4			
1A.17 Renal Services	17.07	Dialysis Station, Regular	9	E092	Chair, Hemodialysis		2	9	9			
1A.17 Renal Services	17.07	Dialysis Station, Regular	9	E172	Hemodialysis Machine		3	9		9	9	
1A.17 Renal Services	17.07	Dialysis Station, Regular	9	E244	Monitor, Hemodialysis		3	1		1	1	
1A.17 Renal Services	17.07	Dialysis Station, Regular	9	E254	Monitor, Vital Signs, Mobile	Mobile. Model 68NXTX-B from Welch Allyn	3	1		1	1	
1A.17 Renal Services	17.07	Dialysis Station, Regular	9	E289	Pump, Infusion		1	4	2	2	2	
1A.17 Renal Services	17.07	Dialysis Station, Regular	9	E364	Stand, IV		1	4	4			
1A.17 Renal Services	17.07	Dialysis Station, Regular	9	F066	Table, Overbed		3	9	9			
1A.17 Renal Services	17.08	Dialysis Station, Barrier Free	3	E093	Chair, Hemodialysis, Bariatric		2	3	3			
1A.17 Renal Services	17.08	Dialysis Station, Barrier Free	3	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 2 : O2, Vac	4	3	3			
1A.17 Renal Services	17.08	Dialysis Station, Barrier Free	3	E172	Hemodialysis Machine		3	3	3			
1A.17 Renal Services	17.08	Dialysis Station, Barrier Free	3	F066	Table, Overbed		3	3	3			
1A.17 Renal Services	17.11	Dialysis Room, Isolation	1	E092	Chair, Hemodialysis		2	1	1			
1A.17 Renal Services	17.11	Dialysis Room, Isolation	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 2 : O2, Vac	4	1	1			
1A.17 Renal Services	17.11	Dialysis Room, Isolation	1	E172	Hemodialysis Machine		3	1		1	1	

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1A.17 Renal Services	17.11	Dialysis Room, Isolation	1	F066	Table, Overbed		3	1	1			
1A.17 Renal Services	17.11	Dialysis Room, Isolation	1	F071	Workstation		3	1	1			
1A.17 Renal Services	17.12	Dialysis Room, Airborne Isolation/Barrier Free	1	E093	Chair, Hemodialysis, Bariatric		2	1	1			
1A.17 Renal Services	17.12	Dialysis Room, Airborne Isolation/Barrier Free	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 2 : O2, Vac	4	1	1			
1A.17 Renal Services	17.12	Dialysis Room, Airborne Isolation/Barrier Free	1	E172	Hemodialysis Machine		3	1	1			
1A.17 Renal Services	17.12	Dialysis Room, Airborne Isolation/Barrier Free	1	E211	Lift, Patient Transfer, Bariatric, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
1A.17 Renal Services	17.12	Dialysis Room, Airborne Isolation/Barrier Free	1	F066	Table, Overbed		3	1	1			
1A.17 Renal Services	17.12	Dialysis Room, Airborne Isolation/Barrier Free	1	F071	Workstation		3	1	1			
1A.17 Renal Services	17.13	Alcove, PPE	2	E061	Cart, Isolation, PPE		2	2	2			
1A.17 Renal Services	17.14	Exam/Consult/Telehealth Room	1	F013	Chair, Guest		3	2	2			
1A.17 Renal Services	17.14	Exam/Consult/Telehealth Room	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 2 : O2, Vac	4	1	1			
1A.17 Renal Services	17.14	Exam/Consult/Telehealth Room	1	F034	Chair, Task, Clinical		3	1	1			
1A.17 Renal Services	17.14	Exam/Consult/Telehealth Room	1	E254	Monitor, Vital Signs, Mobile	Mobile. Model 68NXTX-B from Welch Allyn	3	1	1			
1A.17 Renal Services	17.14	Exam/Consult/Telehealth Room	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1		1	1	
1A.17 Renal Services	17.14	Exam/Consult/Telehealth Room	1	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	1	1			
1A.17 Renal Services	17.14	Exam/Consult/Telehealth Room	1	E371	Stool, Exam		1	1	1			
1A.17 Renal Services	17.14	Exam/Consult/Telehealth Room	1	E404	Table, Examination/Treatment, Height-Adjustable		3	1	1			
1A.17 Renal Services	17.14	Exam/Consult/Telehealth Room	1	F063	Table, Meeting, Round, Small		3	1	1			
1A.17 Renal Services	17.14	Exam/Consult/Telehealth Room	1	E424	Thermometer, Electronic, Infrared, Skin, Portable		5	1		1		1
1A.17 Renal Services	17.14	Exam/Consult/Telehealth Room	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.17 Renal Services	17.15	Clean Supplies Room, Dialysis	1	E342C	Shelving, Wire	A-Cart type	2	10	10			
1A.17 Renal Services	17.15	Clean Supplies Room, Dialysis	1	E450	Warming Unit, Blankets		1	1	1			
1A.17 Renal Services	17.16	Soiled Utility Room	1	E168C	Hamper, Linen		2	1	1			
1A.17 Renal Services	17.16	Soiled Utility Room	1	E434	Truck, Utility, Refuse		1	1	1			
1A.17 Renal Services	17.17	Storage Room, Equipment	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.17 Renal Services	17.18	Water Treatment Room	1	E465C	Water Purification Systems, Reverse Osmosis, Hemodialysis		3	1		1	1	
1A.17 Renal Services	17.20	Biomed Tech Room	1	F035	Chair, Task/Stool, High		3	1	1			
1A.17 Renal Services	17.20	Biomed Tech Room	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			

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1A.17 Renal Services	17.21	Housekeeping Closet, Distributed	1	E057	Cart, Housekeeping		2	1		1	1	
1A.17 Renal Services	17.21	Housekeeping Closet, Distributed	1	E116	Dispenser System, Chemical, Wall-Mounted		3	1	1			
1A.17 Renal Services	17.21	Housekeeping Closet, Distributed	1	E344	Shelving, HSKP		2	1	1			
1A.17 Renal Services	17.22	Staff Lounge/Break Room	1	F011	Chair, Dining		3	4	4			
1A.17 Renal Services	17.22	Staff Lounge/Break Room	1	F016	Chair, Lounge, 1 Seat		3	2	2			
1A.17 Renal Services	17.22	Staff Lounge/Break Room	1	F019	Chair, Lounge, 2 Seat		3	1	1			
1A.17 Renal Services	17.22	Staff Lounge/Break Room	1	E102	Coffee Machine		4	1	1			
1A.17 Renal Services	17.22	Staff Lounge/Break Room	1	E179	Ice Machine		4	1	1			
1A.17 Renal Services	17.22	Staff Lounge/Break Room	1	E238	Microwave		4	1	1			
1A.17 Renal Services	17.22	Staff Lounge/Break Room	1	E327	Refrigerator/Freezer, Domestic, Upright		4	1	1			
1A.17 Renal Services	17.22	Staff Lounge/Break Room	1	F057	Table, Dining		3	1	1			
1A.18 Staff Facilities and Medical Staff Facilities	18.01	Locker Room	1	E079	Cart, Uniform		2	2	2			
1A.18 Staff Facilities and Medical Staff Facilities	18.01	Locker Room	1	F006	Chair, Bench, Locker		3	5	5			
1A.18 Staff Facilities and Medical Staff Facilities	18.01	Locker Room	1	E168C	Hamper, Linen		2	3	3			
1A.18 Staff Facilities and Medical Staff Facilities	18.01	Locker Room	1	E295	Rack, Boot		2	5	5			
1A.18 Staff Facilities and Medical Staff Facilities	18.01	Locker Room	1	E296	Rack, Coat		2	5	5			
1A.18 Staff Facilities and Medical Staff Facilities	18.02	Staff Lounge	1	F011	Chair, Dining		3	8	8			
1A.18 Staff Facilities and Medical Staff Facilities	18.02	Staff Lounge	1	F016	Chair, Lounge, 1 Seat		3	3	3			
1A.18 Staff Facilities and Medical Staff Facilities	18.02	Staff Lounge	1	F019	Chair, Lounge, 2 Seat		3	3	3			
1A.18 Staff Facilities and Medical Staff Facilities	18.02	Staff Lounge	1	F020	Chair, Lounge, 3 Seat		3	1	1			
1A.18 Staff Facilities and Medical Staff Facilities	18.02	Staff Lounge	1	F029	Chair, Recliner, Sleeper		3	3	3			
1A.18 Staff Facilities and Medical Staff Facilities	18.02	Staff Lounge	1	F033	Chair, Task		3	2	2			
1A.18 Staff Facilities and Medical Staff Facilities	18.02	Staff Lounge	1	E102	Coffee Machine		4	1	1			
1A.18 Staff Facilities and Medical Staff Facilities	18.02	Staff Lounge	1	E179	Ice Machine		4	1	1			
1A.18 Staff Facilities and Medical Staff Facilities	18.02	Staff Lounge	1	E238	Microwave		4	2	2			
1A.18 Staff Facilities and Medical Staff Facilities	18.02	Staff Lounge	1	E317	Refrigerator, Domestic, Upright		4	2	2			
1A.18 Staff Facilities and Medical Staff Facilities	18.02	Staff Lounge	1	F055	Table, Coffee		3	1	1			
1A.18 Staff Facilities and Medical Staff Facilities	18.02	Staff Lounge	1	F057	Table, Dining		3	2	2			

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1A.18 Staff Facilities and Medical Staff Facilities	18.02	Staff Lounge	1	F059	Table, End		3	2	2			
1A.18 Staff Facilities and Medical Staff Facilities	18.02	Staff Lounge	1	F474	Whiteboard		2	3	3			
1A.18 Staff Facilities and Medical Staff Facilities	18.02	Staff Lounge	1	F075	Workstation, Small		3	2	2			
1A.18 Staff Facilities and Medical Staff Facilities	18.03	Wellness/Exercise Area	1	E110	Defibrillator, AED, Wall-Mounted		1	1	1			
1A.18 Staff Facilities and Medical Staff Facilities	18.03	Wellness/Exercise Area	1	E140	Exerciser, Bike, Upright		2	2	2			
1A.18 Staff Facilities and Medical Staff Facilities	18.03	Wellness/Exercise Area	1	E141	Exerciser, Elliptical		2	1	1			
1A.18 Staff Facilities and Medical Staff Facilities	18.03	Wellness/Exercise Area	1	E146	Exerciser, Treadmill		2	3	3			
1A.18 Staff Facilities and Medical Staff Facilities	18.03	Wellness/Exercise Area	1	E300	Rack, Weights		2	1	1			
1A.18 Staff Facilities and Medical Staff Facilities	18.03	Wellness/Exercise Area	1	E559	Exerciser, Bench		2	1	1			
1A.18 Staff Facilities and Medical Staff Facilities	18.03	Wellness/Exercise Area	1	F476	Whiteboard, Magnetic		2	1	1			
1A.18 Staff Facilities and Medical Staff Facilities	18.04	Storage Room, Equipment	1	A006	Allowance, Mat, Yoga		1	10	10			
1A.18 Staff Facilities and Medical Staff Facilities	18.04	Storage Room, Equipment	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.18 Staff Facilities and Medical Staff Facilities	18.05	Housekeeping Closet, Distributed	1	E057	Cart, Housekeeping		2	1	1			
1A.18 Staff Facilities and Medical Staff Facilities	18.05	Housekeeping Closet, Distributed	1	E116	Dispenser System, Chemical, Wall-Mounted		3	1	1			
1A.18 Staff Facilities and Medical Staff Facilities	18.05	Housekeeping Closet, Distributed	1	E344	Shelving, HSKP		2	1	1			
1A.18 Staff Facilities and Medical Staff Facilities	18.06	Physician Chart Workroom	1	F033	Chair, Task		3	6	6			
1A.18 Staff Facilities and Medical Staff Facilities	18.06	Physician Chart Workroom	1	F476	Whiteboard, Magnetic		2	1	1			
1A.18 Staff Facilities and Medical Staff Facilities	18.06	Physician Chart Workroom	1	F075	Workstation, Small		3	6	6			
1A.18 Staff Facilities and Medical Staff Facilities	18.07	Lounge	1	F011	Chair, Dining		3	4	4			
1A.18 Staff Facilities and Medical Staff Facilities	18.07	Lounge	1	F016	Chair, Lounge, 1 Seat		3	3	3			
1A.18 Staff Facilities and Medical Staff Facilities	18.07	Lounge	1	F028	Chair, Recliner		3	3	3			
1A.18 Staff Facilities and Medical Staff Facilities	18.07	Lounge	1	F019	Chair, Lounge, 2 Seat		3	2	2			
1A.18 Staff Facilities and Medical Staff Facilities	18.07	Lounge	1	F055	Table, Coffee		3	1	1			
1A.18 Staff Facilities and Medical Staff Facilities	18.07	Lounge	1	F057	Table, Dining		3	1	1			
1A.18 Staff Facilities and Medical Staff Facilities	18.07	Lounge	1	F059	Table, End		3	2	2			
1A.18 Staff Facilities and Medical Staff Facilities	18.09	Kitchenette	1	E102	Coffee Machine		4	1	1			
1A.18 Staff Facilities and Medical Staff Facilities	18.09	Kitchenette	1	E179	Ice Machine		4	1	1			
1A.18 Staff Facilities and Medical Staff Facilities	18.09	Kitchenette	1	E238	Microwave		4	1	1			

Furniture and Equipment List

Component Name	Room Ref SOA Dec 18 2020	Room Name SOA Dec 18 2020	Room Quantity SOA Dec 18 2020	Code	Item Description	Long Description / Reference Model	Responsibility Code	Extended Quantity	Quantity - New (N)	Quantity - Existing	Quantity - Existing Replace (R)	Quantity - Existing Transfer (T)
1A.18 Staff Facilities and Medical Staff Facilities	18.09	Kitchenette	1	E327	Refrigerator/Freezer, Domestic, Upright		4	2	2			
1A.18 Staff Facilities and Medical Staff Facilities	18.11	On-Call Suite	1	F004	Bed, Twin		3	1	1			
1A.18 Staff Facilities and Medical Staff Facilities	18.11	On-Call Suite	1	F052	Table, Bedside		3	1	1			
1A.18 Staff Facilities and Medical Staff Facilities	18.12	Locker Rooms (Male & Female)	1	E295	Rack, Boot		2	4	4			
1A.18 Staff Facilities and Medical Staff Facilities	18.12	Locker Rooms (Male & Female)	1	E296	Rack, Coat		2	4	4			
1A.18 Staff Facilities and Medical Staff Facilities	18.12	Locker Rooms (Male & Female)	1	E168C	Hamper, Linen		2	2	2			
1A.18 Staff Facilities and Medical Staff Facilities	18.14	Breast Feeding/Pumping Room	1	F028	Chair, Recliner		3	1	1			
1A.18 Staff Facilities and Medical Staff Facilities	18.14	Breast Feeding/Pumping Room	1	E321	Refrigerator, Milk, Undercounter		2	1	1			
1A.19.1 Medical Device Reprocessing	19.1.01	Soiled Cart Holding Area	1	E048	Cart, Case		2	6	6			
1A.19.1 Medical Device Reprocessing	19.1.01	Soiled Cart Holding Area	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.19.1 Medical Device Reprocessing	19.1.02	Waste Holding	1	E168C	Hamper, Linen		2	2	2			
1A.19.1 Medical Device Reprocessing	19.1.03	Soiled Processing	1	E355	Soaking Station		3	1	1			
1A.19.1 Medical Device Reprocessing	19.1.03	Soiled Processing	1	E461C	Washer, Ultrasonic, Large	Innowave PCF Irrigator	3	1	1			
1A.19.1 Medical Device Reprocessing	19.1.03	Soiled Processing	1	E462C	Washer/Disinfector, Pass-Through	Amsco 7052HP	3	2	2			
1A.19.1 Medical Device Reprocessing	19.1.03	Soiled Processing	1	E497C	Workstation, Triple Sinks, Stainless Steel, Height-Adjustal	Electrically controlled Height Adjustable and sink cover	4	2	2			
1A.19.1 Medical Device Reprocessing	19.1.03	Soiled Processing	1	E542	Dispenser System, Chemical, Wall-Mounted, MDRD	Steris Acu-SinQ	3	4	4			
1A.19.1 Medical Device Reprocessing	19.1.04	Cart Washer, pass-thru to cart staging area	1	E459C	Washer, Case Cart, Pass-Through	Steris Vision 1327	3	1	1			
1A.19.1 Medical Device Reprocessing	19.1.04	Cart Washer, pass-thru to cart staging area	1	E073	Cart, Supplies, Stainless Steel		2	2	2			
1A.19.1 Medical Device Reprocessing	19.1.07	Cart Staging	1	E048	Cart, Case	Open Case Cart	2	8	8			
1A.19.1 Medical Device Reprocessing	19.1.07	Cart Staging	1	E519	Cart, Case, Closed	Closed Case Cart	2	8	8			
1A.19.1 Medical Device Reprocessing	19.1.08	Instrument Assembly Area	1	E073	Cart, Supplies, Stainless Steel		2	3	3			
1A.19.1 Medical Device Reprocessing	19.1.08	Instrument Assembly Area	1	F035	Chair, Task/Stool, High		3	3	3			
1A.19.1 Medical Device Reprocessing	19.1.08	Instrument Assembly Area	1	E409C	Table, Packing, Stainless Steel, Height-Adjustable	Amsco Prep 55	2	4	4			
1A.19.1 Medical Device Reprocessing	19.1.09	Sterilization Area	2	E077	Cart, Transfer, Sterilizer	to be locked in sterilizer	2	4	4			
1A.19.1 Medical Device Reprocessing	19.1.09	Sterilization Area	2	E276C	Lift Heat Sealer	Model LS-24D	2	1	1			
1A.19.1 Medical Device Reprocessing	19.1.09	Sterilization Area	2	E367C	Sterilizing Unit	Vpro Max 2 for BOD	3	2	2			
1A.19.1 Medical Device Reprocessing	19.1.09	Sterilization Area	2	E368C	Sterilizing Unit, Steam	Steris Amsco 400	3	2	0	2	2	
1A.19.1 Medical Device Reprocessing	19.1.09	Sterilization Area	2	E414	Table, Stainless Steel, MDRD		2	2	2			

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1A.19.1 Medical Device Reprocessing	19.1.10	Housekeeping Closet, Distributed	1	E057	Cart, Housekeeping		2	1	1			
1A.19.1 Medical Device Reprocessing	19.1.10	Housekeeping Closet, Distributed	1	E116	Dispenser System, Chemical, Wall-Mounted		3	1	1			
1A.19.1 Medical Device Reprocessing	19.1.10	Housekeeping Closet, Distributed	1	E344	Shelving, HSKP		2	1	1			
1A.19.1 Medical Device Reprocessing	19.1.11	Pre-packaged Product Holding	1	E342C	Shelving, Wire	A-Cart type	2	10	10			
1A.19.1 Medical Device Reprocessing	19.1.12	MDR Supplies Storage	1	E342C	Shelving, Wire	A-Cart type	2	8	8			
1A.19.1 Medical Device Reprocessing	19.1.13	OR Sterile Supplies	1	E069	Cart, Stainless Steel, 5'x2'		2	8	8			
1A.19.1 Medical Device Reprocessing	19.1.14	Staff Office	1	F013	Chair, Guest		3	1	1			
1A.19.1 Medical Device Reprocessing	19.1.14	Staff Office	1	F033	Chair, Task		3	1	1			
1A.19.1 Medical Device Reprocessing	19.1.14	Staff Office	1	F474	Whiteboard		2	1	1			
1A.19.1 Medical Device Reprocessing	19.1.14	Staff Office	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.19.1 Medical Device Reprocessing	19.1.15	File Storage	2	F049	Storage, Cabinet, Filing, 4H		3	2	2			
1A.19.1 Medical Device Reprocessing	19.1.15	File Storage	2	F049	Storage, Cabinet, Filing, 4H		3	2	2			
1A.19.1 Medical Device Reprocessing	19.1.16	Instrument Storage/Holding	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.01	Reception/Registration (shared with Surgical Day Care)	1	F034	Chair, Task, Clinical		3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.01	Reception/Registration (shared with Surgical Day Care)	1	F034	Chair, Task, Clinical		3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.01	Reception/Registration (shared with Surgical Day Care)	1	E532	File Holder, Wall-Mounted		1	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.01	Reception/Registration (shared with Surgical Day Care)	1	F071	Workstation		3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.02	Office, OR Booking Clerk	2	F033	Chair, Task		3	2	2			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.02	Office, OR Booking Clerk	2	F049	Storage, Cabinet, Filing, 4H		3	2	2			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.02	Office, OR Booking Clerk	2	F474	Whiteboard		2	2	2			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.02	Office, OR Booking Clerk	2	F071	Workstation		3	2	2			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.03	Office, Nurse	1	F013	Chair, Guest		3	2	2			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.03	Office, Nurse	1	F033	Chair, Task		3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.03	Office, Nurse	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.03	Office, Nurse	1	F474	Whiteboard		2	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.03	Office, Nurse	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.04	Exam/Consult Room	1	F013	Chair, Guest		3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.04	Exam/Consult Room	1	F034	Chair, Task, Clinical		3	1	1			

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1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.04	Exam/Consult Room	1	E254	Monitor, Vital Signs, Mobile	Mobile. Model 68NXTX-B from Welch Allyn	3	1		1	1	
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.04	Exam/Consult Room	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.04	Exam/Consult Room	1	E267	Oximeter, Portable		1	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.04	Exam/Consult Room	1	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.04	Exam/Consult Room	1	E371	Stool, Exam		1	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.04	Exam/Consult Room	1	E404	Table, Examination/Treatment, Height-Adjustable		3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.04	Exam/Consult Room	1	E427	Thermometer, Electronic, Wall-Mounted		1	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.04	Exam/Consult Room	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.04	Exam/Consult Room	1	F076	Workstation, Small, Clinical		3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.05	Anaesthesia Consult/Barrier Free Exam/Consult Room	1	F014	Chair, Guest, Bariatric		3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.05	Anaesthesia Consult/Barrier Free Exam/Consult Room	1	F034	Chair, Task, Clinical		3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.05	Anaesthesia Consult/Barrier Free Exam/Consult Room	1	E264	Ophthalmoscope/Otoscope, Wall-Mounted		1	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.05	Anaesthesia Consult/Barrier Free Exam/Consult Room	1	E359	Sphygmomanometer, Aneroid, Wall-Mounted		1	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.05	Anaesthesia Consult/Barrier Free Exam/Consult Room	1	E371	Stool, Exam		1	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.05	Anaesthesia Consult/Barrier Free Exam/Consult Room	1	E404	Table, Examination/Treatment, Height-Adjustable		3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.05	Anaesthesia Consult/Barrier Free Exam/Consult Room	1	E427	Thermometer, Electronic, Wall-Mounted		1	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.05	Anaesthesia Consult/Barrier Free Exam/Consult Room	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.05	Anaesthesia Consult/Barrier Free Exam/Consult Room	1	F076	Workstation, Small, Clinical		3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.06	Alcove, Patient Weigh Scale, Barrier-Free	1	E339	Scale, Patient, Wheelchair		3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.07	Storage Cupboard	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.08	Family Waiting Room	1	F009	Chair, Child		3	4	4			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.08	Family Waiting Room	1	F036	Chair, Waiting		3	14	14			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.08	Family Waiting Room	1	F037	Chair, Waiting, Bariatric		3	2	2			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.08	Family Waiting Room	1	F054	Table, Child		3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.08	Family Waiting Room	1	F059	Table, End		3	4	4			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.12	Exam/Consult Room	2	F013	Chair, Guest		3	4	4			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.12	Exam/Consult Room	2	F034	Chair, Task, Clinical		3	2	2			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.12	Exam/Consult Room	2	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	2	2			

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1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.13	Team Care Station	1	E012	Analyzer, Point-of-Care, Blood Glucose		1	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.13	Team Care Station	1	F013	Chair, Guest		3	2	2			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.13	Team Care Station	1	F034	Chair, Task, Clinical		3	4	4			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.13	Team Care Station	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.13	Team Care Station	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.13	Team Care Station	1	F081	Workstation, w/pedestal, Height-Adjustable		3	4	4			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.14	Stretcher Bays, Pre & Post-Procedure	11	F013	Chair, Guest		3	11	11			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.14	Stretcher Bays, Pre & Post-Procedure	11	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.14	Stretcher Bays, Pre & Post-Procedure	11	E245	Monitor, Physiologic, Wall-Mounted		3	11	11			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.14	Stretcher Bays, Pre & Post-Procedure	11	E289	Pump, Infusion		1	11	11			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.14	Stretcher Bays, Pre & Post-Procedure	11	F066	Table, Overbed		3	11	11			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.14	Stretcher Bays, Pre & Post-Procedure	11	E364	Stand, IV		1	11	11			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.14	Stretcher Bays, Pre & Post-Procedure	11	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	11	11			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.14	Stretcher Bays, Pre & Post-Procedure	11	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	9		9	9	
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.14	Stretcher Bays, Pre & Post-Procedure	11	E393	Stretcher, Mobile, Hospital, Bariatric		3	2	2			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.18	Isolation Room	1	F013	Chair, Guest		3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.18	Isolation Room	1	F066	Table, Overbed		3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.18	Isolation Room	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.18	Isolation Room	1	E245	Monitor, Physiologic, Wall-Mounted	Wall-mounted	3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.18	Isolation Room	1	E282	PPE, Wall-mounted Gloves Boxes		2	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.18	Isolation Room	1	E289	Pump, Infusion		1	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.18	Isolation Room	1	E364	Stand, IV		1	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.18	Isolation Room	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	1		1	1	
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.19	Medications Preparation Room	1	E016	Automation System, Medication Dispensing, Decentralized	Pyxis	3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.19	Medications Preparation Room	1	E017	Automation System, Medication Dispensing, Decentralized	Pyxis	3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.19	Medications Preparation Room	1	E019	Automation System, Medication Dispensing, Decentralized	Pyxis	3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.19	Medications Preparation Room	1	E070	Cart, Storage, Wire	A-Cart type	2	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.19	Medications Preparation Room	1	E083	Cassette, Ward Stock		2	1	1			

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1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.19	Medications Preparation Room	1	E324C	Refrigerator, Pharmacy, Undercounter		2	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.19	Medications Preparation Room	1	F476	Whiteboard, Magnetic		2	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.24	Housekeeping Closet, Distributed	1	E057	Cart, Housekeeping		2	1		1	1	
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.24	Housekeeping Closet, Distributed	1	E116	Dispenser System, Chemical, Wall-Mounted		3	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.24	Housekeeping Closet, Distributed	1	E344	Shelving, HSKP		2	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.25	Storage Room, Equipment	1	E058	Cart, Hyperthermia		2	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.25	Storage Room, Equipment	1	E112	Detector, Blood Flow, Ultrasonic		5	1		1		1
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.25	Storage Room, Equipment	1	E179	Ice Machine		4	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.25	Storage Room, Equipment	1	E292	Pump, Infusion, Patient-Controlled		1	8	8			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.25	Storage Room, Equipment	1	E454	Warming Unit, Patient, Forced-Air	Bair Hugger	1	4	3	1	1	
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.25	Storage Room, Equipment	1	E454	Warming Unit, Patient, Forced-Air	Bair Hugger	1	3		1	1	
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.26	Nourishment Station	1	E102	Coffee Machine		4	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.26	Nourishment Station	1	E179	Ice Machine		4	1	1			
1A.19.2 Pre-Surgery Screening Clinic, Surgical Day Care	19.2.26	Nourishment Station	1	E317	Refrigerator, Domestic, Upright		4	1	1			
1A.19.3 Surgical Suite	19.3.01	Reception/Control Office	1	F033	Chair, Task		3	2	2			
1A.19.3 Surgical Suite	19.3.01	Reception/Control Office	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.19.3 Surgical Suite	19.3.01	Reception/Control Office	1	F476	Whiteboard, Magnetic		2	1	1			
1A.19.3 Surgical Suite	19.3.01	Reception/Control Office	1	F071	Workstation		3	2	2			
1A.19.3 Surgical Suite	19.3.02	Office, Manager	1	F013	Chair, Guest		3	2	2			
1A.19.3 Surgical Suite	19.3.02	Office, Manager	1	F033	Chair, Task		3	1	1			
1A.19.3 Surgical Suite	19.3.02	Office, Manager	1	F474	Whiteboard		2	1	1			
1A.19.3 Surgical Suite	19.3.02	Office, Manager	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.19.3 Surgical Suite	19.3.03	Office, Nurse Educator/CPL	1	F013	Chair, Guest		3	2	2			
1A.19.3 Surgical Suite	19.3.03	Office, Nurse Educator/CPL	1	F033	Chair, Task		3	2	2			
1A.19.3 Surgical Suite	19.3.03	Office, Nurse Educator/CPL	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.19.3 Surgical Suite	19.3.03	Office, Nurse Educator/CPL	1	F474	Whiteboard		2	1	1			
1A.19.3 Surgical Suite	19.3.03	Office, Nurse Educator/CPL	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	2	2			
1A.19.3 Surgical Suite	19.3.04	Office, Instrument Nurse	1	F033	Chair, Task		3	1	1			

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1A.19.3 Surgical Suite	19.3.04	Office, Instrument Nurse	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.19.3 Surgical Suite	19.3.04	Office, Instrument Nurse	1	E060	Cart, Instruments, Stainless Steel		2	1	1			
1A.19.3 Surgical Suite	19.3.04	Office, Instrument Nurse	1	F474	Whiteboard		2	1	1			
1A.19.3 Surgical Suite	19.3.04	Office, Instrument Nurse	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.19.3 Surgical Suite	19.3.05	Pre-Op Holding/Block Room	1	E503C	Cart, Medication		3	1	1			
1A.19.3 Surgical Suite	19.3.05	Pre-Op Holding/Block Room	1	E245	Monitor, Physiologic, Wall-Mounted		3	1	1			
1A.19.3 Surgical Suite	19.3.05	Pre-Op Holding/Block Room	1	E560	Recessed Console	Recessed: Wall-Mounted – 1 set of 3 : O2, Air, Vac	4	1	1			
1A.19.3 Surgical Suite	19.3.05	Pre-Op Holding/Block Room	1	E059	Cart, Instruments		2	1	1			
1A.19.3 Surgical Suite	19.3.05	Pre-Op Holding/Block Room	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	1	1			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E014	Anesthesia Machine		1	1		1	1	
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E544	Pump, I.V., Rapid Infuser		1	1	1			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E503C	Cart, Medication		3	1	1			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E066C	Cart, Supplies/Procedure	Anesthesia	2	1	1			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E101	Circulatory Assist Units, Peripheral, Compression		2	1	1			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E125C	Electrosurgical Unit, Monopolar/Bipolar	Model: Olympus ESG300 - complete with all components and cart	2	1		1	1	
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E127	Endoscopy, Insufflator		3	1	1			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E128	Endoscopy, Irrigator		3	1	1			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E129	Endoscopy, Light Source		5	1		1		1
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E131	Endoscopy, Printer		3	1		1	1	
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E134	Endoscopy, Video Processor		3	1	1			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E149	Facility Boom, Ceiling-Mounted	Anesthesia + Equipment Services	3	2	2			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E169	Handpiece, Surgical	Drill	2	1	1			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E221	Light, Surgical, Ceiling-Mounted		3	2	2			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E252	Monitor, Video, High-Definition, Medical Image, Ceiling-M	To be installed on Boom	3	2	2			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E265	OR Integration System		3	1	1			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E289	Pump, Infusion		1	8	8			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E354	Smoke Evacuation Systems, Surgical		5	1		1		1

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1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E364	Stand, IV		1	2	2			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E372	Stool, Step		1	1	1			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E373	Stool, Surgeon		2	2	2			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E397	Suction Unit, Mobile		1	1	1			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E398	Suction/Irrigation		1	1	1			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E504	Surgical Suction Waste Removal System	Wall-Mounted	3	1	1			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E406	Table, Instruments, Stainless Steel		2	1	1			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E407	Table, Mayo		2	1	1			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E408	Table, Operating		3	1	1			
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E432	Tourniquet, Pneumatic, Automated		1	1		1	1	
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E452	Warming Unit, Blood/Solution		1	1		1	1	
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	E454	Warming Unit, Patient, Forced-Air	Bair Hugger	1	1		1	1	
1A.19.3 Surgical Suite	19.3.07	Orthopaedic Operating Room	1	F479	Workstation, Radiologist, Height-Adjustable		4	2	2			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E014	Anesthesia Machine		1	2		2	2	
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E503C	Cart, Medication		3	2	2			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E066C	Cart, Supplies/Procedure	Anesthesia	2	2	2			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E066C	Cart, Supplies/Procedure	Dental	2	1	1			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E074	Cart, Surgery	Pediatric	2	1	1			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E101	Circulatory Assist Units, Peripheral, Compression		2	2	2			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E109	Debrider		1	1	1			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E125C	Electrosurgical Unit, Monopolar/Bipolar	Model: Olympus ESG300 - complete with all components and cart	5	2		2		2
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E127	Endoscopy, Insufflator		3	2		2	2	
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E128	Endoscopy, Irrigator		3	1	1			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E129	Endoscopy, Light Source		3	2		2	2	
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E131	Endoscopy, Printer		3	2		2	2	
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E134	Endoscopy, Video Processor		3	2		2	2	
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E149	Facility Boom, Ceiling-Mounted	Anesthesia + Equipment Services	3	4	4			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E178	Hydrothermal Ablation System, Endometrial, Balloon	Thermachoice	3	1		1	1	

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1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E207	Laser, CO2		1	1	1			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	2	2			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E221	Light, Surgical, Ceiling-Mounted		3	4		4	4	
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E490	Microscope, Surgical, ENT, Ceiling-Mounted		3	1	1			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E490N	Microscope, Surgical, ENT, Ceiling-Mounted		3	1	1			
1A.19.3 Surgical Suite	19.3.20	Alcove, Equipment Storage	2	E235C	Microscope, Surgical, Ophtalmology, Mobile		5	1	0	1		1
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E252	Monitor, Video, High-Definition, Medical Image, Ceiling-M	To be installed on Boom	3	4		4	4	
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E265	OR Integration System		3	2	2			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E285	Probe, Gamma Radiation Detection	Neoprobe	5	1		1		1
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E289	Pump, Infusion		1	8	8			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E354	Smoke Evacuation Systems, Surgical		5	2		2		2
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E364	Stand, IV		1	2	2			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E370	Stimulator, Electrical, Nerve		1	1	1			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E372	Stool, Step		1	2	2			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E373	Stool, Surgeon		2	4	4			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E398	Suction/Irrigation		1	2	2			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E504	Surgical Suction Waste Removal System	Wall-Mounted	3	2	2			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E505	Surgical Suction Waste Removal System, Mobile	Mobile	1	1	1			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E406	Table, Instruments, Stainless Steel		2	2	2			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E407	Table, Mayo		2	2	2			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E408	Table, Operating		3	2		2	2	
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E432	Tourniquet, Pneumatic, Automated		1	1	1			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E452	Warming Unit, Blood/Solution		1	2	2			
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	E454	Warming Unit, Patient, Forced-Air	Bair Hugger	5	2		2		2
1A.19.3 Surgical Suite	19.3.08	General Operating Rooms	1	F041	Desk, Small		3	2	2			
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E014	Anesthesia Machine		1	1	1			
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E503C	Cart, Medication		3	1	1			
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E066C	Cart, Supplies/Procedure	Anesthesia	2	1	1			

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1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E101	Circulatory Assist Units, Peripheral, Compression		2	1	1			
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E125C	Electrosurgical Unit, Monopolar/Bipolar	Model: Olympus ESG300 - complete with all components and cart	2	1		1	1	
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E127	Endoscopy, Insufflator		3	1	1			
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E129	Endoscopy, Light Source		3	1		1	1	
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E131	Endoscopy, Printer		3	1	1			
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E134	Endoscopy, Video Processor		3	1	1			
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E149	Facility Boom, Ceiling-Mounted	Anesthesia + Equipment Services	3	2	2			
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E208	Laser, Ho:YAG		5	1		1		1
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E210	Lift, Patient Transfer, Ceiling-Mounted	Complete System: Tracks, Motor & Slings	4	1	1			
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E221	Light, Surgical, Ceiling-Mounted		3	2		2	2	
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E252	Monitor, Video, High-Definition, Medical Image, Ceiling-M	To be installed on Boom	3	2	1	1	1	
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E265	OR Integration System		3	1	1			
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E289	Pump, Infusion		1	4	4			
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E354	Smoke Evacuation Systems, Surgical		1	1	1			
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E364	Stand, IV		1	1	1			
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E372	Stool, Step		1	1	1			
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E373	Stool, Surgeon		2	2	2			
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E504	Surgical Suction Waste Removal System	Wall-Mounted	3	1	1			
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E406	Table, Instruments, Stainless Steel		2	1	1			
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E407	Table, Mayo		2	1	1			
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E408	Table, Operating		3	1	1			
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	E454	Warming Unit, Patient, Forced-Air	Bair Hugger	1	1	1			
1A.19.3 Surgical Suite	19.3.09	Urology Operating Room	1	F479	Workstation, Radiologist, Height-Adjustable		4	2	2			
1A.19.3 Surgical Suite	19.3.13	Scrub Stations	1	E282	PPE, Wall-mounted Gloves Boxes		2	3	3			
1A.19.3 Surgical Suite	19.3.14	Alcove, OR Stretcher	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	4	4			
1A.19.3 Surgical Suite	19.3.15	Physician/Learners Work Room/Dictation	1	F013	Chair, Guest		3	6	6			
1A.19.3 Surgical Suite	19.3.15	Physician/Learners Work Room/Dictation	1	F033	Chair, Task		3	5	5			
1A.19.3 Surgical Suite	19.3.15	Physician/Learners Work Room/Dictation	1	F061	Table, Meeting, Round, Large		3	1	1			

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1A.19.3 Surgical Suite	19.3.15	Physician/Learners Work Room/Dictation	1	F474	Whiteboard		2	1	1			
1A.19.3 Surgical Suite	19.3.15	Physician/Learners Work Room/Dictation	1	F075	Workstation, Small		3	5	5			
1A.19.3 Surgical Suite	19.3.16	Clean Core	1	F033	Chair, Task		3	1	1			
1A.19.3 Surgical Suite	19.3.16	Clean Core	1	E342C	Shelving, Wire	A-Cart type	2	6	6			
1A.19.3 Surgical Suite	19.3.16	Clean Core	1	F075	Workstation, Small		3	1	1			
1A.19.3 Surgical Suite	19.3.18	Alcove, Blanket Warmer & Solutions Warmer	1	E450	Warming Unit, Blankets		5	1		1		1
1A.19.3 Surgical Suite	19.3.18	Alcove, Blanket Warmer & Solutions Warmer	1	E452	Warming Unit, Blood/Solution		1	1	1			
1A.19.3 Surgical Suite	19.3.19	Medication Preparation Room	1	E016	Automation System, Medication Dispensing, Decentralized	Pyxis	3	1	1			
1A.19.3 Surgical Suite	19.3.19	Medication Preparation Room	1	E017	Automation System, Medication Dispensing, Decentralized	Pyxis	3	1	1			
1A.19.3 Surgical Suite	19.3.19	Medication Preparation Room	1	E019	Automation System, Medication Dispensing, Decentralized	Pyxis	3	1	1			
1A.19.3 Surgical Suite	19.3.19	Medication Preparation Room	1	E070	Cart, Storage, Wire	A-Cart type	2	1	1			
1A.19.3 Surgical Suite	19.3.19	Medication Preparation Room	1	E083	Cassette, Ward Stock		2	1	1			
1A.19.3 Surgical Suite	19.3.19	Medication Preparation Room	1	E157	Freezer, Laboratory, Undercounter		2	1	1			
1A.19.3 Surgical Suite	19.3.19	Medication Preparation Room	1	E324C	Refrigerator, Pharmacy, Undercounter		2	1	1			
1A.19.3 Surgical Suite	19.3.19	Medication Preparation Room	1	E325C	Refrigerator, Pharmacy, Upright	Pyxis Full Fridge Std Type	2	1	1			
1A.19.3 Surgical Suite	19.3.19	Medication Preparation Room	1	F476	Whiteboard, Magnetic		2	1	1			
1A.19.3 Surgical Suite	19.3.20	Alcove, Equipment Storage	2	E066C	Cart, Supplies/Procedure	Difficult Intubation	2	1	1			
1A.19.3 Surgical Suite	19.3.20	Alcove, Equipment Storage	2	E180	Image Processor, Video, Laryngoscopic Intubation	CMAC	5	1		1		1
1A.19.3 Surgical Suite	19.3.21	Storage Room, Orthopaedic Equipment	1	E342C	Shelving, Wire	A-Cart type	2	3	3			
1A.19.3 Surgical Suite	19.3.22	Storage Room, Large Equipment	1	E247	Monitor, Physiologic, Fetal	wi-fi capabilities	3	1	1			
1A.19.3 Surgical Suite	19.3.23	Alcove, Infant Warming Device	1	E456	Warming Unit, Radiant, Infant	Panda	1	1	1			
1A.19.3 Surgical Suite	19.3.24	Alcove, C-Arm Storage	1	E182	Imaging, Fluoroscopic Unit, Mobile	C-Arm	5	1		1		1
1A.19.3 Surgical Suite	19.3.24	Alcove, C-Arm Storage	1	E182	Imaging, Fluoroscopic Unit, Mobile	C-Arm	3	1	1			
1A.19.3 Surgical Suite	19.3.24	Alcove, C-Arm Storage	1	E493	Rack, Lead Aprons, Mobile		2	1	1			
1A.19.3 Surgical Suite	19.3.25	Anaesthesia Supplies/Workroom	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.19.3 Surgical Suite	19.3.26	Soiled Utility Room	1	E168C	Hamper, Linen		2	1	1			
1A.19.3 Surgical Suite	19.3.26	Soiled Utility Room	1	E557	Surgical Suction Waste Removal System, Docking Station		1	1	1			
1A.19.3 Surgical Suite	19.3.26	Soiled Utility Room	1	E434	Truck, Utility, Refuse		1	1	1			

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1A.19.3 Surgical Suite	19.3.27	Housekeeping Closet, Distributed	1	E057	Cart, Housekeeping		2	1	1			
1A.19.3 Surgical Suite	19.3.27	Housekeeping Closet, Distributed	1	E116	Dispenser System, Chemical, Wall-Mounted		3	1	1			
1A.19.3 Surgical Suite	19.3.27	Housekeeping Closet, Distributed	1	E344	Shelving, HSKP		2	1	1			
1A.19.3 Surgical Suite	19.3.28	Storage Room, Main Equipment	1	E056	Cart, Hemostatic		2	1	1			
1A.19.3 Surgical Suite	19.3.28	Storage Room, Main Equipment	1	E074	Cart, Surgery	Laparoscopy	2	1	1			
1A.19.3 Surgical Suite	19.3.28	Storage Room, Main Equipment	1	E194	Imaging, Scanning System, Ultrasonic, Portable		3	1		1	1	
1A.19.3 Surgical Suite	19.3.29	Female Staff Locker Room	1	E061	Cart, Isolation, PPE		2	1	1			
1A.19.3 Surgical Suite	19.3.30	Male Staff Locker Room	1	E061	Cart, Isolation, PPE		2	1	1			
1A.19.3 Surgical Suite	19.3.29	Female Staff Locker Room	1	E484	Exchange System, Surgical Scrub, Receiver	to have access from both lockers	3	1	1			
1A.19.3 Surgical Suite	19.3.34	Staff/Physician Lounge	1	F011	Chair, Dining		3	8	8			
1A.19.3 Surgical Suite	19.3.34	Staff/Physician Lounge	1	F016	Chair, Lounge, 1 Seat		3	8	8			
1A.19.3 Surgical Suite	19.3.34	Staff/Physician Lounge	1	F016	Chair, Lounge, 1 Seat		3	2	2			
1A.19.3 Surgical Suite	19.3.34	Staff/Physician Lounge	1	F019	Chair, Lounge, 2 Seat		3	2	2			
1A.19.3 Surgical Suite	19.3.34	Staff/Physician Lounge	1	F019	Chair, Lounge, 2 Seat		3	2	2			
1A.19.3 Surgical Suite	19.3.34	Staff/Physician Lounge	1	F020	Chair, Lounge, 3 Seat		3	1	1			
1A.19.3 Surgical Suite	19.3.34	Staff/Physician Lounge	1	F033	Chair, Task		3	1	1			
1A.19.3 Surgical Suite	19.3.34	Staff/Physician Lounge	1	E102	Coffee Machine		4	1	1			
1A.19.3 Surgical Suite	19.3.34	Staff/Physician Lounge	1	E238	Microwave		4	1	1			
1A.19.3 Surgical Suite	19.3.34	Staff/Physician Lounge	1	E317	Refrigerator, Domestic, Upright		4	1	1			
1A.19.3 Surgical Suite	19.3.34	Staff/Physician Lounge	1	F057	Table, Dining		3	2	2			
1A.19.3 Surgical Suite	19.3.34	Staff/Physician Lounge	1	F071	Workstation		3	1	1			
1A.19.3 Surgical Suite	19.3.34	Staff/Physician Lounge	1	E114	Dishwasher, Domestic		4	1	1			
1A.19.3 Surgical Suite	19.3.35	On-Call Suite	1	F004	Bed, Twin		3	1	1			
1A.19.3 Surgical Suite	19.3.35	On-Call Suite	1	F052	Table, Bedside		3	1	1			
1A.19.3 Surgical Suite	19.3.36	Stretcher Bay	5	E245	Monitor, Physiologic, Wall-Mounted		3	5	5			
1A.19.3 Surgical Suite	19.3.36	Stretcher Bay	5	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	5	5			
1A.19.3 Surgical Suite	19.3.36	Stretcher Bay	5	F084	Workstation, Mobile	Mobile	3	3	3			
1A.19.3 Surgical Suite	19.3.37	Isolation Stretcher Room	1	E245	Monitor, Physiologic, Wall-Mounted		3	1	1			

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1A.19.3 Surgical Suite	19.3.37	Isolation Stretcher Room	1	E392	Stretcher, Mobile, Hospital, Adjustable-Height		3	1	1			
1A.19.3 Surgical Suite	19.3.38	Isolation Anteroom	1	E061	Cart, Isolation, PPE		2	1	1			
1A.19.3 Surgical Suite	19.3.40	Family Consult Room	1	F016	Chair, Lounge, 1 Seat		3	3	3			
1A.19.3 Surgical Suite	19.3.40	Family Consult Room	1	F033	Chair, Task		3	1	1			
1A.19.3 Surgical Suite	19.3.40	Family Consult Room	1	F055	Table, Coffee		3	1	1			
1A.19.3 Surgical Suite	19.3.40	Family Consult Room	1	F075	Workstation, Small		3	1	1			
1A.19.3 Surgical Suite	19.3.41	Team Care Station	1	E012	Analyzer, Point-of-Care, Blood Glucose		1	1	1			
1A.19.3 Surgical Suite	19.3.41	Team Care Station	1	F034	Chair, Task, Clinical		3	2	2			
1A.19.3 Surgical Suite	19.3.41	Team Care Station	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.19.3 Surgical Suite	19.3.41	Team Care Station	1	F075	Workstation, Small		3	2	2			
1A.19.3 Surgical Suite	19.3.42	Alcove, Physician Dictation	2	F033	Chair, Task		3	2	2			
1A.19.3 Surgical Suite	19.3.42	Alcove, Physician Dictation	2	F075	Workstation, Small		3	2	2			
1A.19.3 Surgical Suite	19.3.43	Medication Preparation Room	1	E016	Automation System, Medication Dispensing, Decentralized	Pyxis	3	1	1			
1A.19.3 Surgical Suite	19.3.43	Medication Preparation Room	1	E017	Automation System, Medication Dispensing, Decentralized	Pyxis	3	1	1			
1A.19.3 Surgical Suite	19.3.43	Medication Preparation Room	1	E019	Automation System, Medication Dispensing, Decentralized	Pyxis	3	1	1			
1A.19.3 Surgical Suite	19.3.43	Medication Preparation Room	1	E070	Cart, Storage, Wire	A-Cart type	2	1	1			
1A.19.3 Surgical Suite	19.3.43	Medication Preparation Room	1	E083	Cassette, Ward Stock		2	1	1			
1A.19.3 Surgical Suite	19.3.43	Medication Preparation Room	1	E325C	Refrigerator, Pharmacy, Upright	Pyxis Full Fridge Std Type	2	1	1			
1A.19.3 Surgical Suite	19.3.43	Medication Preparation Room	1	F476	Whiteboard, Magnetic		2	1	1			
1A.19.3 Surgical Suite	19.3.44	Alcove, Blanket Warmer	1	E450	Warming Unit, Blankets		5	1		1		1
1A.19.3 Surgical Suite	19.3.46	Alcove, Mobile Workstation	1	F075	Workstation, Small		3	1	1			
1A.19.3 Surgical Suite	19.3.48	Alcove, Crash Cart	1	E015	Aspirator, Airways		1	1	1			
1A.19.3 Surgical Suite	19.3.48	Alcove, Crash Cart	1	E051	Cart, Crash	General	2	1	1			
1A.19.3 Surgical Suite	19.3.48	Alcove, Crash Cart	1	E111C	Defibrillator, External, Manual	Lifepak 20e	1	1	1			
1A.19.3 Surgical Suite	19.3.49	Alcove, Equipment	1	E066C	Cart, Supplies/Procedure	Difficult Intubation	2	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.02	Private Resident Room	5	F005	Bed, Twin, Captain	w/ drawers	3	5	5			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.02	Private Resident Room	5	F010	Chair, Desk		3	5	5			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.02	Private Resident Room	5	F040	Desk		3	5	5			

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1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.02	Private Resident Room	5	F052	Table, Bedside		3	5	5			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.05	Lounge	1	F016	Chair, Lounge, 1 Seat		3	4	4			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.05	Lounge	1	F019	Chair, Lounge, 2 Seat		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.05	Lounge	1	F046	Storage, Bookcase		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.05	Lounge	1	F055	Table, Coffee		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.06	Private Resident Room	5	F005	Bed, Twin, Captain	w/ drawers	3	5	5			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.06	Private Resident Room	5	F010	Chair, Desk		3	5	5			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.06	Private Resident Room	5	F040	Desk		3	5	5			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.06	Private Resident Room	5	F052	Table, Bedside		3	5	5			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.09	Lounge	1	F016	Chair, Lounge, 1 Seat		3	6	6			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.09	Lounge	1	F046	Storage, Bookcase		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.09	Lounge	1	F055	Table, Coffee		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.10	Kitchen/Dining Area	1	F011	Chair, Dining		3	10	10			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.10	Kitchen/Dining Area	1	F057	Table, Dining	5 seats dining table	3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.11	Alcove, Quiet Seating	2	F016	Chair, Lounge, 1 Seat		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.11	Alcove, Quiet Seating	2	F059	Table, End		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.14	Private Resident Room	5	F005	Bed, Twin, Captain	w/ drawers	3	5	5			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.14	Private Resident Room	5	F010	Chair, Desk		3	5	5			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.14	Private Resident Room	5	F040	Desk		3	5	5			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.14	Private Resident Room	5	F052	Table, Bedside		3	5	5			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.17	Lounge	1	F016	Chair, Lounge, 1 Seat		3	4	4			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.17	Lounge	1	F019	Chair, Lounge, 2 Seat		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.17	Lounge	1	F046	Storage, Bookcase		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.17	Lounge	1	F055	Table, Coffee		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.18	Private Resident Room	5	F005	Bed, Twin, Captain	w/ drawers	3	5	5			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.18	Private Resident Room	5	F010	Chair, Desk		3	5	5			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.18	Private Resident Room	5	F040	Desk		3	5	5			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.18	Private Resident Room	5	F052	Table, Bedside		3	5	5			

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1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.21	Lounge	1	F016	Chair, Lounge, 1 Seat		3	4	4			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.21	Lounge	1	F019	Chair, Lounge, 2 Seat		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.21	Lounge	1	F046	Storage, Bookcase		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.21	Lounge	1	F055	Table, Coffee		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.22	Kitchen/Dining Area	1	F011	Chair, Dining		3	10	10			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.22	Kitchen/Dining Area	1	F057	Table, Dining	5 seats dining table	3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.23	Alcove, Quiet Seating	2	F016	Chair, Lounge, 1 Seat		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.23	Alcove, Quiet Seating	2	F059	Table, End		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.26	Lobby	1	F013	Chair, Guest		3	6	6			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.26	Lobby	1	F014	Chair, Guest, Bariatric		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.26	Lobby	1	F474	Whiteboard		2	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.28	Family Room	1	F016	Chair, Lounge, 1 Seat		3	4	4			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.28	Family Room	1	F019	Chair, Lounge, 2 Seat		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.28	Family Room	1	F055	Table, Coffee		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.29	Group Room	1	F013	Chair, Guest		3	10	10			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.29	Group Room	1	F474	Whiteboard		2	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.29	Group Room	1	F068	Table, Rectangular, Foldable, Mobile, Small		3	4	4			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.30	Interview/Consult Room	2	F013	Chair, Guest		3	6	6			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.30	Interview/Consult Room	2	F033	Chair, Task		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.30	Interview/Consult Room	2	F063	Table, Meeting, Round, Small	seating for 4 people	3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.30	Interview/Consult Room	2	F075	Workstation, Small		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.31	Quiet Lounge	1	F016	Chair, Lounge, 1 Seat		3	4	4			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.31	Quiet Lounge	1	F055	Table, Coffee		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.32	Skills/Assessment Kitchen	1	E114	Dishwasher, Domestic		4	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.32	Skills/Assessment Kitchen	1	E155	Freezer, Domestic, Upright		4	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.32	Skills/Assessment Kitchen	1	E238	Microwave		4	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.32	Skills/Assessment Kitchen	1	E317	Refrigerator, Domestic, Upright		4	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.32	Skills/Assessment Kitchen	1	E391	Stove, Electric, w/Hood Fan		3	2	2			

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1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.33	Skills/Assessment Pantry	1	E155	Freezer, Domestic, Upright		4	3	3			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.33	Skills/Assessment Pantry	1	E316	Refrigerator, Domestic, Undercounter		4	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.33	Skills/Assessment Pantry	1	E317	Refrigerator, Domestic, Upright		4	3	3			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.33	Skills/Assessment Pantry	1	E342C	Shelving, Wire	A-Cart type	2	6	6			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.34	Lounge/Recreation Room	1	F001	Arts, Chair		3	6	6			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.34	Lounge/Recreation Room	1	F002	Arts, Easel		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.34	Lounge/Recreation Room	1	F003	Arts, Table		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.34	Lounge/Recreation Room	1	F010	Chair, Desk		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.34	Lounge/Recreation Room	1	F016	Chair, Lounge, 1 Seat		3	4	4			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.34	Lounge/Recreation Room	1	F019	Chair, Lounge, 2 Seat		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.34	Lounge/Recreation Room	1	F041	Desk, Small		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.34	Lounge/Recreation Room	1	E161	Games, Foosball Table		2	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.34	Lounge/Recreation Room	1	E163	Games, Pool Table		2	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.34	Lounge/Recreation Room	1	E258	Musical Instruments, Guitar		1	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.34	Lounge/Recreation Room	1	E259	Musical Instruments, Piano		1	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.34	Lounge/Recreation Room	1	F085	Shelving, Laminate Bookcase		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.34	Lounge/Recreation Room	1	F046	Storage, Bookcase		3	4	4			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.34	Lounge/Recreation Room	1	F055	Table, Coffee		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.35	Exercise Area	1	E140	Exerciser, Bike, Upright		2	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.35	Exercise Area	1	E140	Exerciser, Bike, Upright		2	3	2	1		1
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.35	Exercise Area	1	E146	Exerciser, Treadmill		2	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.35	Exercise Area	1	E148	Exerciser, Weight Machine		2	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.35	Exercise Area	1	A006	Allowance, Mat, Yoga		1	6	6			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.35	Exercise Area	1	E300	Rack, Weights	Lockable. Includes Weights.	2	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.37	Housekeeping Closet, Distributed	1	E057	Cart, Housekeeping		2	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.37	Housekeeping Closet, Distributed	1	E116	Dispenser System, Chemical, Wall-Mounted		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.37	Housekeeping Closet, Distributed	1	E344	Shelving, HSKP		2	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.38	2-Bedroom Apartment	1	F005	Bed, Twin, Captain		3	2	2			

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1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.38	2-Bedroom Apartment	1	F010	Chair, Desk		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.38	2-Bedroom Apartment	1	F011	Chair, Dining		3	4	4			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.38	2-Bedroom Apartment	1	F016	Chair, Lounge, 1 Seat		3	3	3			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.38	2-Bedroom Apartment	1	F019	Chair, Lounge, 2 Seat		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.38	2-Bedroom Apartment	1	E102	Coffee Machine		4	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.38	2-Bedroom Apartment	1	F040	Desk		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.38	2-Bedroom Apartment	1	E114	Dishwasher, Domestic		4	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.38	2-Bedroom Apartment	1	E238	Microwave		4	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.38	2-Bedroom Apartment	1	E327	Refrigerator/Freezer, Domestic, Upright		4	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.38	2-Bedroom Apartment	1	F046	Storage, Bookcase		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.38	2-Bedroom Apartment	1	E391	Stove, Electric, w/Hood Fan		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.38	2-Bedroom Apartment	1	F057	Table, Dining		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.39	3-Bedroom Apartment	1	F005	Bed, Twin, Captain		3	3	3			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.39	3-Bedroom Apartment	1	F016	Chair, Lounge, 1 Seat		3	3	3			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.39	3-Bedroom Apartment	1	F010	Chair, Desk		3	3	3			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.39	3-Bedroom Apartment	1	F011	Chair, Dining		3	4	4			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.39	3-Bedroom Apartment	1	F019	Chair, Lounge, 2 Seat		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.39	3-Bedroom Apartment	1	E102	Coffee Machine		4	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.39	3-Bedroom Apartment	1	F040	Desk		3	3	3			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.39	3-Bedroom Apartment	1	E114	Dishwasher, Domestic		4	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.39	3-Bedroom Apartment	1	E238	Microwave		4	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.39	3-Bedroom Apartment	1	E327	Refrigerator/Freezer, Domestic, Upright		4	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.39	3-Bedroom Apartment	1	F046	Storage, Bookcase		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.39	3-Bedroom Apartment	1	E391	Stove, Electric, w/Hood Fan		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.39	3-Bedroom Apartment	1	F057	Table, Dining		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.40	Shared Linen/Laundry Room	1	E168C	Hamper, Linen		2	5	0			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.41	Shared Housekeeping Closet	1	E057	Cart, Housekeeping		2	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.41	Shared Housekeeping Closet	1	E116	Dispenser System, Chemical, Wall-Mounted		3	1	1			

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1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.41	Shared Housekeeping Closet	1	E344	Shelving, HSKP		2	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.41	Shared Housekeeping Closet	1	E438	Vacuum, Upright		1	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.42	Main Team Care Station	1	F033	Chair, Task		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.42	Main Team Care Station	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.43	Sub Team Care Station	1	F033	Chair, Task		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.43	Sub Team Care Station	1	E342C	Shelving, Wire	A-Cart type	2	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.43	Sub Team Care Station	1	F075	Workstation, Small		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.44	Medications Preparation Room	1	F033	Chair, Task		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.44	Medications Preparation Room	1	E324C	Refrigerator, Pharmacy, Undercounter	for meds	2	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.44	Medications Preparation Room	1	E379	Storage, Cabinet, Narcotics, Lockable		4	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.44	Medications Preparation Room	1	F076	Workstation, Small, Clinical		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.45	Procedures Room	1	F033	Chair, Task		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.45	Procedures Room	1	E215	Light, Examination, Ceiling-Mounted		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.45	Procedures Room	1	E254	Monitor, Vital Signs, Mobile	Mobile. Model 68NXTX-B from Welch Allyn	3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.45	Procedures Room	1	E371	Stool, Exam		1	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.45	Procedures Room	1	E404	Table, Examination/Treatment, Height-Adjustable		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.45	Procedures Room	1	F076	Workstation, Small, Clinical		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.46	Conference/Education Room	1	F022	Chair, Meeting		3	20	20			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.46	Conference/Education Room	1	F067	Table, Rectangular, Foldable, Mobile		3	4	4			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.47	Soiled Utility Room	1	E168C	Hamper, Linen		2	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.48	Clean Supplies Room	1	E342C	Shelving, Wire	A-Cart type	2	3	3			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.49	Housekeeping Closet, Distributed	1	E057	Cart, Housekeeping		2	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.49	Housekeeping Closet, Distributed	1	E116	Dispenser System, Chemical, Wall-Mounted		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.49	Housekeeping Closet, Distributed	1	E344	Shelving, HSKP		2	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.50	Storage Room, Supplies/Equipment	1	E342C	Shelving, Wire	A-Cart type	2	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.51	Office, Program Support	1	F030	Chair, Side, Stackable		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.51	Office, Program Support	1	F033	Chair, Task		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.51	Office, Program Support	1	F048	Storage, Cabinet, Filing, 2H		3	1	1			

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1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.51	Office, Program Support	1	F474	Whiteboard		2	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.51	Office, Program Support	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.52	Office, Social Worker	1	F030	Chair, Side, Stackable		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.52	Office, Social Worker	1	F033	Chair, Task		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.52	Office, Social Worker	1	F048	Storage, Cabinet, Filing, 2H		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.52	Office, Social Worker	1	F474	Whiteboard		2	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.52	Office, Social Worker	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.53	Office, Team Leader	1	F030	Chair, Side, Stackable		3	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.53	Office, Team Leader	1	F033	Chair, Task		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.53	Office, Team Leader	1	F048	Storage, Cabinet, Filing, 2H		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.53	Office, Team Leader	1	F063	Table, Meeting, Round, Small		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.53	Office, Team Leader	1	F474	Whiteboard		2	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.53	Office, Team Leader	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.54	Office, CPL	1	F030	Chair, Side, Stackable		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.54	Office, CPL	1	F033	Chair, Task		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.54	Office, CPL	1	F048	Storage, Cabinet, Filing, 2H		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.54	Office, CPL	1	F474	Whiteboard		2	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.54	Office, CPL	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.55	Office, Shared	1	F033	Chair, Task		3	5	5			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.55	Office, Shared	1	F046	Storage, Bookcase		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.55	Office, Shared	1	F049	Storage, Cabinet, Filing, 4H		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.55	Office, Shared	1	F474	Whiteboard		2	2	2			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.55	Office, Shared	1	F079	Workstation, w/hutch, w/pedestal, Height-Adjustable		3	5	5			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.56	Staff Lounge/Lockers	1	F011	Chair, Dining		3	6	6			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.56	Staff Lounge/Lockers	1	F016	Chair, Lounge, 1 Seat		3	3	3			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.56	Staff Lounge/Lockers	1	E102	Coffee Machine		4	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.56	Staff Lounge/Lockers	1	E238	Microwave		4	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.56	Staff Lounge/Lockers	1	E296	Rack, Coat		2	1	1			

Furniture and Equipment List

Component Name	Room Ref SOA Dec 18 2020	Room Name SOA Dec 18 2020	Room Quantity SOA Dec 18 2020	Code	Item Description	Long Description / Reference Model	Responsibility Code	Extended Quantity	Quantity - New (N)	Quantity - Existing	Quantity - Existing Replace (R)	Quantity - Existing Transfer (T)
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.56	Staff Lounge/Lockers	1	E327	Refrigerator/Freezer, Domestic, Upright		4	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.56	Staff Lounge/Lockers	1	F057	Table, Dining		3	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.58	Café/Coffee Bar	1	F011	Chair, Dining		3	4	4			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.58	Café/Coffee Bar	1	E102	Coffee Machine		4	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.58	Café/Coffee Bar	1	E316	Refrigerator, Domestic, Undercounter		4	1	1			
1A.20 Seven Sisters Mental Health Rehabilitation & Recovery Program	20.58	Café/Coffee Bar	1	F055	Table, Coffee		3	2	2			

APPENDIX 1C

ACOUSTICS AND NOISE CONTROL MEASURES

APPENDIX 1C – ACOUSTIC AND NOISE CONTROL MEASURES

ACOUSTIC AND NOISE CONTROL MEASURES

1. Definitions
    a. “ASTC” means Apparent Sound Transmission Class. It is a single number field test rating that normalizes the wall for room finishes. It can be used in place of NIC.
    b. “dBA” is a weighted sound pressure level within a space adjusted based on human hearing systems (e.g. less sensitive to low frequencies);
    c. “Leq” is a time weighted equivalent sound level
    d. “NC” means: Noise Criteria. NC is a single number rating that is sensitive to the relative loudness within a given space at different frequencies;
    e. “NIC” stands for Noise Isolation Class. NIC is the single-number rating of the noise reduction that is measured between adjacent spaces. It is related to the STC of the partition separating the adjacent spaces, but does not require correction for partition area or the sound absorption capacity of the receiving room. NIC is then simpler to measure in the field than STC and is the most direct measure of sound insulation between rooms.
    f. “NRC” means Noise Reduction Coefficient. NRC is a single number rating of the sound absorbing properties of a material – derived by arithmetically averaging the Sabine absorption coefficients at 500 Hz, 1000 Hz, 2000 Hz and 4000 Hz. An NRC of 0.00 indicates zero absorption while; an NRC of 1.00 indicates 100% absorption;
    g. “PI” means Privacy Index. The privacy index is a way of measuring how intelligible speech is across a given space as defined in ASTM 1130;
    h. “RT_{60}” stands for reverberation time. RT_{60} is the time (in seconds) taken for the sound level in a room to decay by 60 decibels following the abrupt termination of the source of sound. RT_{60} is the primary measure of ‘acoustic liveness’ of a space. A short RT_{60} (i.e. less than 0.9 seconds) favours speech intelligibility while a long RT_{60} (i.e. greater than 1.5 seconds) favours music.
    i. “STC” means: (Laboratory) Sound Transmission Class. STC is a single number that is an indication of a partition’s ability to block sound (i.e. primarily in the speech frequencies). The higher the STC rating, the higher is the sound transmission loss. For instance: loud speech can be understood fairly well through an STC 30 wall, but should not be intelligible through an STC 60 wall
    j. STI means Speech Transmission Index. Speech Transmission Index is a measure of speech transmission quality.
2. General Requirements
    a. Design and construct the Facility in consultation with a Consulting Engineer specializing in Acoustics and Noise Control.
    b. Design and construct the Facility to comply, at a minimum, with the requirements described within this Statement of Requirements.
    c. Provide acoustic and noise control measures necessary to create a healing environment for patients, a safe and comfortable environment for staff and confidentiality where it is required.
    d. Acoustics and noise control measures shall include, but not be limited to, the following:
        i. Attenuation of sound within public, patient and staff environments;
        ii. Sound isolation between the exterior and interior spaces;
        iii. Sound isolation between interior spaces within the building at both horizontal and

vertical separations;

iv. Sound and vibration isolation of building service systems and sound isolation of building service rooms;

v. Sound isolation as required for specialty rooms such as conference rooms, Quiet and Respite Rooms.

vi. Control of noise from equipment within rooms;

vii. Minimization of intercom and pubic address sounds in patient areas

viii. Electronic sound masking system

ix. Control of noise and vibration from specialized equipment such as CT Scanners and MRIs; and.

e. Optimum sound isolation for partitions rated at STC 45 or higher requires that the integrity of CMU or concrete walls, gypsum board partitions and ceilings (mass) be appropriately treated to maintain the sound isolation performance where they are violated by vent or grille cut-outs or by recessed cabinets, light fixtures, etc. Field tests may be required to confirm that the details meet the ASTC/NIC targets in Table 1.

f. Where penetrations are necessary for partitions rated at STC 45 or higher (refer to 2e re field tests):

i. Stagger electrical boxes and medical gas outlets by at least one insulated stud space.

ii. Provide mineral fiber insulation and a non-hardening mastic caulking compound to seal joints around all cut-outs such as electrical, TV and telephone outlets, plumbing escutcheons and recessed cabinets.

g. Minimize constructions such as ducts, rigid conduits, etc., that act as tubes to transmit sound from one area to another for partitions rated at STC 45 or higher. At common supply and return ducts, provide sound attenuation liners at the diffuser and/or grill to maintain the acoustical requirements described below. Seal around conduits. Refer to 2e re field tests

h. Isolate structure-borne vibrations and sound with resilient mountings on vibrating equipment to minimize sound transfer to structural materials. Provide ducts, pipes, and conduits with resilient, non-rigid boots or flexible couplings where they leave vibrating equipment; isolate from the structure with resilient gaskets and sealant where they pass through walls, floors, or other building surfaces.

i. Use acoustic screens, vibration isolators, and carefully selected exterior equipment to prevent exterior noise in compliance with local noise bylaws and according to sections 6.a per Table 2 in Appendix 1C to reduce the chance for re-entrant noise.

j. Project Co shall design the Facility applying the following overriding principles:

i. Provide room shapes, workstation configurations and sound absorptive materials and finishes appropriate to the interior acoustic and reverberation requirements for the intended use of the room or space;

ii. Provide the required degree of sound insulation between the exterior and interior, as well as between interior spaces within the facilities through space planning and building material;

iii. Provide finishes that dampen footfall and building services vibration so that the function of vibration-sensitive equipment uses and spaces are not disturbed by the effect.

iv. Provide control of building services noise through space planning to address the adjacency/proximity of mechanical and electrical spaces to minimize their effect on noise sensitive areas;

v. Provide wall, roof, and floor assemblies with acoustic performance in accordance with the minimum requirements listed on the following pages;

vi. Provide buffer zones (e.g. corridors) or upgraded party walls between noise sensitive areas (e.g. Patient Rooms, Conference Rooms, Quiet Rooms, Respite Rooms and offices) and noisy areas (e.g. service areas, waiting areas and lounges);

vii. Avoid vertical adjacencies between noisy and noise sensitive areas;

viii. Design and construct interior assemblies to the STC/NIC/ASTC rating criteria stipulated in this Section.

ix. Room finishes that absorb sound shall be considered for all occupied spaces throughout the Facility.

3. Noise Isolation Requirements

a. Provide wall and floor assemblies with STC/NIC/ASTC ratings in accordance with Table 1 below.

b. Extend the STC/NIC/ASTC rated assembly full-height from floor to the underside of structure above for all walls and partitions requiring an STC/NIC/ASTC rating in Table 1. If such a wall or partition cannot extend full height, provide an alternate system and provide an Acoustic Consultant's report verifying that the required level of speech privacy and other requirements will be achieved with the proposed design;

c. The sound isolation ratings in Table 1 are considered the laboratory STC ratings except where noted. The NIC/ASTC ratings shown in Table 1 are the field rated targets to be verified by post construction testing by an independent party which includes the Proponents Acoustic Consultant.

i. Details such as the ceiling plenum conditions, windows, doors, penetrations through the constructions, etc. shall be addressed to optimize the field performance sound isolation rating.

ii. Table 1 will provide Normal speech privacy (except at corridor walls with doors), assuming a background sound level of at least 35 Dba (NC 30). Achieving the NIC/ASTC ratings in Table 1 will provide Normal speech privacy between adjacent spaces (except for corridor walls with standard, non-acoustically-rated doors), assuming a background sound level of at least 35 dBA (NC 30).

iii. Some adjustments to the STC ratings and NIC/ASTC targets can be made for high STC partitions as long as the results outlined in Table 2 are achieved. Such adjustments must be approved. Field testing may be required to verify the final results have been achieved.

APPENDIX 1C – ACOUSTIC AND NOISE CONTROL MEASURES

Table 1 – STC/NIC/ASTC **Ratings of Demising Walls and Floor/Ceiling Assemblies**

Adjacency Combination		NIC/ASTC-Walls	STC – Wal	NIC/ASTC-Floor/Ceilings	STC – Floors/ Ceilings
All Patient Rooms unless otherwise noted, including Patient Bedrooms, Assessment, Treatment, Anesthetics, and Operating Rooms, ICU and similar	All Patient Rooms unless otherwise noted, including Patient Bedrooms, Assessment, Treatment, Anesthetics, and Operating Rooms, ICU and similar	47	50	47	50
All Patient Rooms unless otherwise noted, including Patient Bedrooms, Assessment, Treatment, Anesthetics, and Operating Rooms, ICU and similar	Corridor (with door)	30	35[1, 2,3]	47	50
All Patient Rooms unless otherwise noted, including Patient Bedrooms, Assessment, Treatment, Anesthetics, and Operating Rooms, ICU and similar	Public Space/Administrative Space, Lounge, Waiting Room (no door)	47	50	47	50
Service Rooms	All patient rooms and occupied spaces	60	65	55	60
Conference Rooms, Boardrooms and similar	Any space (no door)	50	55	47	50
Conference Rooms, Boardrooms and similar	Corridor (with door)	45	50[1, 4,5]	47	50
Meeting Rooms, Debrief Rooms, Multi-Purpose Rooms, Consult Rooms, Training Rooms, Break-out Rooms and similar	Any Space (no door)	45	50	45	50
Meeting Rooms, Debrief Rooms, Multi-Purpose Rooms, Training Rooms, Break-out Rooms and similar	Corridor (with door)	30	35[1, 2,3]	47	50
Quiet Room, Respite Room, Waiting Room, Sacred Rooms	All Occupied rooms (no door)	45	50	47	50

APPENDIX 1C – ACOUSTIC AND NOISE CONTROL MEASURES

Adjacency Combination		NIC/ASTC -Walls	STC – Wal	NIC/ASTC-Floor/Ceilings	STC – Floors/ Ceilings
Quiet Room, Respite Room, Waiting Room, Sacred rooms	Corridor (with door)	30	35[1,5]	47	50
Washroom	All occupied Spaces (other than Conference Room)	40	45	47	50
Comm	All occupied spaces	50	55	47	50
Comm	Corridor (with door)	30	35[1,2,3]	47	50
Offices (Private/Shared, On-Call), Control Rooms	Offices (Private/Shared, On-Call), Control Rooms (no door)	42	47	47	50
Offices (Private/Shared, On-Call), Control Rooms	Corridor (with door)	30	35 [1,2,3]	47	50
All Staff Workrooms, Collaborative Work Area	All occupied space	47	50	47	50
Staff/Physician Lounges and breakrooms	All occupied spaces	47	50	47	50
Staff/Physician Lounges and breakrooms	Corridor	30	35 [1,2,3]	47	50
Secure, Seclusion and similar	To any occupied space (no	50	55	47	50
Secure, Seclusion and similar	To corridor (with door)	40	45[4]	47	50
Service/HVAC Shafts	All occupied spaces	55	60	dna*	dna
Service/HVAC Shafts	All unoccupied spaces	40	45	dna	Dna
Medication Room	All occupied rooms	45	50	47	50
Locker Area/Room, Locker/Change Room, Food Servery and similar non-critical spaces	All occupied rooms	45	50	47	50
Care Team Stations and Unit Clerk Workstations (if enclosed)	All occupied rooms	45	50	47	50
Storage and Holding Spaces	All occupied spaces	42	47	47	50
Storage and Holding Spaces	All unoccupied spaces	35	40	47	50
Rooms with MRI's	Any occupied space	50+	55+	50+	55+
Rooms with MRI's	Corridor	40-45	45-50[4]	45	50

dna* means 'does not apply'

Table 1 – Notes:

a. "Public Space" includes lobbies/atria, waiting/pause areas, reception areas, and similar spaces.

b. "Service Rooms/Areas" include elevators, elevator machine rooms, garages, maintenance rooms, mechanical and boiler rooms and similar spaces; also rooms with noisy medical equipment.

c. The STC/NIC/ASTC ratings for walls noted in Table No. 1 are based on 25 ga. steel studs at 600 mm o.c. If stiffer studs are required alternate designs must be developed to achieve the STC ratings noted. That is, consideration should be given to use of larger studs (i.e. 152 mm vs. 89 mm, etc. at 25 ga.), resilient channel or resilient clips (where practical), double stud or staggered stud walls, use of proprietary materials such as Quiet Rock and equals, etc. CMU is also an alternative in some areas such as around mechanical and electrical rooms.

d. Note[1]: This is a composite rating for walls that include doors and/or glazing in a wall.
Note[2]: The results assume a closed door.
Note[3]: Where sliding doors are required, the acoustic rating does not apply.
Note[4]: Acoustically rated purpose-built door systems; STC 45 or STC 50 applies to the following rooms (except those with 1050 mm (i.e. 3'6") leaf and 450 mm (i.e. 1'6") leaf:

- Service room, MCC, BCC
- Conference Rooms and rooms with video-conferencing
- MRI Room

Note[5]: Refer to Section 4: Door Requirements

4. Door Requirements

1. There is an additional requirement for acoustical details for doors in a number of areas. For these areas, the doors require full perimeter acoustic seals as well as an automatic threshold closer and in some cases acoustically rated door slabs. If leveled an caulked in place sill plates cannot be use, assurance must be provided that the floor is level across the width of the door.

a. D1 (standard solid core wood door with acoustic seals, rated STC 28-33) for upgraded acoustic privacy and shall be applied to key Meeting Rooms and Boardrooms.

b. D2 (acoustically rated doors with full acoustic seals, rated STC 40-42) for 'high privacy' rooms such as key Offices, Interview Rooms, Office\Interview Rooms, Psychiatric Offices, Conference and Exam Rooms.

c. D3 Purpose-built acoustically rated STC 45 doors for service rooms, MCC, BCC and conference rooms (especially with video-conferencing capabilities.

5. Background Noise – Interior Spaces

a. The Design-Builder shall:

i. In undertaking the design of the Facility, evaluate the expected noise from all mechanical and other systems in the Facility; and

ii. Design and construct the Facility so that noise from the mechanical and other systems does not exceed the noise level specified in Table 2 below, within the room or space identified.

iii. Cross-reference Table 2 with the Room Data Sheets to ensure all room types are covered.

Table 2 – Noise Criteria – Rating Within Various Spaces
(Building Services Systems; HVAC and Electrical)

Room Type	NC/RC(N)	dBA
Patient Rooms including On-call rooms	30-35	37-42
Operating Rooms	35-40	42-47
Exam/Treatment Rooms and Consult/Interview Rooms and similar	30-35	37-42
Multi-Purpose, study, Training, Meeting, debriefing, Break-out, and similar	30-35	37-42
Security Rooms, Secure Rooms and similar	30-35	37-42
Multiple occupant patient care areas	35-40	42-47
Corridors and public spaces	35-40	42-47
Team Care Stations	30-35	37-42
Offices	30-35	37-42
Reception Desk, Receptionist Workstation, Unit Clerk Workstation, Patient/Visitor Waiting Room	35-40	42-47
Meeting rooms	25-35	32-42
Labs and Similar	35-40	42-47
Exercise Rooms/Locker Rooms	40-45	47-52

6. Noise Control – Exterior

    a. The interior noise levels (15-minute Leq) due to exterior sources shall not exceed the specified room dBA level noted in Table 2 above.

    b. Noise levels created in routinely occupied outdoor amenity spaces/locations including mental health outdoor activity area, public outdoor spaces and staff outdoor spaces by the operation of any mechanical and other building services systems (including electrical substations/transformers) shall not exceed 55 dBA.

    c. Noise levels created in routinely occupied outdoor amenity spaces/locations including mental health outdoor activity area, public outdoor spaces and staff outdoor spaces by the operation of emergency power generator system shall not exceed 55 dBA.

    d. Where it will not result in the exceedance of the outdoor amenity space noise limit in Clause ‘b’ of this section, noise levels created by operation of mechanical or other building systems (including electrical substation/transformers) shall not exceed 50 dBA at a distance of 10M from the Facility.

    e. Where it will not result in the exceedance of the outdoor amenity space noise limit in Clause ‘c’ of this section, noise levels created by operation of the emergency power generator system shall not exceed 55 dBA at a distance of 10M from the Facility.

    f. Subject to the requirements of Clauses b, c, d and e of this section, noise levels created

at the facade of the Facility by operation of emergency power generator system shall not exceed 75 dBA.

g. Subject to the requirements of Clauses b, c, d and e of this section, noise levels created at the facade of the Facility by operation of mechanical or other building systems (including electrical substations/transformers) shall not exceed 70 dBA

7. Acoustics for Privacy/Confidentiality Enhancement

a. There is a requirement to maintain Confidential Privacy (a level of speech privacy) for some of the key areas of the Facility. Confidential Privacy rating is defined as follows:

i. The sum of the composite STC and the A-weighted background noise level shall be at least 75; OR

ii. Rated 0.0 – 0.005 on the Speech Transmission Index (STI) scale, OR

iii. Rated 95-100 on the Privacy Index (PI) scale.

b. Speech Transmission Index (STI) is measured on a scale of 0 to 1. High value of STI means high speech intelligibility.

Rating	Subjective Environment
0.00 – 0.12	Confidential privacy
0.13-0.19	Normal privacy
0.20 – 0.34	Marginal privacy
0.35 – 0.49	Fair communication
0.50 – 0.64	Good communication
0.65 – 1.00	Excellent communication

c. This measurement scale is also used to determine the level of speech that is transmitted outside a given room into another area which, in healthcare, is generally our concern when trying to maintain privacy/confidentiality from others.

d. Another means to measure privacy is via the Privacy Index (PI) as indicated in the following table:

Rating	Subjective Environment
95 -100	Confidential privacy
80 - 95	Normal privacy
60 – 80	Marginal / poor privacy
less than 60	No privacy

e. The following spaces in the Facility shall be designed with increased sound proofing in order to achieve Confidential Privacy* rating:

Rooms	Confidentiality Rating
All Exam/Treatment Rooms	Confidential Privacy
Consult/Interview rooms	Confidential Privacy
Meeting rooms which may also be used as consult spaces	Confidential Privacy
Offices	Confidential Privacy
Telehealth Capable Rooms	Confidential Privacy
Staff Lounge	Confidential Privacy
Trauma Rooms	Confidential Privacy
Seclusion Rooms	Confidential Privacy

* to be verified by post-construction testing by an independent party which includes the Proponents Acoustical Consultant.

f. Enclosed Room Speech Privacy Design Guidance

i. Speech privacy is based on the level of speech, the acoustical properties of the partition systems, the level of acoustic finishes in a space and the background noise. This will need to be evaluated and where sufficient ambient noise is not provided by the HVAC system, consideration must be given to the use of an electronic background sound masking system (refer to Subsection 8 following).

ii. Speech privacy can be achieved with proper space planning, partitions, room finishes and effective use of sound masking systems.

8. Sound Masking

a. Provide a digital centralized, dual networked sound masking system in all spaces requiring Confidential speech privacy and which is not reasonably obtainable by sound proofing and adequate background noise from the building services systems. The system is subject to the Authority approval.

b. The sound masking system shall include the following:

i. Strategically located speaker assemblies installed above or flush to a conventional suspended acoustic tile ceiling; and

ii. Speaker assemblies generating unique, diffuse and unobtrusive sound with spatial and temporal uniformity, and having a spectrum shape designed to mask speech and low level unwanted noise.

c. Sound masking system details and locations shall be reviewed by the Authority.

9. Acoustical Finishes

   a. Acoustical room finishes, defined as room finishes with an NRC of greater than 0.5, shall be used in all occupied spaces except where prohibited by code requirements. These spaces include, but are not limited to, the following (refer also to the Room Data Sheets):

      i. All Patient Rooms (e.g. Exam/Treatment Rooms)
      ii. Corridors
      iii. Staff Room and Lounges
      iv. Team Care Stations
      v. Waiting areas
      vi. Atria/Lobby and Circulation spaces
      vii. Offices, Boardrooms, and similar
      viii. Consult Rooms/Assessment/Interview/Meeting and Education Rooms
      ix. Quiet Rooms
      x. Meeting Rooms and rooms with video conferencing
      xi. Dining Area

   b. The extent of acoustical finishes in the spaces listed in Appendix 1N - Facility Functional Program shall be determined by the project Acoustical Consultant. However, the area of acoustical finishes shall not be less than the floor plan area, unless high NRC finishes are used.

   c. Sound absorbing materials shall be incorporated into the design of rooms so that the Reverberation Times (RT_{60}s) of the rooms do not exceed the values listed in Table 3; or as outlined in the room data sheets.

   d. Where achieving the RT_{60}s in Table 3 appears challenging because of limited scope for use of conventional sound absorbing materials due to safety/security concerns best efforts shall be made and alternative approaches explored with the Authority.

Table 3 – Maximum Room Reverberation Times

Room Type(s)	Reverberation Time (Seconds)
Lobby, Entry Vestibule/Atria	1.0
Patient Rooms (bedrooms)	0.8
Corridors and Public Spaces	1.0
Offices	0.8
Staff Lounges, Staff Workrooms	0.8
Team Care Stations, Medication Room	0.8
Dining/Multipurpose Rooms, Activity Rooms	0.8
Receptionist Workstation, Unit Clerk Workstation, Patient/Visitor Waiting Room rooms with televisions, Computer Alcoves	0.8
Counselling Rooms	0.6
Training Rooms, Staff Quiet Rooms, Sacred	0.6

Room Type(s)	Reverberation Time (Seconds)
Space/Healing Room, Quiet Lounges,	
Meeting Rooms, Conference Rooms	0.6
Multiple Occupant Clinical Spaces	0.6
Labs and similar	0.8
Secure Rooms and similar (or as possible due to damageability)	0.8
Rooms with Video-conferencing capability	0.5
Wellness/Exercise	1.0

10. Operating Rooms with Imaging Equipment
    a. Special care shall be given in the design of any rooms containing imaging equipment, such as the CT Scanners. Attention shall be paid to:
        i. Vibration isolation of the imaging equipment; and
        ii. Room finishes;
    b. For rooms containing imaging equipment the extent of noise and vibration control detailing shall be determined by the project Acoustical Consultant in addition to meeting the requirements of Schedule 1.

11. MRI Rooms
    a. Special care will be required in the design of any rooms containing MRI equipment; consider the following strategies at a minimum:
        i. provision of vibration isolation for MRI equipment as recommended by the manufacturer and approved by the acoustical consultant;
        ii. provision of room finishes that will be help to reduce noise; and
        iii. structural design features that reduce vibration.
    b. For rooms containing MRI equipment, noise and vibration control design features shall be determined by the project acoustical consultant.

References:

1. *Lewitz, Joel. Understanding the sound and the silence: applications of sound masking in open and closed-plan environments, with possible HIPAA requirements, Sounds and Communications, Dec 2003*
2. *Hongistor, Valtteri et al. Prediction of speech transmission index in open-plan offices. Joint Baltic-Nordic Acoustics Meeting, June 2004*

END OF SECTION

APPENDIX 1C(I)

CONTROL OF VIBRATION AND NOISE DURING CONSTRUCTION

APPENDIX 1C(1) – CONTROL OF VIBRATION AND NOISE DURING CONSTRUCTION

Control of Vibration and Noise During Construction

1) Control of Vibration During Construction

   a) The Design-Builder will review with the Owner any expected vibration from the Design-Builder's Construction activities in advance of those activities. The Design-Builder will carry out its Construction activities so as;

      i) To prevent cosmetic building damage, ground vibrations from the Design-Builder's Construction activities, including all demolition, ground improvement, and general Construction activities, do not exceed 5.0 mm/s peak particle velocity when measured on any Existing Hospital or neighbouring residential building at any time of day, and any day of the week;

      ii) To avoid daytime disturbance/annoyance of Patients and Staff within Existing Hospital and of residents within neighbouring residential buildings, ground vibrations do not exceed 1.0 mm/sec peak particle velocity when measured on any Existing Hospital or neighboring residential building between the hours of 8 am to 7 pm Monday through Friday, and between 8am and 5 pm on weekends;

      iii) To avoid nighttime disturbance/annoyance of Patients within Existing Hospital and residents within neighbouring residential buildings, vibrations do not exceed 0.3 mm/s peak particle velocity when measured on any Existing Hospital or neighbouring residential building between midnight and 8 am and between 7pm and midnight, Monday through Friday, and between midnight and 8 am and between 5 pm and midnight on weekends or during certain times of the day and certain days of the week as determined by the Owner, acting reasonably;

      iv) To avoid disruption to the Owner's 24/7 operations, it is the responsibility of the Design Builder to have a pre-construction vibration survey done by a qualified Acoustic and Vibration Consultant to establish maximum allowable vibration limits for spaces with more stringent vibration requirements such as laboratories, operating rooms, and imaging. The report must indicate the hours of vibration sensitive operations and minimum setback distances for various anticipated construction activities. The results of this study will be used to establish 'do not exceed' limits for vibrations within each of the specialty low vibration spaces during construction; and

      v) Vibration transfer to the Existing Hospital does not adversely affect the Owner's 24/7 operations, including diagnostic operations and equipment in the adjacent buildings.

      vi) Vibration complaints must be investigated by the Design Builder and their Acoustic and Vibration Consultant; the results of the investigation will be documented and will include recommendations for new 'do not exceed' limits to avoid further complaints. The documentation and recommendations will be presented to the Owner for approval.

   b) Complete a vibration monitoring program as follows:

      i) The Design-Builder will retain a qualified independent third-party vibration monitor to complete vibration monitoring during the Construction activities to confirm that the vibrations caused by the Construction activities do not exceed the limits specified in a) and as determined by a pre-construction vibration survey as specified in a)iv) and amended due to complaints as specified in a)vi) and agreed to by the Owner;

      ii) The Design-Builder will undertake preliminary vibration monitoring at the Site during the initial stages of all Construction activities that are expected to cause vibrations in order to determine magnitude and dissipation rate of the vibrations for each activity and provide a mitigation

procedure to prevent exceeding the vibration limits specified in this Schedule. The Design-Builder will complete initial vibration related Construction activities at a significant distance away from Existing Hospital and any other vibration sensitive spaces or buildings. The qualified independent third-party vibration monitor will provide the Owner and the Design-Builder with a report outlining the vibration results from each Construction activity. The Owner will review the preliminary vibration monitoring report and without relieving the Design-Builder of its responsibilities, may require the Design-Builder to comply with additional vibration monitoring requirements for each Construction activity prior to commencement of the Construction activity;

2) Control of Noise During Construction

a) The Design-Builder will discuss with the Owner any expected noise from the Design-Builder's Construction activities in advance of those activities, as noise may affect the Owner's 24/7 operations, Patient care, and neighbouring properties. Without limiting the foregoing, the Design-Builder will:

i) prior to start of any Construction activities, submit a noise control plan for approval by the Owner as part of the overall Work Plan. At a minimum, the plan will include the following:

(1) a list of noise sensitive spaces in the existing hospital and surrounding areas, and the maximum allowable Construction activity noise levels for each location that is in accordance with Section iv);

(2) a noise monitoring plan indicating intended locations of noise monitors;

(3) tentative schedule of activities likely to produce high sound levels, for the duration of the Construction;

(4) planned hours of work for activities expected to produce high noise levels;

(5) descriptions of planned specific noise abatement measures including enhanced hoarding adjacent to the Existing Hospital;

(6) intended staging locations and routes to be used for minimization of noise disturbance; and

(7) the approach to selection of construction equipment to be on the Site.

ii) on a weekly basis, provide a brief report to the Owner, including a graph of the logged hourly noise levels for the previous week (A weighted Leq, L10, and L1) and a graph of the daily (24-hour long) A-weighted Leq, L10, and L1 since commencement of Construction;

iii) include in the weekly report any updates to the noise control efforts and also a schedule of upcoming, noise and vibration producing activities;

iv) carry out its Construction activities so that:

(1) between the hours of 7:00 pm and 8"00 am, sound levels from the Design-Builder's Construction activities do not exceed 65 dBA (Lmax) in a 'slow' setting in the nearest critical areas, patient rooms, ORs, treatment spaces, Labour and Delivery, etc., and 80 dBA (Lmax) at neighbouring properties, except with prior written approval from the Owner;

(2) between the hours of 7:00 p.m. and 8:00 a.m. noise from Construction activities in critical areas, e.g. Patient rooms, Inpatient Units, sleep areas, and Labour and Delivery Rooms, will not exceed 40 dBA (1-hour Leq) as measured indoors in the relevant rooms of such Units;

(3) sound transfer to the Existing Hospital does not adversely affect the Owner's 24/7 operations; and

(4) the City of Terrace Construction Noise bylaw is met.

v) Complete a sound monitoring program for the existing sensitive spaces such as Operating Rooms and Labour and Delivery Rooms as follows:

(1) The Design-Builder will complete sound monitoring during the Construction activities to confirm that the sound levels caused by the Construction activities do not exceed the limits specified in this Schedule and in the noise control plan required in i);

(2) The Design-Builder will undertake sound monitoring at the Site of all Construction activities that are expected to cause noise in order to determine the magnitude and dissipation rate of the noise for each activity and provide a mitigation procedure to prevent exceeding the sound limits specified in this Schedule. The sound level monitor will provide the Owner and the Design-Builder with a report outlining the noise results from Construction activity. The Owner will review the sound monitoring report and without relieving the Design-Builder of its responsibilities, may require the Design-Builder to comply with additional sound monitoring requirements for each Construction activity prior to commencement of the Construction activity;

(3) The Design-Builder will install a sound level monitoring station at an outdoor location, and within the spaces specified in the noise control plan. The sound level monitoring stations will be installed within the monitored indoor spaces along the building wall closest to the Construction area. The sound level meter will have the following minimum capabilities:

(a) logging of A-weighted Leq, L10, L1, and Lmax sound levels on an hourly basis, and
(b) remote access via computer to upload logged sound level data;

(4) The sound level monitors will conduct sound monitoring during all Construction activity that affects the Operating Rooms and Labour and Delivery Rooms. The sound level monitor is to alert within 5 minutes to the Owner, or designate, and the Design-Builder if noise exceeds the limits specified in this Schedule or the Design-Builder is otherwise not in compliance with this Schedule. The Design-Builder will cease within 5 minutes the activity causing the noise and modify its activity or schedule the activity to a time that is agreeable to the Owner. Simultaneous measurements can be used to limit the number of false alerts.

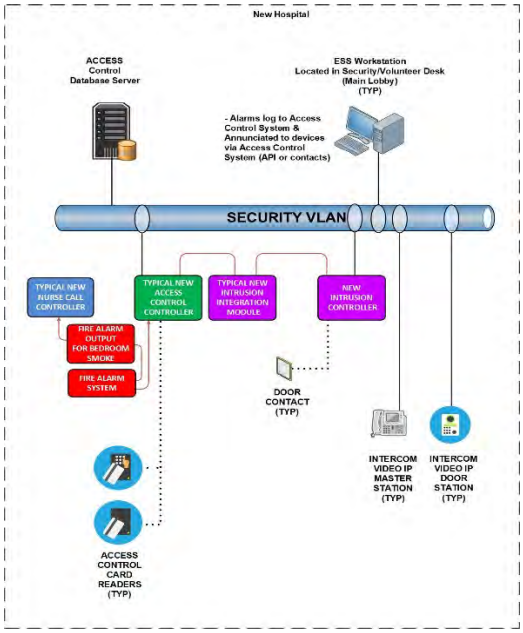
(5) Noise complaints must be investigated by the Design Builder and their Acoustic and Vibration Consultant; the results of the investigation will be documented and will include recommendations for new noise limits to avoid further complaints. The documentation and findings will be provided to the Owner for approval.

APPENDIX 1D

TECHNOLOGY NARRATIVE

Access Control

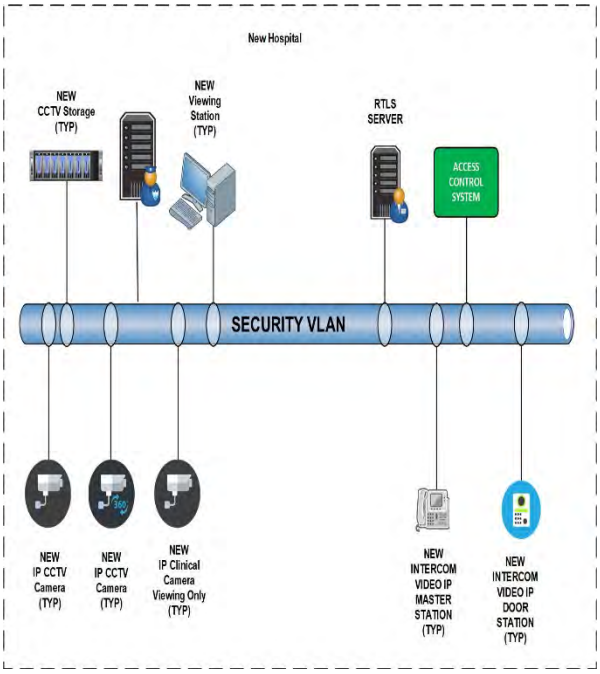
The facility design will be developed in coordination with Provincial Security Physical Security design standards and the CPTED principles of creating natural layers of security. At each layer, there will be a need to restrict access by way of an access control system. The PC-based access control system for the Facility will allow for multiple different formats to be used to access restricted areas and share bi-directional access to a database. Technology such as proximity card-read may be used for commonly restricted doors where dual-authentication may be used at higher security areas where a second technology will be required. Authorized users may carry a card or fob which they present at the credential reader and are instantly granted access provided they are authorized to the door or area. The system is meant to enhance the physical design by offering electronic security and lock scheduling to elevators and doors which require it while maintaining mechanical cylinder override. Rooftops, mechanical, technical and electrical, plumbing, telecommunications and audio visual ("AV") rooms and others will be lockable through the access control system. In some cases (such as stairwells), delayed egress will be deployed and on stage two fire alarm. Exterior doors will lock to prevent people from entering the building while other internal safe-egress doors will automatically unlock providing access to safe-exit. The access control system ("ACS") will be constantly powered by way of the uninterruptible power supply ("UPS") system and reference the same time-sync clock system as all other security systems for continuity of evidence. System Administrators may access the user database by way of several dedicated workstations which may have HR database integration. Reports, alarms, badge creation and database changes are all possible from the workstation. Departments which are ordinarily locked but may receive visitors who require access will be equipped with video intercom systems which also have an access control integration to allow specific doors to be unlocked. The user interface will include graphical mapping which allows real-time access to alarm points, controlled doors, surveillance cameras and panic/duress stations throughout the facility campus.



Video Surveillance

The Digital Video Management System ("DVMS") will use IP-based recording and archive servers accessible to local and remote operators to view and record IP cameras located throughout the facility and connected via security-IP network. The system is intended to provide site security surveillance, shared security and clinical functionality and strictly clinical observation based on defined policies of use determined by the Authority and the Provincial Security Guideline Standards. Access to single-purpose video streams (both security and clinical) will be strictly controlled and limited to authorized and authenticated users. Camera locations will be determined by the requirements of the Project Agreement and TRA and will be constantly recorded at a rate of

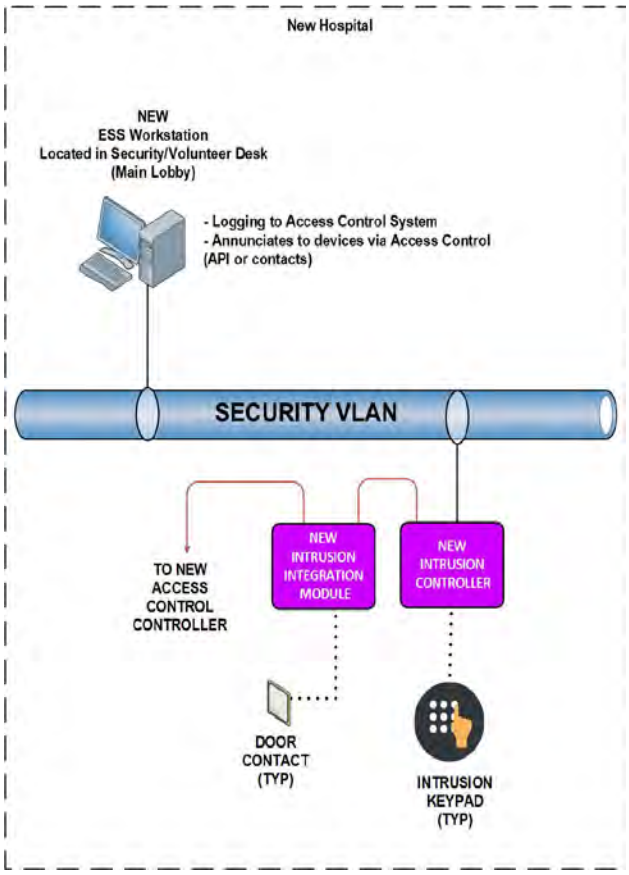
30 images per second for 30 days at minimum D1 resolution. Cameras which have a view of public spaces will be able to be electronically masked to disable sections of the scene. Events from access control, panic duress and intrusion detection systems will cause cameras associated to those events to record at double the frame rate. Evidentiary quality video for review and investigation is accessed by authorized users via secure log-on to network and web-based interfaces. All cameras will be colour IP models connected by CAT6a cable or fiber and designed to operate in the environment they are installed. The DVMS and associated workstations will reference the facility time-sync server for continuity of evidence and system integration. Operators such as security and response personnel will be able to access a site floorplan graphical map which will show all camera locations on each floor and their proximity to other electronic security system (“ESS”) components such as panic buttons, duress stations, access control doors. Each TR and Communications room and the Campus Communications Hub (“CCH”) will be equipped with no less than one surveillance camera integrated with the access control and intrusion system. Integration of the surveillance system with the intercom system will also support use of nearby cameras to provide a secondary view of persons using a door station in addition to the camera on-board the intercom unit. Clinical Cameras will also become sub-systems of the main DVMS but will not be recorded and only be monitored in Care Hubs at each department requiring this type of system. The design of the DVMS system with IP camera locating will be closely tied to the CPTED principles and coordination with the lighting and architectural teams.



Intrusion

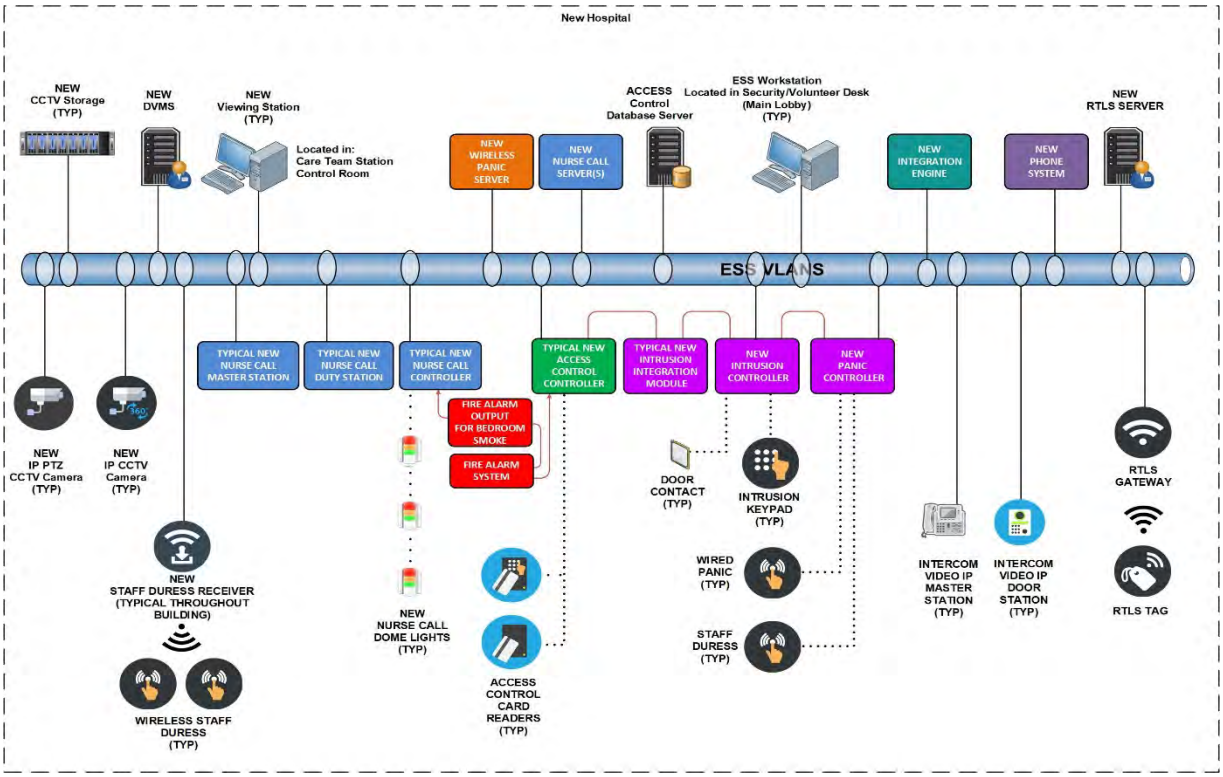
Intrusion alarm systems will be installed in TR rooms accessed from outdoors, pharmacy spaces, cash offices and communications rooms throughout the new building as required. The head-end intrusion equipment may also pick up myriad other types of alarms from FM systems such as fridges and coolers. These systems will be integrated with the access control system to allow for graphical mapping display of secured areas. The intrusion alarm system will also receive signals from the Panic/Duress system to allow for instant communication to off-site monitoring by a ULC Central Station. The intrusion alarm system will also integrate with the DVMS to allow for increased record rates and camera notifications in the event of an alarm. As with all other electronic security systems in the new building, power will be provided by UPS. Communications rooms will each have their own intrusion alarm system with the panel itself located within the secure room per NHA standards. A facility-wide panic/duress system consisting of both wired and wireless detection devices will be implemented and integrated with the Access Control System mapping. Fixed buttons will be located in strategic locations both inside and outside the building to allow both staff and public to initiate a call for help as required. Activation of these buttons will annunciate locally at Security, Team Care Stations and other locations, and

initiate communication to the Central Station who can direct response to specific areas of event. The wireless panic duress system will consist of uniquely identified monitored on a prescribed ping rate which is able to increase in event of alarm. Individual tag locations will be pinpointed via Wi-Fi with full coverage within the building and in secure outdoor spaces and parkades. All duress buttons available to public will be in the field-of-view of the video surveillance system.



Public Panic & Duress

Panic and duress devices for public use are intended to be located in areas of risk such as parkade and obstructed-view grounds. Panic alarms may report directly to Security 2-way radios, pagers and the intrusion alarm system. Alarm events require operator acknowledgement and will be able to provide automated instructions. The panic / duress system will include wired buttons located within the building and easily identified by public. Exterior at-grade parking will have panic stations with audio communications located around the site. These panic stations will be integrated with the CCTV system for visual verification of events during an incident. The panic / duress system will be designed to leverage the wireless infrastructure and future RTLS for a wireless duress solution. Fixed buttons will be located in strategic locations both inside and outside the building to allow both staff and public to initiate a call for help as required. Activation of these buttons will annunciate locally at Security, Team Care Stations and other locations and also initiate communication to the Central Station who can direct response to specific areas where the event has been generated. The wireless panic duress system will consist of uniquely identified panic buttons described in the staff communication section. Individual tag locations will be pinpointed via Wi-Fi with full coverage within the building and in secure outdoor spaces and parkades. All duress buttons available to public as well as staff will be in the field-of-view of the video surveillance system.



Fire Alarm

A new two stage supervised fire detection and alarm system will be provided for the new facility. The system will consist of addressable devices which include manual initiation devices, audio/visual devices and automatic devices such as smoke and heat detectors. Pull stations will be located at all entry and exit doors as well as stairwells while automatic devices will be placed per code requirement. The sprinkler system will also be connected to the fire alarm system and annunciation devices. The building will receive new graphic annunciators to display the location of alarms and feature integration to wireless staff communications. Main reception will have access to an annunciator panel as well as annunciation panels at main entrances. In patient areas, dome lights and nurse call will be tied to the fire alarm system for annunciation at the Care Team Stations. The Access Control system may also be integrated to the Fire Alarm system to allow for free (or delayed) egress from the building and restrict entrance back into a potentially hazardous building. Connections will also be provided to elevators to allow for a status and control panel and restrict elevator use during an alarm.

Nurse Call – Code Blue

The Nurse Call system will operate on a separate network using Rauland or ASCOM switches which will bridge to the Authority network to provide connection to staff wireless communication. Patient area Nurse Call devices such as patient bed stations will have 2-way communication between the patient/visitor and the caregivers along with standard features such as pull-cords, code buttons and integrated pillow speakers allowing patient to control TV, low level lighting and additional controls as determined through the clinical meetings. Room Dome lights and area Zone lights will be included to effectively and efficiently direct first responding staff to the location of need. The Nurse Call System will be integrated with the Authority network to allow for quick annunciation of alarms and alerts on any facility communication device. To ensure the highest up time for this feature alarms and alerts will also be sent to Nurse Call staff stations located at the nurse station and other pre-determined locations on Nurse Call staff stations to ensure continued functionality in the event of network

failure or disruption. Each department will continue to function independent to failures in the network or other parts of the system and alerts will be sent throughout the system notifying staff of issues for quick response. The Nurse Call System will include many essential features required by current Healthcare facilities including:

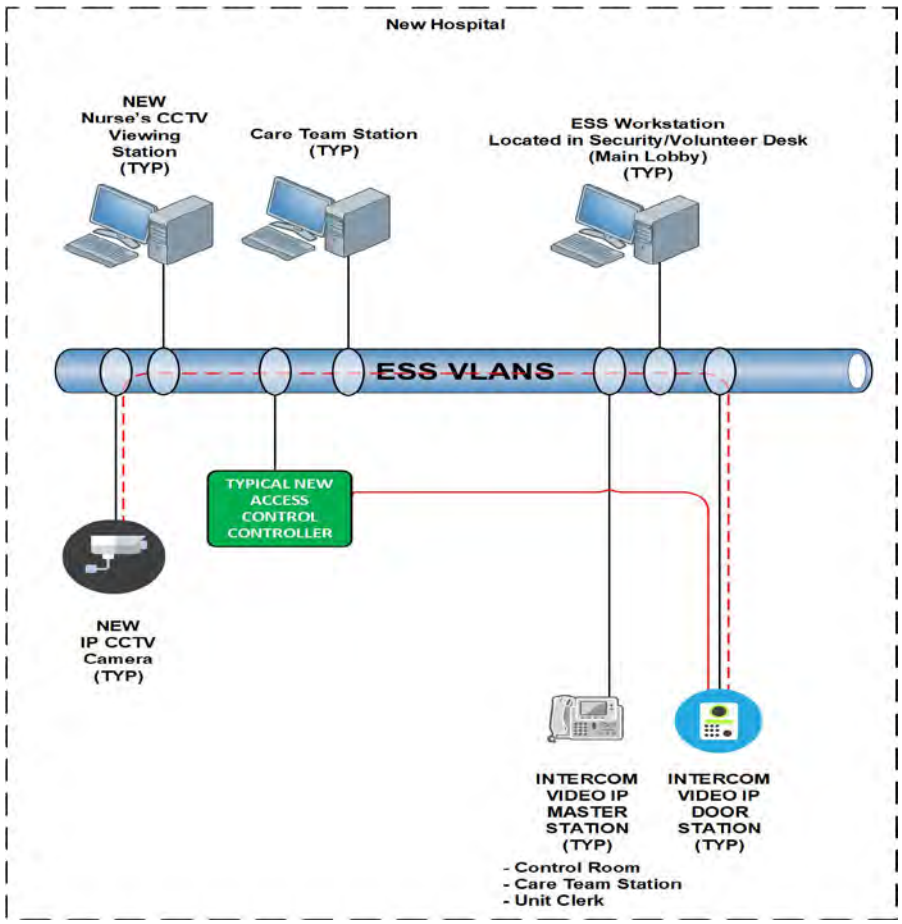
a. A variety of code alerts including
    i. Code Red (Fire)
    ii. Code White (Panic)
    iii. Code Blue (Cardiac Arrest)
    iv. and patient monitoring alarms
b. Full Duplex voice communication
c. Visual identification of area of need with Dome and Zone lighting
d. Controls for lighting and TVs via pillow speakers
e. Integration with facility Telephone System for 'Anytime/Anywhere' communication
f. Variety of Staff stations for ease of use and flexibility
g. Call classification and prioritization
h. Call cascading

The Rauland or ASCOM system will be a fully functional audio and visual emergency call system for both staff and patients. The system will have duplex audio to each patient bedhead and stretcher bay and have the ability to communicate with the wireless staff communication system (Vocera) and well as staff duty stations and consoles at all locations as designated in the project agreement and the room data sheets. The system will have the ability to support HL& integration with the Authorities Meditech system. The Nurse Call system will also receive inputs from fire alarm and wireless staff duress.

All Codes including White, Red, Blue and Patient monitoring alarms will be take the highest priority on the Nurse Call System and will be sent to predetermined staff stations, devices and centrally located areas as described in these specifications and in consultation with the clinical staff. The Nurse Call system devices will reside on the separate nurse call network, which will connect to the hospital network. In the event that this network connection is severed the Nurse Call System will continue to operate as a fully functioning stand-alone system until the network connection is restored. The Nurse Call system will integrate into the hospital information system to provide access to patient information via the converged network infrastructure. The Nurse Call System will also include additional integration for annunciation of alarms and events as required by the specifications and clinical meetings.

Intercom

The intercom not only allows visitors at entrances such as loading bays, delivery doors and department entrances to communicate with staff, but also works as an essential communication device in concert with other technologies. As an example, the phone system and radios can take and transfer communications through the intercom system. Operators with limited responsibilities may have desk-top stations to allow for video communication to visitors and the ability to unlock doors. Once again, these intercom devices can be placed on the access control GUI as interactive icons allowning the security staff and care hub staff full duplex control over all communication in the facility. As with other systems, scalabilty, redundancy and trouble-free operation are important design considerations. The intercommunications system is scalable and consists of IP-based door – to – master stations allowing for bidirectional conversation and one-way color HD video. Enhancing the video is integration to the DVMS to allow for nearby surveillance cameras to also display persons at the door station. Additionally, the door stations are able to call any Master Station programmed within the intercom network. Master stations will be located at Security Desk, Care Team Bases, Inpatient and Outpatient units and Neuro- stimulation Clinic. A ruggedized anti-ligature version of the intercom station will be used in the Secure Rooms and Ante Rooms for offer hands-free operation

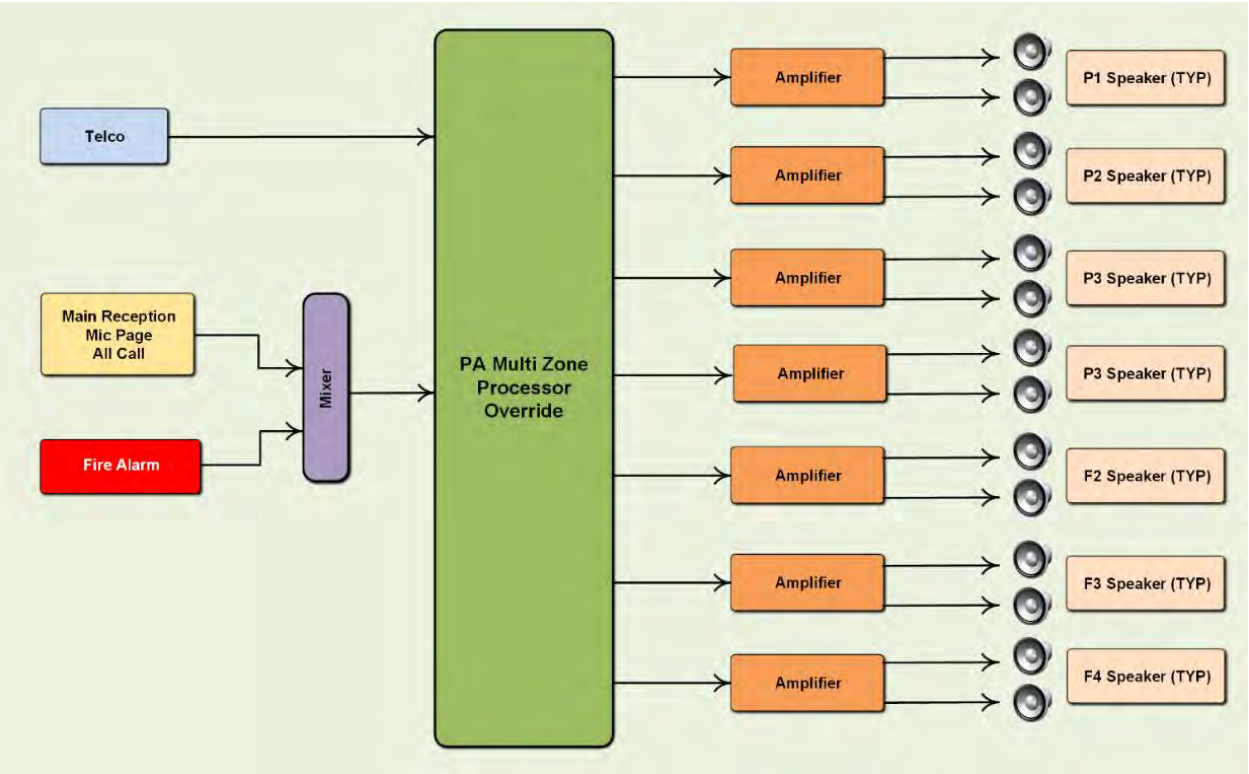


Radio & Communications

Mobile and base radios have become increasingly complicated, intuitive and intelligent in recent years. Additionally the form-factor has made them extremely easy to conceal and carry comfortably while on-duty. Radios designated for this system will be able to take and transfer calls from the IP phone system as well as the intercom system when programmed to do so. They are also equipped to allow for duress reporting, man-down and keypad operation functions such as “door-lockdown”. These network-based systems also allow for internet and bluetooth communication and mobile application on smart phones for those who don’t need or wish to carry a hand-set. The radios can be signed in and out during each shift staff-change and they can be stored for charging in access controlled cabinets to allow for audit trail and assignment to specific users who may need more feature-rich units. The security or primary administration staff will have access to a user interface similar to the other security systems to administer the system in real-time. Radio security includes encrypted communication and embedded GPS for location monitoring as well as ability for security to remotely enable or disable each unit

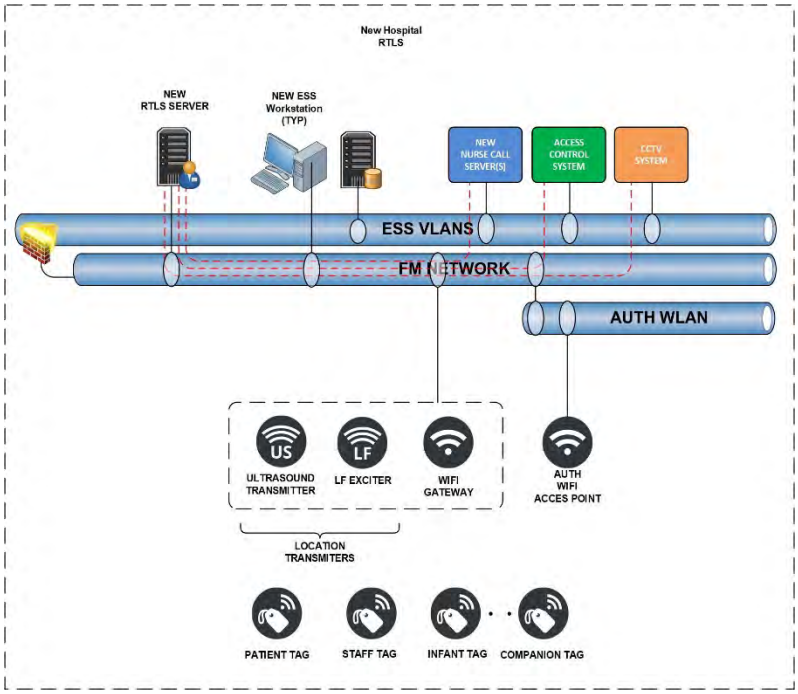
Public Address & Paging

The Facility will be equipped with an overhead paging system with ceiling mounted speakers located on each floor. Users will have the ability to conduct pages to the system on a floor by floor basis or as all call page. To conduct pages, users can access the system through the facility phone system, or from a centrally located microphone located at the reception (switchboard) desk. The centrally located microphone will only be able to conduct all call page applications. The paging system will be integrated to the fire system so that the fire alarm system will mute the overhead paging system during an alarm event. To support facility operation the paging system speakers will be wired in an alternating pattern to separate amplifier channels so that in the event of a channel failure not all the speakers will stop working. The system will consist of microphones, mixer preamplifier, dynamic range limiters, solid state audio power amplifiers, telephone paging interface, loudspeakers, system rack, remote jacks and controls. The system will allow for background music and will integrate with the facility communication system.



Patient Wandering

The system will provide location information and monitor tag status messages within a defined protected perimeter and alert to monitoring locations as well as integrate with other systems such as nurse call and access control to lock-down doors and notify response as required. Once installed, the RFID system will consist of a combination of tags, tag-readers and/or low frequency tag exciters, software, server, workstations and a networked infrastructure independent from all other facility systems. It will track the location of all pre-determined and programmed tags throughout the coverage area and display each tag location on a graphical map at the workstation hosting the system GUI. The system shall reside on a hardware server, or a virtual machine environment which hosts the Server Application and MySQL or MSSQL central database. The Server Application may be run as an application or a service. The server shall use standard TCP/IP protocol over Ethernet to communicate with the Tag Reader Receivers, Tag Reader Controllers and client workstations. The server hardware shall be located in either a secure server room or other secure location. Client workstations shall be compatible with Microsoft Windows XP, Windows 7, Windows 8, Windows 10 and Windows Server 2008 and higher operating systems. The Tag Reader Receiver shall communicate to the system server in real time via standard TCP/IP over Ethernet or 802.11b (Wi-Fi). The Ethernet connection shall communicate all tag status messages to the Server. The system will be capable of locating a tag within 4 meters or better of the actual location 90% of the time when tag readers are installed at a distance of 12m or less. Actual tag position and its location shown in the system shall not differ more than 1/3 the distance between Tag Readers 90% of the time in an average office or hospital type environment. Maximum distance of Tag Readers will not exceed 18m. Room level location accuracy can be achieved with appropriate combination of tag readers and tag exciters.

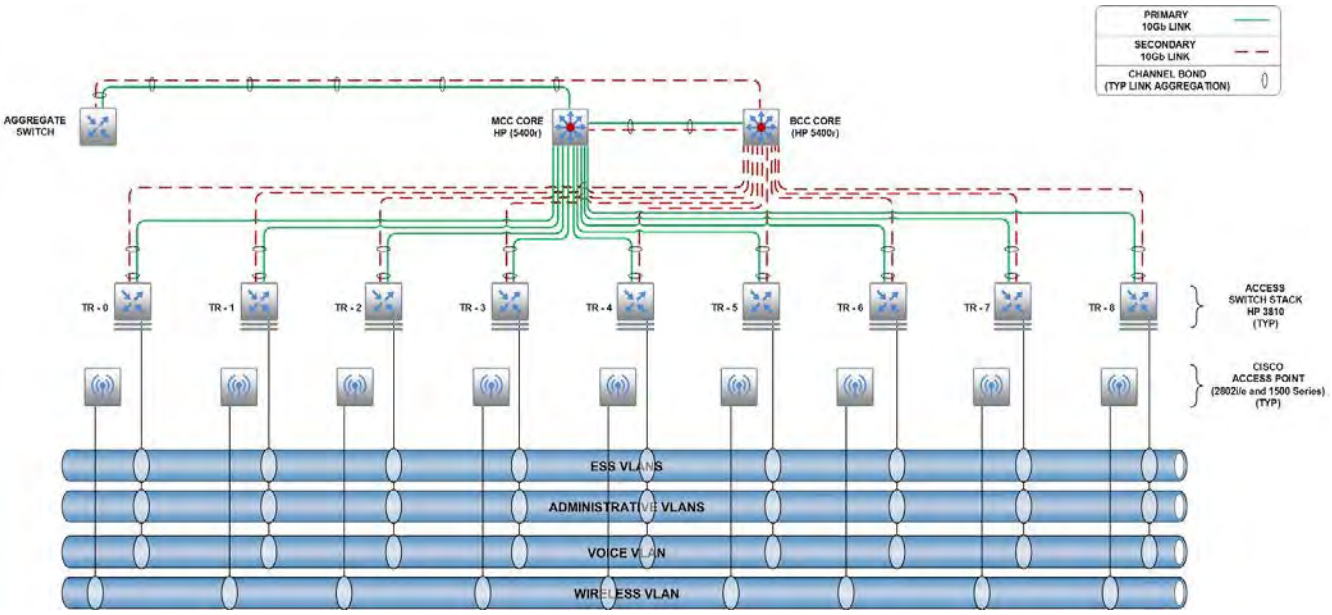


Network LAN & WLAN

The network will function as part of the existing global network management system and consist of Authority approved Core and Edge Switches (Cisco) based on the design and standards in place at the time of procurement. The Core switches will reside in physically separate communication rooms located in the main Server Room. The Primary Core switch will be located in the new MCC and the Secondary Core switch will be in the new BCC. The dual redundant Core switches will utilize virtual switching to allow for fault tolerance and redundancy. The Core switches will be connected to the edge switches with diverse redundant 10Gb fiber uplinks from the telecommunication rooms to each of the core switches. Redundant power supplies and power cables

we be used on all network equipment. All Edge Switches will support the latest standards including but not limited to (QoS, IEEE 802.3af PoE, and 802.3at PoE+). All Edge Switches will use HPE/Aruba stacking capabilities. A wireless system will be provided to support wireless applications inside the facility. This wireless system will be based on Cisco. Intelligent wireless access points (WAPs) will be mounted throughout the facility and connected to the Cisco Power over Ethernet (PoE) switches using Horizontal Unshielded Twisted Pair (UTP). The wireless controllers will be the Cisco 5520 and will be configured for high availability. The Wireless Access points we be a combination of Cisco 2802i/e and 1500 series and shall support 802.11 a/b/g/n/ac (WAVE 3).

Redundant Core Switches shall be the latest available proven technology from Cisco and shall be located in the BCC and the MCC. The Access Layer Switches shall be the latest available proven technology from Cisco. To provide redundancy and fault tolerance at the core layer, a Primary Core switch shall be located in the New MCC room and the Secondary Core switch shall be located in the NEW BCC room. The Primary and Secondary core switches shall be configured to utilize the latest version of Virtual Switching Framework (VSF) from Cisco. The core layer switches shall have dual redundant power supplies. To provide redundancy between the core layer and the access layer switches, each primary and secondary access layer switches in each of the switch stacks located in all of the communications rooms shall have one 10Gb multimode fiber uplink configured in a channel bond. All Access layer switches shall have redundant power supplies.

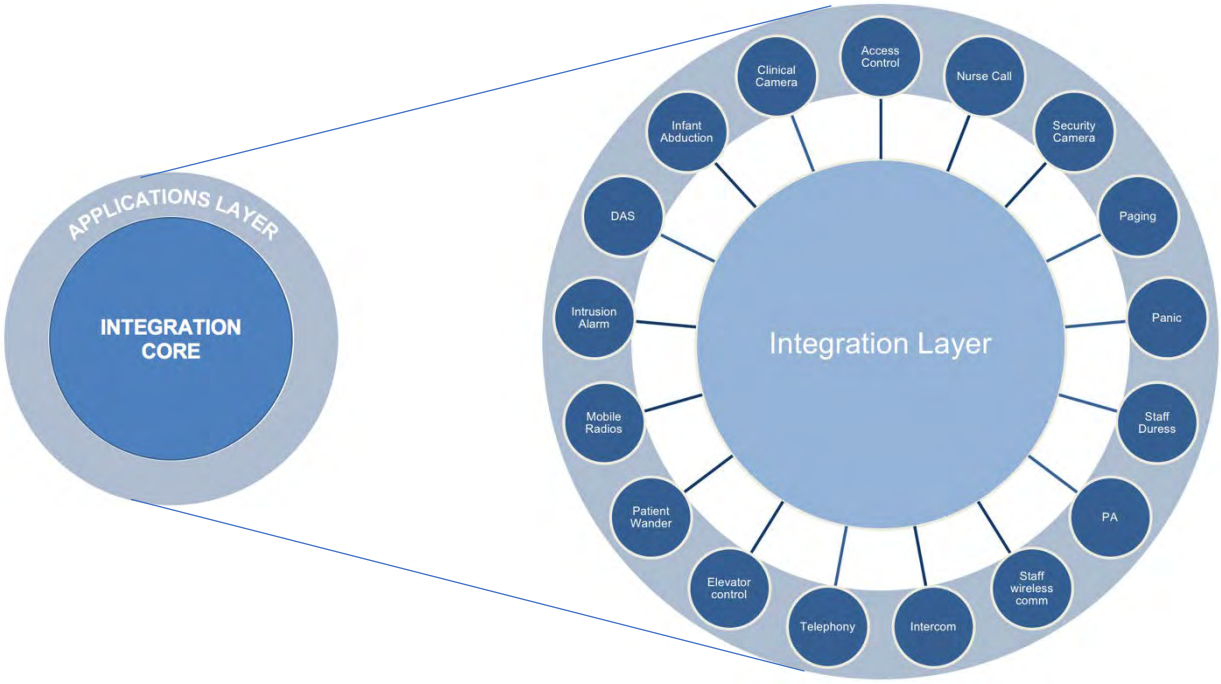


Integration

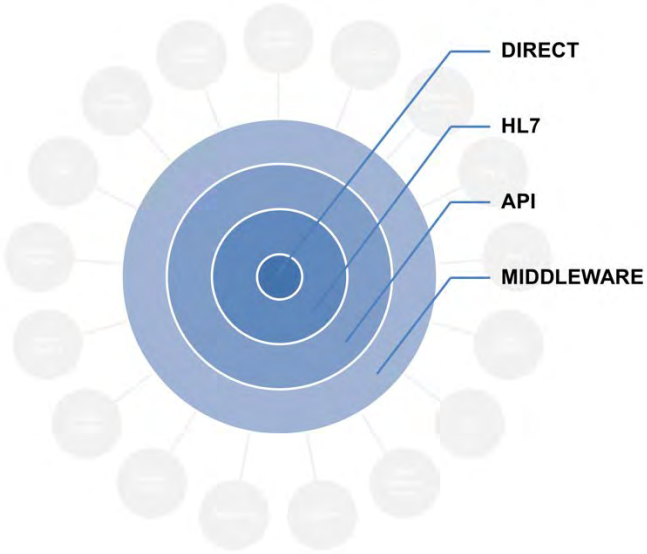
There will be an Integration Layer that will act as a broker between all IMIT, Communications and Security systems to support systems interoperability and work flows.

The Integration Layer will be comprised of low level integration such as relay I/O (inputs/outputs), HL7 protocols, APIs, and middleware.

The diagram below illustrates the high-level integration model.



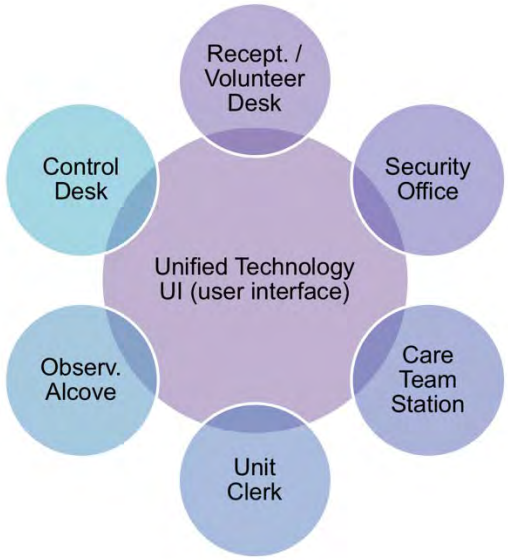
The diagram below illustrates the Integration Layer composition.



Unified UI (User Interface)

Users will interact with the technology solutions through a unified, consistent UI (user interface). The UI will be developed with a UX (user experience) centric design principles. Although technology functionality may change from staff position to staff position within the facility, the UI will be consistent with the same “look and feel” but with different functionality.

The following diagram illustrates the Unified UX/UI model.



Telephone System

A new Cisco Based VoIP phone solution shall be deployed facility wide. Voice gateways shall be deployed throughout the building to connect existing analog phones to the New Cisco VoIP solution. The new Cisco VoIP Solution shall be based on the Cisco Unified Communications Manager (CUCM). A new Cisco Integrated Services Router (ISR) with Survivable Remote Site Voicemail (SRSV) and Survivable Remote Site Telephony (SRST), shall be directly connected to the Authority’s network, dedicated PSTN and WAN. There shall be a new SIP/QSIG integration between the existing Nortel/Avaya PBX to allow both telephony systems to function seamlessly together. SIP to SIP services shall be provided to allow integration with the new Staff Communications System. A new Cisco CUCM cluster shall be a leaf node off of the existing Authority Cisco collaboration environment deployed in the Authority’s off premise Virtual Machine (VM) environment. The CUCM deployment shall consist of a new CUCM (VM), and a new CUCM Unity Publisher VM.

The new VoIP telephone system shall be a Cisco Unified Communications solution based on the latest version of Cisco Unified Communication Manager (CUCM). A new Cisco Unified Cluster shall be provisioned off premise in the Authority’s data center located in Kelowna where a new CUCM VM, and a new CUCM Unity Publisher VM shall be provisioned. Endpoint devices shall be based on the latest proven Cisco VoIP technology. The New building shall be a mixture of Cisco 7841 IP Phones, Cisco 8831 Conference Phones, and Cisco 8851 with key expansion modules. Cisco Unified Communications Manager, and Cisco Unity Publisher shall be provided with enough licensing to support the existing and new phones.

Structured Cabling

The design of the new hospital building will include a converged, universal, robust, secure, flexible and scalable cabling infrastructure throughout the new building network and system required in the Project, including voice (VoIP and analog), data, and video allowing for a variety of end-use equipment. The CAT 6A structured cabling infrastructure will be designed by a Registered Communication Distribution Designer (RCDD) who will work with the Authority to create a network plan that includes redundant and diverse paths for the backbone and incoming services. The horizontal cabling system will consist of both cable and its associated connecting hardware and will typically run from the Telecommunications Room to the work area. A star wiring topology in accordance with ANSI/TIA/EIA-569-B standard will be deployed for all horizontal cables. To ensure present and future bandwidth requirements can be accommodated, Category 6A horizontal cables will be installed for horizontal cabling links.

An important aspect of the horizontal cabling system will be flexibility. Our design will be maximized by enabling communications outlets to accept a variety of different applications such as data, telephone (VoIP), patient monitoring, public address, and entertainment TV. In addition, this approach will result in a more “user friendly” facility permitting wide access to a number of different services. The type of end device will not designate structured cabling drops. Each outlet will accept 8-pin 8-wire (RJ45) connection from any of the services listed above. In the Telecommunications Room, horizontal cable terminations will incorporate rack mounted Category 6A patch panels with RJ45 type ports. Cables will be run in an overhead pathway network comprising of a horizontal cable tray and vertical conduits. All cables shall be fully supported in accordance with TIA 569-B. A single cabling manufacturer will be selected to provide an end-to-end Category 6A cabling solution. This will ensure that all horizontal cables, jacks, patch cords and termination fields are compatible and covered under a single manufactures long-term materials warranty.

Working with all existing applicable TIA standards for health care separate physical infrastructures will be provided as indicated in the specifications which will include diverse and redundant pathways to new Campus Communication Hub (CCH), Entrance Facility and all Telecommunication Rooms.

Distributed Antenna System

Cabling infrastructure will be provided for following Distributed antenna systems (DAS):

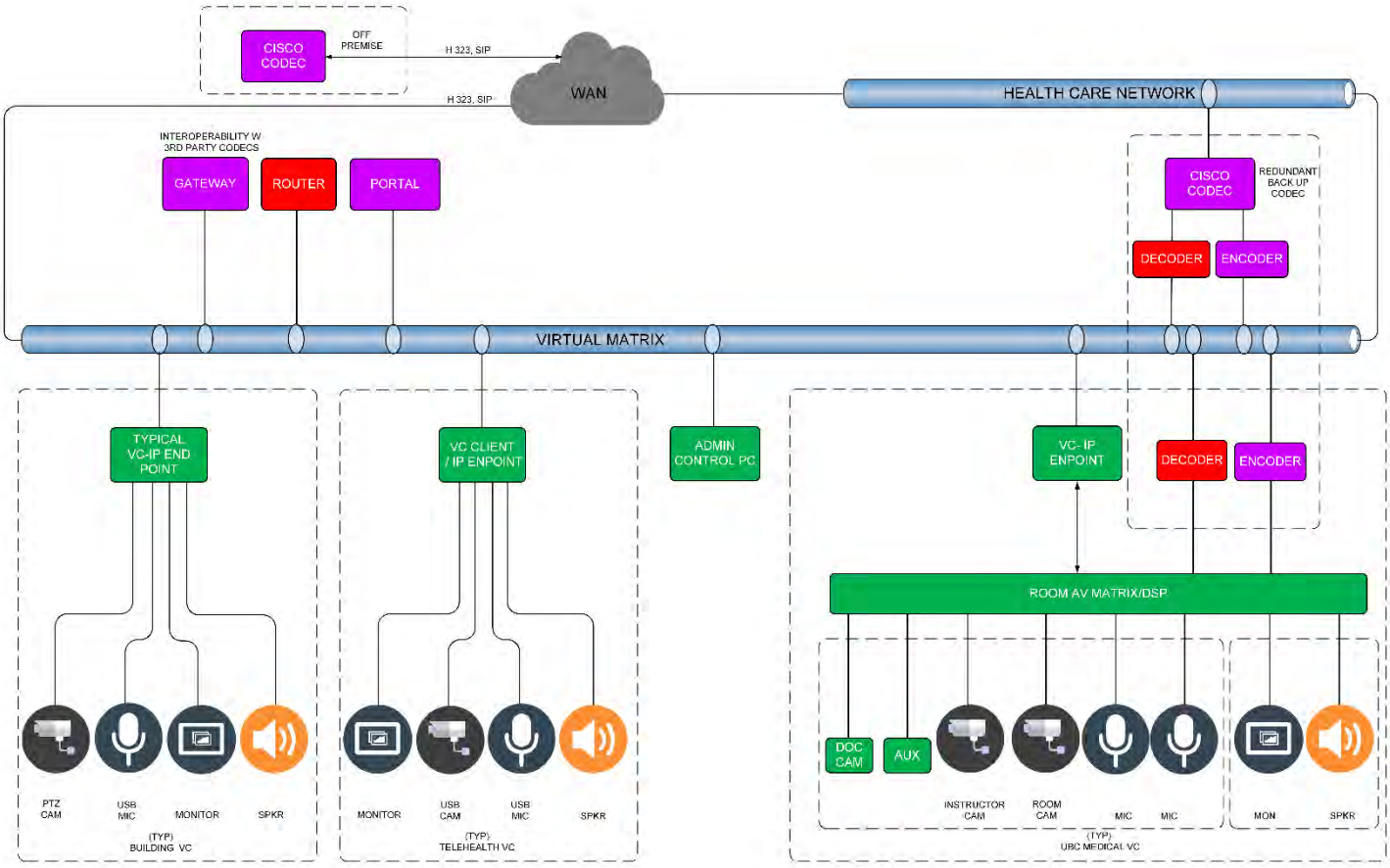
Hybrid-Fiber-Coax Active DAS where single mode fiber connects the DAS head end to radio repeaters located in Communications Rooms. From the radio repeaters, RF energy is distributed to passive antennas located throughout the Facility over horizontal coax cabling.

Wideband Active DAS where RF signal will be converted to light utilizing hubs and then distributed over single mode fiber cable to powered remote units located throughout the Facility.

Unified Active DAS where single mode fiber connects the DAS head end to secondary distribution units located in the Communications Rooms. The distribution units in turn deliver RF signals and power to antenna units throughout the facility using Category 6A horizontal cabling.

Video Conferencing

The video conference solution is based on a Unified Videoconferencing platform for the facility which integrates traditionally disparate point-to-point CODEC IP endpoints into a holistic, centrally managed solution. The solution leverages new USB-based high resolution cameras and high fidelity microphones as inputs into a hardware CODEC appliance that also supports up to 4K video resolution. Furthermore, the Unified Videoconferencing solution is CODEC endpoint device agnostic and will support any 3rd party hardware CODEC endpoint vendors such as Cisco, Polycom and Lifesize as wella as any software based CODECs should the Province decide to support software client CODECs in the future. The term “unified” refers to the ability to centrally manage and schedule the solution as one holistic solution as opposed to managing standalone CODEC



APPENDIX 1D(I)

TECHNOLOGY RESPONSIBILITY MATRIX

Updated December 4, 2020.

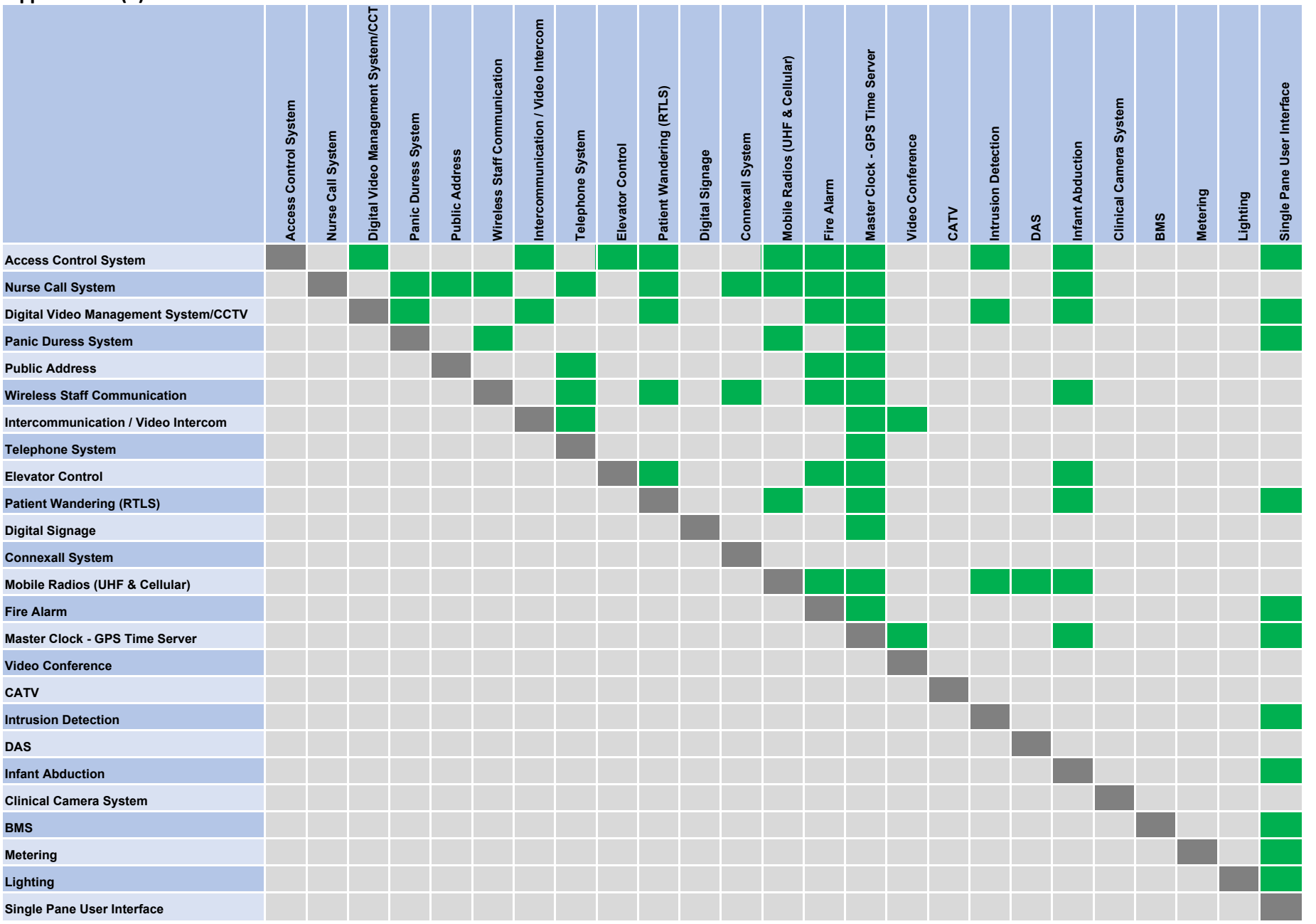
System Description	Existing Manufacturer	Procured by	Design	Consult	Supply	Install	License	Program & Configure	Test & Commission
Patient Education									
System	TBC	DB	DB	NHA	DB	DB	DB	DB	DB
Content	TBD - Brightsigns	NHA	NHA		NHA	NHA	NHA	NHA	NHA
Patient Entertainment									
System	TBC	DB	DB	NHA	DB	DB	DB	DB	DB
Content	TBC	NHA	NHA		NHA	NHA	NHA	NHA	NHA
Nurse Call / code call management	Rauland 4000/ASCOM telligence 6	DB	DB	NHA	DB	DB	DB	DB	DB
Clinical Camera	various	DB	DB	NHA	DB	DB	DB	DB	DB
Telehealth	Cisco, but others exist	DB	DB		DB	DB	DB	DB	DB
Touch-down Collaboration	n/a	DB	DB		DB	DB	DB	DB	DB
Noise Cancellation/Masking	TBC	DB	DB		DB	DB	DB	DB	DB
Speech to Text (Electronic Dictation)	Dragon Medical, Powerscribe 360	NHA	NHA		NHA	NHA	NHA	NHA	NHA
Classroom-type AV Presentation	various	DB	DB		DB	DB	DB	DB	DB
Meeting-type AV Presentation	various	DB	DB		DB	DB	DB	DB	DB
Integrated Video Conferencing	various	DB	DB		DB	DB	DB	DB	DB
Software Video Conferencing									
Hardware	n/a	DB	DB		DB	DB	DB	DB	DB
Software	Skype for Biz	NHA	NHA		NHA	NHA	NHA	NHA	NHA
Voice Intercom	various	DB	DB		DB	DB	DB	DB	DB
Video Intercom	various	DB	DB		DB	DB	DB	DB	DB
Wireless Staff Communication	Vocera	DB	DB		DB	DB	DB	DB	DB
Telephony (handset)	Cisco	NHA	NHA		NHA	NHA	NHA	NHA	NHA
Public Address	various	DB	DB		DB	DB	DB	DB	DB
Cellular DAS	Telus, NH-provided TBC	DB	DB		DB	DB	DB	DB	DB
Emergency DAS	TBD	DB	DB		DB	DB	DB	DB	DB
Authority/ Hospital Wired Network	Cisco								
Wired network infrastructure (cable plant)	TBC	DB	DB		DB	DB	DB	DB	DB
data network applicances (switches)	Cisco	NHA	NHA		NHA	DB	NHA	NHA	NHA
Wireless Network Access									
Wireless infrastructure	TBC	DB	DB		DB	DB	DB	DB	DB
Wireless access points & WLC controller	Cisco	NHA	DB	NHA	NHA	DB	NHA	NHA	NHA
Single Sign-on (SSO)	Imprivita	NHA	NHA		NHA	NHA	NHA	NHA	NHA
Access Control	mainly Kantech	DB	DB		DB	DB	DB	DB	DB
Security Video	Avigilon (defacto standard)	DB	DB		DB	DB	DB	DB	DB
Staff Assistance Wireless	various, TBC	DB	DB		DB	DB	DB	DB	DB
Staff Assistance Hardwired	various, TBC	DB	DB		DB	DB	DB	DB	DB
Intrusion Detection	DSC	DB	DB		DB	DB	DB	DB	DB
Fixed Public Assistance	TBC	DB	DB		DB	DB	DB	DB	DB
Patient Wandering	Wondergaurd, typically	DB	DB		DB	DB	DB	DB	DB
Infant Abduction	Hugs, typically	DB	DB		DB	DB	DB	DB	DB
Facility Management	Maintenance Connection	DB	DB		DB	DB	DB	DB	DB
Signage & wayfinding	digital signage only - Brightsigns	DB	DB		DB	DB	DB	DB	DB
Hospital Data Network Servers & Storage	various	NHA	NHA		NHA	NHA	NHA	NHA	NHA
ESS Servers & Storage	various	DB	DB		DB	DB	DB	DB	DB
Lighting Control	TBC	DB	DB		DB	DB	DB	DB	DB
GPS Master Clock	Simplex - syncs back to PG	DB	DB		DB	DB	DB	DB	DB
Equipment Cooling	TBC - APC?	DB	DB		DB	DB	DB	DB	DB
UPS	TBC	DB	DB		DB	DB	DB	DB	DB
Building Automation Syatem (BAS)/ Building Management System (BMS)	TBC	DB	DB		DB	DB	DB	DB	DB
FM Network	TBC	DB	DB	NHA	DB	DB	DB	DB	DB
Metering & Load Management	TBC	DB	DB		DB	DB	DB	DB	DB
Fire Alam	TBC	DB	DB		DB	DB	DB	DB	DB
Cable Plant (Structured Cabling)	TBC	DB	DB		DB	DB	DB	DB	DB
Integration Middleware	Conexall	DB	DB	NHA	DB	DB	DB	DB	DB
Integration programming	n/a	DB	DB	NHA	DB	DB	DB	DB	DB

APPENDIX 1D(II)

TECHNOLOGY INTEGRATION MATRIX

Appendix 1D(II) MMH TECHNOLOGY SYSTEMS INTEGRATION MATRIX

07-Dec-20



APPENDIX 1E

WOOD FIRST APPROPRIATE USE MATRIX

WOOD FIRST APPROPRIATE USE MATRIX

NTD: Proponents must meet BC Building Code; this matrix provides guidance on where to implement wood without jeopardizing the requirement to meet BCBC.

Area of Usage	Appropriateness	Justification
Substructure		
Forming/ Shutter (temporary)	Appropriate	The use of wood in this process is a traditional method of construction.
Structure		
Slab on grade	Inappropriate	The loads applied to the slab are in excess of wood's capabilities and wood is subject to rot, mould and insects such as termites, impacts that are exacerbated by proximity to the ground.
Beams	Inappropriate	Not permitted by the BC Building Code.
Columns	Inappropriate	Not permitted by the BC Building Code.
Upper Flooring	Inappropriate	Not permitted by the BC Building Code.
Roof (Penthouse)	Inappropriate	Not permitted by the BC Building Code.
Heavy Timber Structure or Non-Structural Elements	Potentially Appropriate as an 'Alternative Solution' Approach	Although the base building structure is required to be of non-combustible construction, proponents are urged to consider a heavy timber design that could be integrated as a 'secondary' structure or decorative installation for specific feature areas.
Exterior Cladding		
Roof Finish (Flat Roof)	Inappropriate	There is no known wood product for this application.
Walls above ground level	Inappropriate	Vertical Exterior cladding, details, trims, etc., are not permitted due to weathering of the surfaces and high maintenance costs involved.
Soffits above ground level	Appropriate or Potentially Appropriate as an "Alternative Solution" Approach	Horizontal and protected Soffits are appropriate. Exterior components such as soffit/trims could be supported with an 'alternative solution' approach' incorporating fire-retardant treated wood (FRTW) or exterior sprinkler protection strategies (where warranted).
Exterior Windows	Inappropriate	Ability to clean and water/chemical resistance are paramount in this location.
Curtain Wall	Inappropriate	There is no known wood product for this application.
Exterior Doors and Screens	Inappropriate	Wood doors and screens , details, trims, etc., are not permitted due to weathering of the surfaces and high maintenance costs involved.

Area of Usage	Appropriateness	Justification
Roof Accessories (parapet, cant strips, plywood backing)	Appropriate	Wood permitted
Interior Partitions and Doors		
Partition Studding	Inappropriate	Not permitted by the BC Building Code.
Interior Doors	Appropriate for offices Inappropriate for ORs and MDR	Framing, core and facing of door can be wood for locations not requiring greater than a 90 minute fire resistance rating. Wood doors in high metal cart and material transport traffic areas and high humidity areas like the clinical and MDR areas would be inappropriate.
Vertical Movement		
Stairs (Structural)	Inappropriate	Not permitted by the BC Building Code.
Stairs (treads, risers)	Inappropriate	Not permitted by the BC Building Code.
Guardrails	Appropriate for non-exit stairs	Wood can be used in locations where there is a low to medium risk of impact.
Handrails	Appropriate	Wood permitted.
Fittings and Equipment		
Hardwood Floor	Inappropriate	Wood could be used in certain, non-clinical locations as a floor finish; this would be limited to high-end finished areas, which are not subject to low acoustic or high usage requirements.
Ceiling Tiles	Appropriate	Wood could be used in ceiling tiles for aesthetic requirements in certain, non-clinical areas within the building provided that they are not more than 25mm thick with a flame spread rating not more than 25, and except for not more than 10% of ceiling area in a fire compartment is permitted to have an FSR of up to 150. This would be limited to high-end finished areas that are not subject to low acoustic or high usage requirements.
Wall Finish	Appropriate	Wood could be used as a wall finish for aesthetic and acoustic requirements in certain, non-clinical areas within the building provided that they are not more than 25mm thick with a flame spread rating not more than 150. This would be limited to high end finished areas which are not impaired by acoustic and high usage requirements. Beyond that permitted by the BC Building Code, interior finishes could be supported with an 'alternative solution' approach incorporating other considerations/features such as specific

Area of Usage	Appropriateness	Justification
		geometry/location of wood, potential fire exposure potential and enhanced fire suppression systems for the area.
Toilet Partitions	Appropriate	The core material for the partitions can be made from wood particles.
Signs	Appropriate	The base material on which the sign is mounted can be of wood.
Loose Equipment (Desks, chairs, etc.)	Appropriate	The core material for the desks, chairs, etc., can be made from particle and complete wood substrate except where CSA standards require non-porous materials such as in MDR, the Sterile Core and the ORs.
Fixed Equipment (Millwork)	Appropriate	Frames, core material, doors and substrate for millwork can be constructed with wood. This includes show windows, aprons/backing, shelves, cabinets and counters.
Modular Benches	Inappropriate	To be stainless steel in MDR.
Specialized Equipment	Inappropriate	Clinical equipment and associated environment cannot utilise wood as these environments need to be inert.
Blocking within walls	Appropriate	For attachment of handrails, accessories and similar interior finish items mounted on the surface of walls.
Nailing Elements	Appropriate	Wood nailing elements attached directly to or set into a non-combustible backing for the attachment of interior finishes are permitted provided there is no air space of more than 50mm thick.
Mechanical		
None Known		
Electrical		
None Known		
Site Development		
Landscaping (Architectural, decorative, site furnishings, etc.)	Appropriate	Wood could be used in Landscaped areas for Art and Architectural features.
Contractor		
Site establishment	Appropriate	Where appropriate, Project Co is to endeavour to utilise materials of wood and wood derivative for their site establishment.

APPENDIX 1F

ARCHITECTURAL DESIGN GUIDELINES

Mills Memorial Hospital Redevelopment
Design Guidelines

1 VIEWS

The intent is to maintain views wherever possible; public offsite views as well as on-site views should be carefully considered in the site design of every development.

a) Views to existing vistas (primary viewscapes) shall be encouraged through view corridors, the terracing of building forms where possible, and the creation of public spaces.
b) Siting of buildings should accommodate, wherever possible, “near views” of public spaces, natural and landscaped areas both on and off site.
c) Minimize the local environmental effects of new development, in particular blocking views and creating unwanted sun shadows.

2 PUBLIC REALM AND PEDESTRIAN AMENITY

The intent is to create a high-quality, vibrant, and pedestrian friendly public realm.

Sunlight Penetration

a) The heights, massing, and siting of new buildings should not detract from the availability of sunlight to the exterior space, open spaces, and pedestrian streets.
b) On semi-private open spaces, both at-grade and above, should maximize sunlight penetration/ exposure.

Weather Protection

Rain and Sun Protection

a) Weather protection must be implemented where common entries to buildings front a sidewalk or open space.
b) The design must also ensure good day lighting to protected areas through their proportion of height to depths, and special measures, such as glass roof panels.
c) Weather protection, considered to be permanent structures, may not extend into public street rights-of-way.

Wind Protection

a) New developments must seek to protect pedestrians at building entrances and high activity pedestrian areas from the negative effects of the prevailing winds.
b) Sites, buildings, and associated landscaped areas should be designed to minimize wind induced by buildings, and its impact on both the public and private realms.
c) Areas of calm and wind mitigating measures should be provided to enhance enjoyment of the outdoors and to extend the seasonal duration of outdoor activities such as convalescing or socializing.

Placement of Services

a) Public seating, and other furnishings should be provided to take best advantage of views, sun, shade, and informal day-to-day meeting places for people.
b) Provide utility wires underground and conceal related equipment so as to not impact the appearance or use of the pedestrian realm.

3 LANDSCAPING

The intent is to reinforce and enhance an image of Terrace and the Kitimat-Stikine Region through preservation of mature vegetation and through inclusion of abundant landscaping in all developments.

Tree Preservation

a) Trees and mature vegetation that will be retained must be protected during construction to the drip line. Trees and vegetation that will be retained must be surrounded by a snow fence or other similar material.
b) To reinforce the image of a well-established landscape, retention and incorporation of mature trees and landscaping into the development site is encouraged.
c) If retaining existing trees and woodlot/hedgerow vegetation, should provide tree wells and/or creative grading of the ground away from vegetation. Where tree wells are to be constructed, the wells must be a minimum distance of 1.5 times the distance from the trunk of the tree to the drip line.
d) No excavation, storage of materials, parking, preloading, or filling shall occur within the drip-line of the trees being preserved.

Open Space

a) Should maximize the amount of landscaped areas on a site and minimize the amount of impervious surfaces to increase the natural absorption of storm water. Developments should strive to achieve 25% of the site as soft landscaping, including plant materials.
b) Where possible, the landscape should provide for or enhance wildlife habitat. Include species that will attract birds, which in turn enhance both biodiversity and create pleasant soundscapes.
c) A diversity of tree species is encouraged to increase the survival ratio of new landscaping. Avoid tree species which would have difficulty surviving or be difficult to maintain in urban areas.
d) Trees should be clustered to create more intimate areas for people to gather without compromising site safety.
e) Public seating should be provided where walkways intersect public streets and areas of high activity.
f) In general, plaza spaces and forecourts should consist of these elements: a widened hard surface, light standards, fixed benches and/or other seating, a distinct pattern, form or change in colour of paving, accent planting, bicycle racks in close proximity, garbage receptacles, areas for future public art.

4 CIRCULATION AND PARKING

The intent is to provide safe and efficient circulation for automobiles without compromising the pedestrian environment or the liveability of developments.

Access

a) Where driveway crossings are required, must use measures to ensure that the crossings do not endanger pedestrians or the mobility impaired. The driveway crossings should not limit the provision of street trees, landscaping, or furnishings in appropriate locations.
b) Service entrances should be integrated into the hospital design to limit the impact of these elements on building appearance.

Parking

a) Development should minimize the visual impact of parking lots.

Surface Parking

a) Surface parking must be screened by landscaping.
b) Where surface parking is provided behind buildings, it must be screened from adjacent properties with landscape planting or trellis strips.
c) Trees must be planted at a minimum ratio of one tree for every four parking stalls.
d) In cases where surface parking is situated between a building and the adjacent public street:
    i. Must provide a minimum of 1 tree for every 2 parking spaces situated on-site between the building setback line and the adjacent public street.
    ii. Must provide special paving and landscaping measures to further identify and enhance the pedestrian movement**.**
    iii. The primary pedestrian systems, public open space, walkways and entrances to the facility must be universally accessible to the physically challenged and be elder friendly.
e) Surface parking must contribute to the continuity of the street landscaping edge without compromising the safety and security of the public inside the lot and on the public street.
f) Parking lots must be partitioned into smaller visitor friendly lots defined at the boundaries by drive aisles, sidewalks, trees, and landscaping.
g) Multiple surface parking lots must provide a direct pedestrian pathway system through the parking area to provide convenient and safe pedestrian access between building entrances, parked cars, and sidewalks of adjoining streets.
h) The pathway system should incorporate landscaping with trees and benches, lighting, and distinct paving where appropriate. It must also be wide enough for wheelchairs / scooters and should include a tactile strip for the visually impaired crossing points.
i) Where pedestrians must cross service roads or access roads to reach parking areas, crosswalks must be clearly designated by such means as pavement markings and signs.
j) Must provide curb-cuts or curb let-downs in appropriate locations to facilitate convenient and direct access from the parking space(s) to the building(s) for people with disabilities. Pedestrian movement must be designed to avoid any obstruction by parked vehicles.
k) Should minimize the surface area of blacktop parking by using alternate treatments and by complementing the asphalt with a variety of paving materials.

l) Should consider the use of shallow concrete gutters or swales with rolled edges between parking spaces and driving aisles as an alternative treatment for surface drainage.

Bicycle Parking

a) Secured, long-term bicycle parking for employees must be provided. Bicycle storage areas integrated into parking structures should be located close to building access points.
b) Bicycle parking facilities must be at-grade, have uniform lighting, be safe, and secure.
c) Unsecured, short-term bicycle parking must be provided in the form of bicycle racks located within 15m (49.2 ft.) of a principal building entry.
    i. Bicycle parking must be situated in well-lit locations, clearly visible from principal building entries and/or public roads.
    ii. Bicycle racks must be made of sturdy, theft-resistant material, securely anchored to the floor or ground.
    iii. Bicycle racks must be designed to support the bicycle frame, not the wheels, and allow both the frame and the front wheel to be locked to the rack with a U-style lock.

5 BUILDING SCALE AND FORM

The intent is to ensure that buildings are appropriate to their context and contribute to the overall quality of the streetscape.

Form of Development

a) Street-fronting development should create an edge to the street to help define streets and public spaces.
b) Setbacks as identified in zoning regulations should be designed as extensions of the public realm.
c) Where a building exceeds 15.2m (50 ft.) in height, the building facade projecting above the lower-level street wall must be recessed a minimum of 2m (6.6 ft.). Buildings should be designed to avoid blank walls, particularly on the first two storeys of a building that face a street or pedestrian pathway. Entrances and windows should be facing streets and pedestrian pathways wherever possible. Building mass, variation of the facade, textured surfaces, architectural detailing, or graphics and colours should be used to reduce the impact of any solid wall.
d) Facade treatments that are inviting to pedestrians and avoid the impersonal look typically associated with the use of large expanses of glass, mirrored surfaces, and blank walls should be provided. Where it does not interfere with staff privacy and patient confidentiality, materials on the ground floor should be used that do not impede visual connection between the interior of the building and the street.
e) Large facades should be broken down into smaller elements to create visual interest, address human scale, and pedestrian experience.

Corner Sites

a) Corner sites should be designed to bring visual prominence to the corner and to provide an edge to the intersection.
b) Buildings should be located at or close to the corner, to provide a built-form definition to the street.

c) When buildings are not located at the corner, the building(s) should define the open space which is part of the corner; and a landscaped area with special features appropriate to the context e.g. flag poles, ornamental trees, seating area, "decorative" paving, architectural structures such as pergolas, etc., should be provided.

Entrances

a) Where appropriate, entrances should animate internal site roads/ streets or exterior public streets and reinforce a scale and rhythm to the street complementary to pedestrian activities, street tree planting, and landscaping.

Roofs

a) Roof-top mechanical equipment must be concealed either within the upper floor mechanical penthouse or within screened structures on the roof and, consistent in form, material, and detailing with building;
   i. The mechanical and electrical equipment (i.e. generators) shall be provided with noise attenuation.
b) Lower-level roofs should typically be either sloped (20^{o} minimum) or developed as usable, landscaped open space e.g. terraces or roof-decks.

Noise Mitigation

a) Locate building ventilation systems to minimize noise and exhaust in pedestrian areas, and outdoor spaces. These systems shall be provided with noise attenuation screening if they are located facing and within 200metres of residential areas.
b) Noise mitigation strategies will be applied to areas where objectionable noise is being generated such as refuse, recycling, loading, and service areas.
c) Locate and arrange building mass and functions to minimize noise impacts from Highway 16 located on the North side of the Mills Memorial Hospital Site.

6 SAFETY AND SECURITY

The intent is to minimize opportunities for crime and to promote a sense of security through the design of the built environment.

Defensible Space

a) Public space should be distinguished from private spaces. Symbolic barriers should be designed through building siting and design; landscape, e.g. changes in paving, vegetation, or grade; and/or architectural features, e.g. low wall, bollards, raised planters, rather than by continuous solid fences or walls.
b) Designed spaces within the development should encourage people to congregate by including such features as fountains, or seating.

Visibility

a) Opportunities for people to easily view what is happening around them during the course of everyday activities should be included in the exterior design.
b) Landscapes and circulation routes must be designed to allow clear, unobstructed views of surrounding areas for safety surveillance. Entrapment spots must be eliminated and barriers

incorporated that permit visual access without loss of privacy, such as glazing in lobby doors and stairs-wells. "Eyes on the street" should be encouraged using windows, doors, and activity generators such as seating;

c) Common facilities and/or areas must be grouped, so that each facility or area will be automatically monitored by the constant presence of users of other facilities or areas.
d) Windows and doors should remain visible from the street and are not hidden by vegetation, etc.
e) To ensure safety and security, sightlines must be provided through any cluster of tall growing vegetation by keeping all under storey to a maximum of 1.2m (3.9 ft.) in height.

Safety Measures for Parking Areas

a) Adequate and appropriate lighting must be provided to enhance security. Avoid "dark distant corners" in parking areas. Pedestrian entrances to buildings and designated pedestrian routes must be highlighted with additional secondary lighting fixtures.
b) Electronic security devices and monitoring systems should be considered, as a supplement to natural surveillance opportunities to increase safety in parking structures and parking areas.
c) Employee parking must not be located in visually remote areas of parking lots, behind blank walls, or within service or loading areas.

Lighting

a) Effective architectural lighting of buildings, open spaces, streets, parking areas, and pedestrian circulation routes should be provided for the purpose of discouraging crime, preventing accidents and accenting architectural features or detailing.
b) Lighting must be located and designed to ensure that all areas are well lit - avoid glare and reduce shadows.
c) In isolated areas, good lighting and public telephones must be provided to enable people to call for assistance.
d) Open spaces, pedestrian and vehicular circulation routes, parking lots, and building entries should be lit to provide security, safety, and convenient access without producing glare into adjacent properties and sensitive uses.
    i. Lighting along pedestrian pathways should be at a scale appropriate for pedestrians while providing optimum visibility.
e) Entry ways and doors must be illuminated. Light levels must provide for a comfortable transition between neighbouring locations.
f) Vandal-resistant light fixtures must be provided that are easy to maintain and operate.

7 REFUSE, RECYCLING, AND SERVICE AREAS

a) Refuse/recycling areas, shipping, loading or utility areas, satellite dishes, and other similar structures, such as outdoor vents, mechanical equipment, or transformers must be screened as much as possible out of view from streets.
b) Garbage and recycling bins must be easily accessible, and contained within roofed/walled enclosures, or screened from public view.

c) The designs of the enclosure of outdoor refuse/recycling areas and the screening of other areas should be coordinated with, and complement the overall design of the development.

8 UNIVERSAL DESIGN PRINCIPLES

The intent is to ensure that the design of a development enables all people, including people with disabilities, to have full and unrestricted access to every part of the facility.

Site Circulation

a) All parking spaces allocated for people with disabilities should be located as close as possible to the main entrance to a building.
b) Access for the mobility impaired (including people with baby strollers) must be provided via at least one path of travel, with a minimum clear width of 1.5m (4.9 ft.) to the major portion of any open space, any building lobby accessible to the open space, and any use that may be present on, or adjacent to, open space.
c) All pedestrian routes must be fully accessible to the disabled community.
d) Pedestrian pathways should also include, wherever possible, a linear textured band of roughened surface for the visually impaired to follow. The band should be appropriately located towards the middle of a pathway and should be designed to avoid potential conflicts with seating areas or plant materials at edges of walkways.
e) Building and site design features which segregate circulation/ areas/ uses for people with disabilities from typical public usage should be discouraged, except where required due to reasons of safety or significant space limitations. For example, ramps are discouraged in favour of more gentle grade changes and alternate design approaches;
f) Minor walkways must have positive drainage to shed rain water quickly and minimum width of 1.5m (5ft.).
g) Major walkways should allow for two people walking side by side and someone passing.

Site Design

a) Site designs should seek to integrate features that accommodate persons of varying ability levels.
b) Seating in public areas must be:
    - Ergonomically designed for a variety of people;
    - Designed to allow a wheelchair to sit alongside fixed seating or, where tables are provided, to allow a wheelchair to pull up to each table;
    - Minimum of 5% of all seating in public areas to be provided with backrests; and
    - Designed to shed rain water.

9 ADJACENT USES

The intent is to accommodate and encourage development while minimizing the impacts of new developments on adjacent land uses and on the overall environment of the City.

a) Design development should mitigate the impact of traffic, noise, lighting, and other environmental conditions on adjacent residential areas.

b) Interior sidewalls, created as a result of construction/redevelopment phasing, should be designed to complement the overall appearance of development, and should not appear temporary or unfinished.

APPENDIX 1H(I)

FOOD SERVICES EQUIPMENT LIST

Mills Memorial Hospital
Foodservice Equipment List - Clean Version January 20, 2021

1A.9 Food Services					Base Manufacturer and Model	Alternative Equivalent Manufacturers	Architectural					Electrical															
CoS#	Room Name	Item Description	Qty	Long Description			Mounting	Max Weight (lbs)	Width (in)	Depth (in)	Height (in)	Volts	Amps	Hz	Watts	Plug Type	BTU/hr	Dedicated Circuit	Compressed Air	Emergency Power	Water - Cold	Water - Hot	Water - Treated	Steam	Drain	Vent	Gas	Item Notes
Receiving & Storage																											
9.01	Receiving/Decasing (12.9 nsm)	Hand sink (complete with sanitizer and towel dispenser)	1	By others	Eagle Group, HSA-10-FA-PE	Tarrison	Wall Mount		14.5	18.5	12.8	120/1	2	60		Hardwire Connection		Yes			1/2"	1/2"			1 1/2" direct			
9.01	Receiving/Decasing (12.9 nsm)	Receiving table	1	Stainless steel construction, type 304, #4 finish, Length to suit design x 30" wide x 34" high, stainless steel top with stainless steel or galvanized steel sub-top, Hat channel reinforcement to be stainless steel or galvanized steel on centre, Legs to be stainless steel , tubing or square welded to subtop, Stainless steel cross bracing as required, Sound deadening as required, Backsplash to include radius coved corner, splayed to wall where required, Bullet feet for tables without m/e services, flanged feet secured to floor with s.s. fasteners for tables with m/e services, S.S. drawers.	Custom Fabricated	Custom Fabricated			48.0	24.0	36.0														
9.01	Receiving/Decasing (12.9 nsm)	Platform cart	1	Panco® Platform Cart, 48"W x 20"D deck, aluminum construction, 5" plate casters (2) swivel braked & (2) rigid, 1200 lb. weight capacity, includes push handle, NSF .	Eagle Group, 1202	Hatch	Mobile		30.0	36.0	32.0																
9.01	Receiving/Decasing (12.9 nsm)	Utility cart	2	MW Standard Duty Utility Cart, (3) solid shelves, open base, shelf size 36"W x 24"D, tubular stainless steel frame with (2) push handles, with (4) swivel/ resilient tread casters, NSF.	Metro, MW208	Rubbermain	Mobile		40.0	22.0	37.0																
9.01	Receiving/Decasing (12.9 nsm)	Transport dolly	1	MW Standard Duty Utility Cart, (3) solid shelves, open base, shelf size 36"W x 24"D, tubular stainless steel frame with (2) push handles, with (4) swivel/ resilient tread casters, NSF.	Metro, MW208	Rubbermain	Mobile																				
9.01	Receiving/Decasing (12.9 nsm)	Desk	1																								
9.01	Receiving/Decasing (12.9 nsm)	Chair, Side	1																								
9.02	Storage, Non Food Products (11.1 nsm)	Shelving unit	6	Constructed of steel with removable polypropylene overlays or polyester, thermoplastic/polypropylene construction, Construction to be corrosion resistant and coated with ant-microbial substance, Minimum dimensions to be 24" wide, All units to include cart washable casters, two locking, Minimum four tiers of shelves, Shelves to be adjustable. Typically 48 or 60" long.	Metro, Max Q	Cambro	Floor		Varies based on design	18.0	72.0																
9.02	Storage, Non Food Products (11.1 nsm)	Dunnage rack	2	Constructed of polymer with anti-microbial properties or stainless steel, Minimum dimensions to be 24" wide x 36" long	Metro, Bow-Tie	Cambro	Floor		22.0	36.0	12.0																
9.03	Storage, Dry Goods (18.0 nsm)	High density track shelving system	1	HD qwikTRAK™ High Density Storage System, stationary intermediate unit kit, includes: posts & hardware, Metroseal 3™ epoxy-coated corrosion-resistant finish with Microban® antimicrobial protection. Complete with adjustable Constructed of steel with removable polypropylene overlays or polyester, thermoplastic/polypropylene construction, Construction to be corrosion resistant and coated with ant-microbial substance, Minimum dimensions to be 24" wide x 48" long, All units to include cart washable casters, two locking, Minimum four tiers of shelves, Shelves to be adjustable.	Metro, Max Q	Cambro	Floor		See Long Description	Variable	72.0																
9.03	Storage, Dry Goods (18.0 nsm)	Shelving unit	6	Constructed of steel with removable polypropylene overlays or polyester, thermoplastic/polypropylene construction, Construction to be corrosion resistant and coated with ant-microbial substance, Minimum dimensions to be 24" wide, All units to include cart washable casters, two locking, Minimum four tiers of shelves, Shelves to be adjustable. Typically 48 or 60" long.	Metro, Max Q	Cambro	Floor		Varies based on design	18.0	72.0																
9.04	Walk In Freezers (qty 3 - 9.3 nsm each)	Pre-fabricated insulated wall and ceiling panels and refrigeration system	3	ULC listed pre-fabricated insulated wall and ceiling panels, 4" (100mm) thick with polyurethane insulation, Panels to have a tongue and groove configuration and fastened together with a mechanical cam-lock fastener, Finish to be either white baked enamel, pvc or stainless steel.	Norbec, Custom Fabricated	Canadian Curtis	Floor		Varies based on design	Varies based on design	96.0																
9.04	Walk In Freezers (qty 3 - 9.3 nsm each)	Refrigeration evaporator coil	3	Sized and balanced to match the compressor(s) and must be capable of maintaining internal room temperature (max. +3C for coolers, min. -18C for freezers) while considering humidity levels of surrounding areas, product type and load, heat infiltration and temperature of incoming product Corrosion free assembly, Time initiated air defrost cycles for coolers, Electric or hot gas defrost for freezers	Norbec, Custom Fabricated	Canadian Curtis	Mounted to ceiling of the walk in unit					120/1	10	60		Hardwire Connection		Yes		Yes					3/4" indirect			
9.04	Walk In Freezers (qty 3 - 9.3 nsm each)	Temperature Alarm	3	Hi-low temperature alarm, recessed in wall panels, with dry contacts for remote monitoring, rechargeable battery having operating range of -50C to +50C, Capillary temperature bulbs to be positioned behind evaporator coils (no visible wires). Interconnected to building automation system and remote monitoring and logging system.	Norbec, Custom Fabricated	Canadian Curtis	Integral to the walk in unit					120/1 per unit	5 per unit	60		Hardwire Connection		Yes		Yes								
9.04	Walk In Freezers (qty 3 - 9.3 nsm each)	Shelving unit	12	Constructed of steel with removable polypropylene overlays or polyester, thermoplastic/polypropylene construction, Construction to be corrosion resistant and coated with ant-microbial substance, Minimum dimensions to be 24" wide, All units to include cart washable casters, two locking, Minimum four tiers of shelves, Shelves to be adjustable. Typically 48 or 60" long.	Metro, Max Q	Cambro	Floor		Variable	18.0	72.0																
9.04	Walk In Freezers (qty 3 - 9.3 nsm each)	Dunnage rack	3	Constructed of polymer with anti-microbial properties or stainless steel, Minimum dimensions to be 24" wide x 36" long	Metro, Bow-Tie	Cambro	Floor		22.0	36.0	12.0																
9.05	Walk In Refrigerators (qty 3 - 9.3 nsm each)	Pre-fabricated insulated wall and ceiling panels and refrigeration system	3	ULC listed pre-fabricated insulated wall and ceiling panels, 4" (100mm) thick with polyurethane insulation, Panels to have a tongue and groove configuration and fastened together with a mechanical cam-lock fastener, Finish to be either white baked enamel, pvc or stainless steel.	Norbec, Custom Fabricated	Canadian Curtis	Floor		Varies based on design	Varies based on design	96.0																
9.05	Walk In Refrigerators (qty 3 - 9.3 nsm each)	Refrigeration evaporator coil	3	Sized and balanced to match the compressor(s) and must be capable of maintaining internal room temperature (max. +3C for coolers, min. -18C for freezers) while considering humidity levels of surrounding areas, product type and load, heat infiltration and temperature of incoming product Corrosion free assembly, Time initiated air defrost cycles for coolers, Electric or hot gas defrost for freezers	Norbec, Custom Fabricated	Canadian Curtis	Mounted to ceiling of the walk in unit					120/1	10	60		Hardwire Connection		Yes		Yes					3/4" indirect			
9.05	Walk In Refrigerators (qty 3 - 9.3 nsm each)	Temperature Alarm	3	Hi-low temperature alarm, recessed in wall panels, with dry contacts for remote monitoring, rechargeable battery having operating range of -50C to +50C, Capillary temperature bulbs to be positioned behind evaporator coils (no visible wires). Interconnected to building automation system and remote monitoring and logging system.	Norbec, Custom Fabricated	Canadian Curtis	Integral to the walk in unit					120/1 per unit	5 per unit	60		Hardwire Connection		Yes		Yes								
9.05	Walk In Refrigerators (qty 3 - 9.3 nsm each)	Shelving unit	8	Constructed of steel with removable polypropylene overlays or polyester, thermoplastic/polypropylene construction, Construction to be corrosion resistant and coated with ant-microbial substance, Minimum dimensions to be 24" wide, All units to include cart washable casters, two locking, Minimum four tiers of shelves, Shelves to be adjustable. Typically 48 or 60" long.	Metro, Max Q	Cambro	Floor		Variable	18.0	72.0																
9.05	Walk In Refrigerators (qty 3 - 9.3 nsm each)	Dunnage rack	3	Constructed of polymer with anti-microbial properties or stainless steel, Minimum dimensions to be 24" wide x 36" long	Metro, Bow-Tie	Cambro	Floor		22.0	36.0	12.0																
9.18	Chemical Storage (7.4 nsm)	Janitor sink	1	Janitor sink: 20" x 16" x 12" deep mop sink with drain, overhead shelf, rear-mounted mop holder with (2) locking cams, service faucet with vacuum breaker and 120" hose, 18/300 stainless steel			Floor		20.0	28.0	16.0										1/2"	1/2"			2" direct			
9.18	Chemical Storage (7.4 nsm)	Chemical storage shelf	1	Constructed of steel with removable polypropylene overlays or polyester, thermoplastic/polypropylene construction, Construction to be corrosion resistant and coated with ant-microbial substance, Minimum dimensions to be 24" wide, All units to include cart washable casters, two locking, Minimum four tiers of shelves, Shelves to be adjustable. Typically 48 or 60" long.	Metro, Max Q	Cambro	Floor		See Long Description	18.0	72.0																
9.18	Chemical Storage (7.4 nsm)	Wall mounted hand sink	1	Hand Sink, wall mount, 13-1/2"Wide x 9-3/4" front-to-back x 6-3/4" deep bowl, 304 stainless steel construction, complete with electronic hands free splash mount gooseneck faucet, P-trap & tail piece, basket drain, deep-drawn seamless design-positive drain, inverted "V" edge, NSF.	Eagle Group, HSA-10-FA-PE	Tarrison	Wall Mount		14.5	18.5	12.8	120/1	2	60		Hardwire Connection		Yes			1/2"	1/2"			1 1/2" direct			
9.18	Chemical Storage (7.4 nsm)	Housekeeping cart	1	Lodgix™ Essentials Housekeeping Cart, 60"L, standard 42"H, modular design, linen bag with hookless mount (1) center shelf, push handles, Polymer construction, 8" non-marking wheels. Under deck vacuum holder - Lodgix carts. Center compartment adjustable shelf - Lodgix carts. Side storage kit - standard height Lodgix carts. Locking door kit for side storage - standard height Lodgix carts. Waste Can, with Waste can holder - standard height Lodgix carts. Vinyl-coated nylon laundry bag - standard height Lodgix carts. Divider Tote Box, natural polypropylene, stackable, gray. Roller, corner bumper - Lodgix carts	Metro, LXHK3-ESS	Rubbermaid	Mobile		50.0	22.0	40.0																
9.19	Storage - Clean Supplies (7.4 nsm)	Shelving unit	3	Constructed of steel with removable polypropylene overlays or polyester, thermoplastic/polypropylene construction, Construction to be corrosion resistant and coated with ant-microbial substance, Minimum dimensions to be 24" wide, All units to include cart washable casters, two locking, Minimum four tiers of shelves, Shelves to be adjustable. Typically 48 or 60" long.	Metro, Max Q	Cambro	Floor		Varies based on layout	18.0	72.0																
9.19	Storage - Clean Supplies (7.4 nsm)	Dunnage rack	2	Constructed of polymer with anti-microbial properties or stainless steel, Minimum dimensions to be 24" wide x 36" long	Metro, Bow-Tie	Cambro	Floor		22.0	36.0	12.0																
Preparation / Production																											
9.06	Meal Assembly (portioning and panning) (46.4 nsm)	Stainless steel mobile work table	1	Stainless steel construction, type 304, #4 finish, Length to suit design x 30" wide x 34" high, stainless steel top with stainless steel or galvanized steel sub-top, Hat channel reinforcement to be stainless steel or galvanized steel on centre, Legs to be stainless steel , tubing or square welded to subtop, Stainless steel cross bracing as required, Sound deadening as required, 4 all swivel non-marking rubber cart-washable casters with brakes, S.S. drawers	Custom Fabricated	Custom Fabricated	Mobile		Varies based on layout - typically 48" to 60"	30.0	36.0							Yes										

9.06	Meal Assembly (portioning and panning) (46.4 nsm)	Stainless steel table with sink	1	Stainless steel construction, type 304, #4 finish, Length to suit design x 30" wide x 34" high, stainless steel top with 2.0mm stainless steel or galvanized steel sub-top, Hat channel reinforcement to be stainless steel or galvanized steel on centre, Sink to be minimum 18" x 16" x 12" deep complete with hot and cold water faucet with swing spout, Legs to be stainless steel, tubing or square welded to subtop, Stainless steel cross bracing as required, Sound deadening as required, Backsplash to include radius coved corner, splayed to wall where required, Bullet feet for tables without m/e services, flanged feet secured to floor with s.s. fasteners for tables with m/e services, S.S. drawers.	Custom Fabricated	Custom Fabricated	Floor		Varies based on layout - typically 60" to 72"	30.0	36.0	120/1	15	60				Yes			1/2"	1/2"			1 1/2" indirect			
9.06	Meal Assembly (portioning and panning) (46.4 nsm)	Stainless steel table	1	Stainless steel construction, type 304, #4 finish, Length to suit design x 30" wide x 34" high, stainless steel top with stainless steel or galvanized steel sub-top, Hat channel reinforcement to be stainless steel or galvanized steel on centre, Legs to be stainless steel , tubing or square welded to subtop, Stainless steel cross bracing as required, Sound deadening as required, Backsplash to include radius coved corner, splayed to wall where required, Bullet feet for tables without m/e services, flanged feet secured to floor with s.s. fasteners for tables with m/e services, S.S. drawers.	Custom Fabricated	Custom Fabricated	Floor		Varies based on layout - typically 60" to 72"	30.0	36.0	120/1	15	60				Yes									
9.06	Meal Assembly (portioning and panning) (46.4 nsm)	Stainless steel overshelf	1	Stainless steel construction, type 304, #4 finish, Length to suit design x 12" wide x 6" high, stainless steel top with stainless steel or galvanized steel sub-top, Hat channel reinforcement to be stainless steel or galvanized steel on centre	Custom Fabricated	Custom Fabricated	Wall		To align with worktable underneath	12.0																
9.06	Meal Assembly (portioning and panning) (46.4 nsm)	Tray assembly table (long)	1	Stainless steel type 304 with Heliarc and spot welded construction. With comco slides to adjust for 1520/1321/1323 trays. Narrow tray insertion adjustable between 12 7/8" to 15 1/4" max. Opens top to allow reach-in to product. Front of table is open for product placement. With one fixed intermediate shelf below. 7" shelf clearance. Solid base for storage. Top of table to overhang 1 " each side to allow a tight fit with next table. Blue wrap around bumpers with internal stainless steel core. 4@5" swivel non-marking casters with side brakes.	Burlodge, B2-ST-M-2360	Hatch	Mobile		75.0	23.0	36.0	120	1	15													
9.06	Meal Assembly (portioning and panning) (46.4 nsm)	Tray assembly table (short)	1	Stainless steel type 304 with Heliarc and spot welded construction. With comco slides to adjust for 1520/1321/1323 trays. Narrow tray insertion adjustable between 12 7/8" to 15 1/4" max. Opens top to allow reach-in to product. Front of table is open for product placement. With one fixed intermediate shelf below. 7" shelf clearance. Solid base for storage. Top of table to overhang 1 " each side to allow a tight fit with next table. Blue wrap around bumpers with internal stainless steel core. 4@5" swivel non-marking casters with side brakes.	Burlodge, B2-ST-M-2330	Hatch	Mobile		30.0	23.0	36.0																
9.06	Meal Assembly (portioning and panning) (46.4 nsm)	Gravity Shelving complete with 8 anti falling device and 16 dividers	1	Stainless steel type 304 with Heliarc and spot welded construction. Open style, solid base with 4 independent moving 26"x20" shelves. Shelf front can be labeled. Each shelf can be used in horixontal position raised at the back by 5.5" from horizontal or raised at back by 6.5" from hoizontal position. Front of shelf to remain stationary. Security stopper at 0 deg for each shelf. Spacing between shelf surfaces to be 8" in horizontal position Each shelf to holed upto 20lbs of product and to extend 3" past the bumper. First shelf to be mounted at 37.75" from the floor. Blue wrap around bumpers with internal stainless steel core. Push handle on rear with blue grips. 4@5" swivel non-marking casters with side brakes.	Burlodge, B2-FSGS-M-2620-4	Hatch	Mobile		30.0	26.0	70.0																
9.06	Meal Assembly (portioning and panning) (46.4 nsm)	Kanban Rack complete with bins	1	Stainless steel type 304 with Heliarc and spot welded construction. 4 independent bin supports. Each bin holder to accommodate 1 small bins or 1 large bin for a total of 4 bin holders. Key hole vertical adjustments at 2" increments with horixontal swing adjustment for optimal positioning. Complete with 8 small bins and 4 large bins. 5@3" swivel non-marking casters	Burlodge, B2-TBC-M-4	Hatch	Mobile																			
9.06	Meal Assembly (portioning and panning) (46.4 nsm)	Cup Rack Dispenser	4	Stainless steel type 304 with Heliarc and spot welded construction. Channel reinforced extended base for rigidity and stability. Dispensing system in a steel upright uni-frame enclosure. Cantilever dispensing system c/w springs that are heat treated for strngth and durability. Adjustable platform to accommodate 2020 dishracks. Blue wrap around bumpers with intermal stainless steel core. Push handle on rear with blue grips. 4@5" swivel non-marking casters with side brakes.	Burlodge, B2-TRC-M-2020-LP	Hatch	Mobile		see note	see note	38.0																
9.06	Meal Assembly (portioning and panning) (46.4 nsm)	Tray Lowerator	4	Stainless steel type 304 with Heliarc and spot welded construction. Channel reinforced extended base for rigidity and stability. Dispensing system in a steel upright uni-frame enclosure. Cantilever dispensing system c/w springs that are heat treated for strngth and durability. Adjustable platform to accommodate 1321 or 1323 trays. Blue wrap around bumpers with intermal stainless steel core. Push handle on rear with blue grips. 4@5" swivel non-marking casters with side brakes.	Burlodge, BATRC-M-1323-P	Hatch	Mobile		see note	see note	38.0																
9.06	Meal Assembly (portioning and panning) (46.4 nsm)	B-Cool 18	1	Stainless steel doors and hinges with glass and door locks. Touch screen electronic control panel. Standby mode activated after 30 sec of inactivity. Energy saving mode - automatically activates after 4 hrs of door opening inactivity. Manager lockout feature. Demand defrost detection. Supercool mode for product when required. All stainless steel construction inside and out with complete with foamed in place polyurethane insulation. Lifetime energy saving thermal breaker caps. R-134a refrigeration. Plasticize coated evaporator fin coils. Non-electric evap pan. One piece snap in magnetic door gaskets. Stainless steel pan slides x 15 sets. Flush recessed side hand grips, cord and plug.	Burlodge, B-COOL	Hatch	Mobile					120	1	20													
9.06	Meal Assembly (portioning and panning) (46.4 nsm)	Waste bin	1	Rubbermaid® Brute® Container, round, open type, 20-gallon capacity, high-impact plastic construction, grey. Rubbermaid® Brute® Lid, round, for 20 gallon, Brute container, blue. Rubbermaid® Brute® Dolly, for 20, 32, 44 & 55 gallon Brute containers. black	Rubbermaid	Brute	Mobile																			
9.06	Meal Assembly (portioning and panning) (46.4 nsm)	Angle Racks	8	Tray Rack, mobile, end load, single section, pass-thru, 20"W x 63-1/4"H, 23"D, pass-thru, closed sides, with slides for (18) 15" x 20" or (18) 16" x 22" trays, slides on 3" centers, riveted aluminum construction, NSF. Continuous Bumper, gray. Mobile Tray Rack Pan stop.	Metro, RD15N	Hatch	Mobile		24.0	26.0	64.0																
9.06	Meal Assembly (portioning and panning) (46.4 nsm)	Utility cart	2	MW Standard Duty Utility Cart, (3) solid shelves, open base, shelf size 36"W x 24"D, tubular stainless steel frame with (2) push handles, with (4) swivel/ resilient tread casters, NSF.	Metro, MW208	Rubbermain	Mobile		40.0	22.0	37.0																
9.06	Meal Assembly (portioning and panning) (46.4 nsm)	Shelving unit	1	Constructed of steel with removable polypropylene overlays or polyester, thermoplastic/polypropylene construction, Construction to be corrosion resistant and coated with ant-microbial substance, Minimum dimensions to be 24" wide, All units to include cart washable casters, two locking, Minimum four tiers of shelves, Shelves to be adjustable. Typically 48 or 60" long.	Metro, Max Q	Cambro	Floor		Variable	18.0	72.0																
9.06	Meal Assembly (portioning and panning) (46.4 nsm)	Reach-in refrigerator	1	Spec-Line Refrigerator, Reach-in, One-Section, self-contained refrigeration, stainless steel exterior and interior, standard depth, full-height door, INTELA-TRAUL™ microprocessor controls, 6" adjustable stainless steel legs, 1/3 HP, cULus, NSF. 3 years parts & labour, 5 year compressor warranty, standard. 115v/60/1ph, 8.0 amps, with cord & NEMA 5-15P, standard. Door hinged on right, standard. NAFEM data protocol (gateway (serves up to four units). Stainless steel back with rear louvers. Casters, 6" high locking (set of 4)	Traulsen, AHT126WUT-FHS	True Manufacturing	Floor		36.0	36.0	90.0	120/1	15	60				Yes									
9.06	Meal Assembly (portioning and panning) (46.4 nsm)	Reach-in freezer	1	Spec-Line Freezer, Reach-in, One-Section, self-contained refrigeration, stainless steel exterior and interior, shallow depth, wide full-height doors, INTELA-TRAUL™ microprocessor controls, unit can be programmed to operate at -10 degrees Fahrenheit, cULus, NSF. 3 years parts & labour, 5 year compressor warranty, standard. 0 degrees Fahrenheit holding temperature, standard. 115v/60/1ph, 14.9 amps, with cord & NEMA 5-20P, standard. Top mounted electric condensate evaporator. Stainless steel back with rear louvers. Casters, 6" high locking (set of 4)	Traulsen, ALT126WUT-FHS	True Manufacturing	Floor		36.0	36.0	90.0	120/1	20	60				Yes									
9.06	Meal Assembly (portioning and panning) (46.4 nsm)	Waste bin	6	Rubbermaid® Brute® Container, round, open type, 20-gallon capacity, high-impact plastic construction, grey. Rubbermaid® Brute® Lid, round, for 20 gallon, Brute container, blue. Rubbermaid® Brute® Dolly, for 20, 32, 44 & 55 gallon Brute containers. black	Rubbermaid	Brute	Mobile																			
9.06	Meal Assembly (portioning and panning) (46.4 nsm)	Meal Tray Retherm and Delivery Cart	1	Unit to consist of a Base Station and mobile Pod. Base station to be floor mounted and to be made of 304 stainless steel with anit-static high impact thermoplastic decorative panel. Top and back section holds mechanical and electrical components. Convected heat and self contained refrigeration with forced air. (refrigeration unit to be air cooled) Top section can be raised or lowered to accept different size tray carriers. Tray carrier nests under the top section. Easy to reach control panel. Bretwise compatible. The Pod to be insulated tray carrier made of 304 stainless steel with foam in place insulation. Unit be be able to hold 30 trays. Divider wall separates hot and cold section of the flat tray. Heavy duty wrap around bumpers. Nests under the base station with ease. Tunnel washable, ergonomic	Burlodge Bpod		Floor/Wall		48	30	65	208/3	25	60				Yes									
9.27	Ingredient Controll Room (14.5 nsm)	Pre-fabricated insulated wall and ceiling panels and refrigeration system (combined room for 9.27 Ingredient Control room and 9.07 Packaging Room)	1	ULC listed pre-fabricated insulated wall and ceiling panels, 4" (100mm) thick with polyurethane insulation, Panels to have a tongue and groove configuration and fastened together with a mechanical cam-lock fastener, Finish to be either white baked enamel or stainless steel.	Norbec, Custom Fabricated	Canadian Curtis	Floor		Varies based on design	Varies based on design	96.0																
9.27	Ingredient Controll Room (14.5 nsm)	Refrigeration evaporator coil (combined room for 9.27 Ingredient Control room and 9.07 Packaging Room)	1	Low velocity coiles sized and balanced to match the compressor(s) and must be capable of maintaining internal room temperature (max. +10-20deg C for coolers) while considering humidity levels of surrounding areas, product type and load, heat infiltration and temperature of incoming product Corrosion free assembly, Time initiated air defrost cycles for coolers, Electric or hot gas defrost for freezers	Norbec, Custom Fabricated	Canadian Curtis	Mounted to ceiling of the walk in unit					120/1	10	60		Hardwire Connection		Yes		Yes					3/4" indirect			
9.27	Ingredient Controll Room (14.5 nsm)	Stainless steel table with sink	1	Stainless steel construction, type 304, #4 finish, Length to suit design x 30" wide x 34" high, stainless steel top with 2.0mm stainless steel or galvanized steel sub-top, Hat channel reinforcement to be stainless steel or galvanized steel on centre, Sink to be minimum 18" x 16" x 12" deep complete with hot and cold water faucet with swing spout, Legs to be stainless steel, tubing or square welded to subtop, Stainless steel cross bracing as required, Sound deadening as required, Backsplash to include radius coved corner, splayed to wall where required, Bullet feet for tables without m/e services, flanged feet secured to floor with s.s. fasteners for tables with m/e services, S.S. drawers.	Custom Fabricated	Custom Fabricated	Floor		Varies based on layout - typically 60" to 72"	30.0	36.0	120/1	15	60				Yes			1/2"	1/2"			1 1/2" indirect			

9.27	Ingredient Controll Room (14.5 nsm)	Stainless steel table	1	Stainless steel construction, type 304, #4 finish, Length to suit design x 30" wide x 34" high, stainless steel top with stainless steel or galvanized steel sub-top, Hat channel reinforcement to be stainless steel or galvanized steel on centre, Legs to be stainless steel , tubing or square welded to subtop, Stainless steel cross bracing as required, Sound deadening as required, Backsplash to include radius coved corner, splayed to wall where required, Bullet feet for tables without m/e services, flanged feet secured to floor with s.s. fasteners for tables with m/e services, S.S. drawers.	Custom Fabricated	Custom Fabricated	Floor		Varies based on layout - typically 60" to 72"	30.0	36.0	120/1	15	60				Yes											
9.27	Ingredient Controll Room (14.5 nsm)	Ingredient Bins	8	ProSave® Ingredient Bin, 4-1/8 cu. ft.,18"W x 29-3/4"D x 28"H, mobile, slant front with sliding lid, 32 oz. scoop, seamless construction, 3" extra-wide casters front fixed & rear swivel, white base/clear lid. USDA, FDA, NSF.	Rubbermaid, SMFG360388WHT	Cambro																					
9.27	Ingredient Controll Room (14.5 nsm)	Digital Scale	1	Bravo! Digital Scale by Edlund®, 20 lb. capacity in 0.2 increments, 7" x 7" removable stainless steel platform, LCD display, field calibratable, features On/Tare, Mode/Calibrate, zero, automatic Off, and Off function, includes AC adaptor and protective cover. 9VAC, can use (2) AA Batteries, cUL, NSF, CE	Edlund BRV-320	Edlund	On stainless steel table		10.0	10.0	3.0	120/1	10	60				Yes										
9.27	Ingredient Controll Room (14.5 nsm)	Waste bin	1	Rubbermaid® Brute® Container, round, open type, 20-gallon capacity, high-impact plastic construction, grey. Rubbermaid® Brute® Lid, round, for 20 gallon, Brute container, blue. Rubbermaid® Brute® Dolly, for 20, 32, 44 & 55 gallon Brute containers, black.	Rubbermaid	Brute	Mobile																				
9.27	Ingredient Controll Room (14.5 nsm)	Counter slicer	1	Food Cutter with #12 attachment hub, 14" diameter stainless steel bowl 22 rpm, double stainless steel knives 1725 rpm, bowl cover with safety interlock, push/pull on/off switch, one-piece burnished aluminum housing, 3" legs, 115/60/1, 1/2 hp, 6' cord with plug. Unit is complete with s/s bowl & knife. 9" Vegetable Slicer, #12 back case, hopper front, & adjustable slicer plate.	Hobart HS9-1	Globe			40.0	30.0	25.0	120/1	15	60				Yes										
9.27	Ingredient Controll Room (14.5 nsm)	Mixer	1	Legacy Planetary Mixer - Unit Only, 12-20qt., 3 fixed speeds/stir speed, gear trans, 15 min. SmartTimer, #12 taper hub, manual bowl lift, stainless steel bowl guard, 1/2 hp, 120/60/1. Bench type mixer, 20 Qt stainless steel bowl.	Hobart HL-20	Globe			18.0	12.0	12.0	120/1	15	60				Yes										
9.27	Ingredient Controll Room (14.5 nsm)	Mixer/blender	1	Blixer®, Commercial Blender/Mixer, vertical, 7 qt. capacity, stainless steel bowl with handle, stainless steel "S" serrated blade assembly, on/off buttons, pulse switch, variable speed 370 - 3450 RPM, 120v/60/1-ph, 11 amps, 2 HP, NEMA 5-15P, ETL electrical & sanitation, cETL, UL, NSF, CAN/CSA. Bowl Assembly, for Blixer4 & Blixer4V, stainless steel bowl. "S" Blade, fine serrated, for Blixer 4 & Blixer 4V.	Robot Coup R2N	Globe			12.0	6.0	24.0	120/1	15	60				Yes										
9.27	Ingredient Controll Room (14.5 nsm)	Can opener, electrical	1	Can Opener, electric, 2-speed (slower speed is ideal for opening smaller cans), recommended usage is up to 75 cans per day, 115v/60/1-ph. 203 & 266 Replacement Parts Kit, includes: (1) CD06, (1) KO06 and (1) S196 (6 kits per case).	Edlund, KT2326	Globe	On stainless steel worktable					120/1	15	60				Yes										
9.27	Ingredient Controll Room (14.5 nsm)	Stainless steel hand sink	1	Hand Sink, wall mount, 13-1/2"Wide x 9-3/4" front-to-back x 6-3/4" deep bowl, 304 stainless steel construction, complete with electronic hands free splash mount gooseneck faucet, P-trap & tail piece, basket drain, deep-drawn seamless design-positive drain, inverted "V" edge. NSF.	Eagle Group, HSA-10-FA-PE	Tarrison	Wall Mount		14.5	18.5	12.8	120/1	2	60		Hardwire Connection		Yes			1/2"	1/2"			1 1/2" direct			
9.27	Ingredient Controll Room (14.5 nsm)	Digital Scale	1	Bravo! Digital Scale by Edlund®, 20 lb. capacity in 0.2 increments, 7" x 7" removable stainless steel platform, LCD display, field calibratable, features On/Tare, Mode/Calibrate, zero, automatic Off, and Off function, includes AC adaptor and protective cover. 9VAC, can use (2) AA Batteries, cUL, NSF, CE	FMP, 198-1219	Edlund	On stainless steel worktable		10.0	10.0	3.0	120/1	10	60				Yes										
9.07	Cold / Hot Production (41.8 nsm)	Stainless steel mobile work table	1	Stainless steel construction, type 304, #4 finish, Length to suit design x 30" wide x 34" high, stainless steel top with stainless steel or galvanized steel sub-top, Hat channel reinforcement to be stainless steel or galvanized steel on centre, Legs to be stainless steel , tubing or square welded to subtop, Stainless steel cross bracing as required, Sound deadening as required, 4 all swivel non-marking rubber cart-washable casters with brakes, S.S. drawers	Custom Fabricated	Custom Fabricated	Mobile		Varies based on layout - typically 48" to 60"	30.0	36.0							Yes										
9.07	Cold / Hot Production (41.8 nsm)	Stainless steel table with sink	1	Stainless steel construction, type 304, #4 finish, Length to suit design x 30" wide x 34" high, stainless steel top with 2.0mm stainless steel or galvanized steel sub-top, Hat channel reinforcement to be stainless steel or galvanized steel on centre, Sink to be minimum 18" x 16" x 12" deep complete with hot and cold water faucet with swing spout, Legs to be stainless steel, tubing or square welded to subtop, Stainless steel cross bracing as required, Sound deadening as required, Backsplash to include radius coved corner, splayed to wall where required, Bullet feet for tables without m/e services, flanged feet secured to floor with s.s. fasteners for tables with m/e services, S.S. drawers.	Custom Fabricated	Custom Fabricated	Floor		Varies based on layout - typically 60" to 72"	30.0	36.0	120/1	15	60				Yes			1/2"	1/2"			1 1/2" indirect			
9.07	Cold / Hot Production (41.8 nsm)	Stainless steel table	1	Stainless steel construction, type 304, #4 finish, Length to suit design x 30" wide x 34" high, stainless steel top with stainless steel or galvanized steel sub-top, Hat channel reinforcement to be stainless steel or galvanized steel on centre, Legs to be stainless steel , tubing or square welded to subtop, Stainless steel cross bracing as required, Sound deadening as required, Backsplash to include radius coved corner, splayed to wall where required, Bullet feet for tables without m/e services, flanged feet secured to floor with s.s. fasteners for tables with m/e services, S.S. drawers.	Custom Fabricated	Custom Fabricated	Floor		Varies based on layout - typically 60" to 72"	30.0	36.0	120/1	15	60				Yes										
9.07	Cold / Hot Production (41.8 nsm)	Stainless steel overshelf	1	Stainless steel construction, type 304, #4 finish, Length to suit design x 12" wide x 6" high, stainless steel top with stainless steel or galvanized steel sub-top, Hat channel reinforcement to be stainless steel or galvanized steel on centre	Custom Fabricated	Custom Fabricated	Wall		To align with worktable underneath	12.0																	
9.07	Cold / Hot Production (41.8 nsm)	Exhaust hood with fire protection system	2	The hood shall be designed with Capture Jet® with Side-Jet technology to reduce the exhaust airflow rate required, and to improve the capture and containment efficiency of the hood, while reducing energy consumption. The Capture Jet® air shall be introduced through a special discharge panel and shall not exceed 10% of the calculated exhaust airflow. The Capture Jet® discharge velocity will be a minimum of 1500 feet per minute. Slot or grille type discharge shall not be used. The Capture Jet® shall be internally mounted with a speed control and will not require a fire damper or electronic shut down in fire mode. The integral front discharge make up air plenum shall be manufactured of the same material as the hood. The face of the plenum will be perforated stainless steel to deliver low velocity air to the space and to minimize room turbulence while refreshing the occupied zone.The SF/P fire suppression system is an industry leader in rugged components and superior fire suppression. The versatile SF/P system incorporates a stored pressure cylinder and delivers a wet chemical agent to a fire, quickly suppressing and containing fires in a wide variety of applications. With its state of the art XV control head it is a perfect system for any large or small kitchen or various industrial kitchen applications.	Halton	Gaylord	Ceiling		See Long Description	See Long Description	See Long Description	2 @ 120/1	2 @ 15	2 @ 60				Yes		Yes								6000 cfm type 1 hood
9.07	Cold / Hot Production (41.8 nsm)	Combination steam convection oven (stacking 1/2 size combi ovens)	2	Rational SelfCooking Center® WhiteEfficiency® 102, electric, (10) 18" x 26" full size sheet or (20) 12" x 20" full size hotel pan capacity, SelfCooking control with 7 modes, HiDensityControl®, Efficient LevelControl®, CareControl, Combi-Steamer with 3 modes, core temp probe with 6 point measurement, hand shower with automatic retracting system, (5) grid shelves, ethernet interface, 37 kW. 2 years parts and labour warranty. 208/240V/60/3ph, standard. Kitchen Management System Software Package (This replaces CombiLink and does not support USB. Ethernet interface will be needed.) Door hinged on right std. Heat Shield, for left side panel, for SCC 102/CM 102 series. US III Mobile Oven Stand, 14 supporting rails, side panels, rear panel and cover, height 26-3/8", for SCC 62/CM 102 series. Mobile oven rack package, (mobile oven rack + run-in rail). Insulated Cover Hood, for banquet system oven rack and plate rack, for SCC 102/CM 102 series. Transport Trolley, for mobile oven rack & mobile plate rack, height 39", for SCC 62/CM 102 series. Cleaner tablet without Phosphor, bucket with 100 packets. Rational Defoamer Tabs, for all SelfCooking Center units, to reduce foaming in water types subject to severe foam build-up during cleaning, 120 tablets per bucket. Rational Descaler. Electric descaler pump.	Rational SCC WE 102E	Convotherm	Floor		48.0	48.0	80.0	2 @ 208/3	100	60				Yes		Yes	2 @ 3/4				2 @ 2" indirect drain to grease trap		Natural gas or liquid propane	
9.07	Cold / Hot Production (41.8 nsm)	Convection oven	1	(Garland/U.S. Range (Garland Canada)) Master Series Convection Oven, gas, double-deck, deep depth 43", (2) speed fan, Master 450 solid state digital control with Cook 'n' Hold, electric ignition, dependent 60/40 doors with windows, stainless steel front, sides & top, porcelain cavity, 6-1/2" legs, EnerLogic Technology, 120,000 BTU, NSF, UL, cUL, CE. Stainless steel enclosed back, per deck. (Garland/U.S. Range (Garland Canada)) Gas Flex Hose with quick disconnect includes restraining device, 3/4" N.P.T. x 60", for Master series.	Garland, MCO-GD-20	Vulcan	Floor		38.0	72.0	42.0	2 @ 208/3	2 @ 30	60				Yes		Yes						Natural gas or liquid propane	
9.07	Cold / Hot Production (41.8 nsm)	Convection steamer	1	(Cleveland (Garland Canada)) SteamChef™ 3 Convection Steamers, electric, boilerless, double stacked, on UNISTAND25 equipment stand includes CHEFSTACKIT, (3) full size pan capacity per compartment, SureCook controls, 60-minute electro-mechanical timer & manual (continuous steaming) bypass switch, left-hand hinged door, controls on right, automatic drain & water level controls, KleanShield™ interior, mounting spacer, 4" adjustable legs, 9 kW per cavity, UL, cUL, NSF, ENERGY STAR®. (2) (2083) 208v/60/3-ph, 29.8 amp, 3-wire, std. (Cleveland (Garland Canada)) Electronic Timer with Load Compensating Feature, two compartment. (Cleveland (Garland Canada)) 5 Foot (1524mm) FDA Approved National Hose Thread, style water connection kit (garden hose thread), TWO required (priced per each), P/N 1100999. (Cleveland (Garland Canada)) Heat Shield, for SteamChef 3 (add 4" to right side). (Cleveland (Garland Canada)) Kleensteam® CT, Water Filter Assembly, for counter top steamers, includes (1) 4CB5 cartridge, (1) AR-10 filter cartridge, dip tube & ScaleKleen 7.0-oz. packet, wall-	Cleveland, 22CET3.1	Vulcan	Floor		24.0	36.0	70.0	2 @ 208/3	2 @ 30	60				Yes		Yes	2 @ 3/4				1 1/2" indirect drain to grease trap		Natural gas or liquid propane	
9.07	Cold / Hot Production (41.8 nsm)	Kettles (25 Gallon - gas)	2	(Cleveland (Garland Canada)) Short Series™ Steam Jacketed Kettle, gas, Tilting, 25-gallon capacity, full steam jacket design, 35" rim height, open tri-leg base, stainless steel exterior finish, standard with flanged feet, 50 psi rating. (Cleveland (Garland Canada)) 2" tangent draw-off valve with strainer. (Cleveland (Garland Canada)) Spring-assisted cover (25 gallon). (Cleveland (Garland Canada)) Double Pantry Faucet, with swing spout & mounting bracket for tilting kettles. (Cleveland (Garland Canada)) Heat deflector	Cleveland, KGL-25T	Vulcan	Floor		42.0	38.0	64.0	208/3	30	60				Yes		Yes	1/2"	1/2"					Natural gas or liquid propane	

9.07	Cold / Hot Production (41.8 nsm)	Range with convection oven	1	(Garland/U.S. Range (Garland Canada)) Master Sentry Series Heavy Duty Range, gas, 34", (4) 35,000 BTU open burners, standard oven, electric ignition & flame fail on all burners, stainless steel front & sides, 6" legs, 180,000 BTU, NSF, CE, CSA Flame, CSA Star.. 3/4" Rear gas connection, including "Tee" in manifold,end cap & cover (Consult spec sheet and specify). (Garland/U.S. Range (Garland Canada)) Natural Gas Regulator, 3/4" N.P.T. (Garland/U.S. Range (Garland Canada)) Gas Flex Hose with Quick Disconnect & Restraining Device, 3/4" N.P.T. x 60" (Consult spec sheet and specify). Stainless steel main back. Single convection oven base, in lieu of standard, add "C" suffix. Casters, polyurethane wheels (non-marking). (Garland/U.S. Range (Garland Canada)) Master Series Backguard/Flue Riser, 17" H x 12" W, stainless steel front & sides.	Garland, MST44R-EC	Vulcan	Floor		34.0	34.0	32.0	208/3	50	60				Yes		Yes						Natural gas or liquid propane	
9.07	Cold / Hot Production (41.8 nsm)	Griddle 36" Gas with convection oven base	1	(Garland/U.S. Range (Garland Canada)) Master Series Heavy Duty Range, gas, 34", griddle, thermostatic controls, standard oven, piezo ignition, stainless steel front & sides, 6" legs, 139,000 BTU, NSF, CSA Flame, CSA Star. 3/4" Rear gas connection, including "Tee" in manifold,end cap & cover (Consult spec sheet and specify). (Garland/U.S. Range (Garland Canada)) Natural Gas Regulator, 3/4" N.P.T. (Garland/U.S. Range (Garland Canada)) Gas Flex Hose with Quick Disconnect & Restraining Device, 3/4" N.P.T. x 60" (Consult spec sheet and specify). Stainless steel main back. Single convection oven base, in lieu of standard, add "C" suffix. Casters, polyurethane wheels (non-marking). (Garland/U.S. Range (Garland Canada)) Master Series Backguard/Flue Riser, 17" H x 12" W, stainless steel front & sides.	Garland, M48RC	Vulcan	Floor		34.0	34.0	32.0	208/3	50	60				Yes		Yes						Natural gas or liquid propane	
9.07	Cold / Hot Production (41.8 nsm)	Tilt skillet 40 gallon	1	(Cleveland (Garland Canada)) Tilting Skillet, Gas, 40-gallon capacity, modular open base, standard with electric tilt mechanism, stainless steel construction, includes spring-assisted cover, gallon markings and electronic spark ignition, stainless steel level adjustable feet, CE, NSF. Power Tilt, standard. (Cleveland (Garland Canada)) 2" tangent draw-off valve, front mounted left side. (Cleveland (Garland Canada)) Pan Carrier, for floor models. (Cleveland (Garland Canada)) Sliding Drain Drawer. (Cleveland (Garland Canada)) Retractable Splash Guard/Pan Shelf, for sliding drain drawer. (Cleveland (Garland Canada)) Double Pantry Faucet with, 3/4" swing spout & bracket. (Cleveland (Garland Canada)) Protective control cover (CPPCBTR).	Garland SGL40TR	Vulcan	Floor		50.0	44.0	40.0	208/3	50	60				Yes		Yes	1/2"	1/2"				Natural gas or liquid propane	
9.07	Cold / Hot Production (41.8 nsm)	Stainless steel table with sink	2	Stainless steel construction, type 304, #4 finish, Length to suit design x 30" wide x 34" high, stainless steel top with 2.0mm stainless steel or galvanized steel sub-top, Hat channel reinforcement to be stainless steel or galvanized steel on centre, Sink to be minimum 18" x 16" x 12" deep complete with hot and cold water faucet with swing spout, Legs to be stainless steel, tubing or square welded to subtop, Stainless steel cross bracing as required, Sound deadening as required, Backsplash to include radius coved corner, splayed to wall where required, Bullet feet for tables without m/e services, flanged feet secured to floor with s.s. fasteners for tables with m/e services, S.S. drawers	Custom Fabricated	Custom Fabricated	Floor		Varies based on layout - typically 60" to 72"	30.0	36.0	120/1	15	60				Yes			1/2"	1/2"		1 1/2" indirect			
9.07	Cold / Hot Production (41.8 nsm)	Utensil Rack	1	Utensil Rack, table mounted, adjustable, 108" long, stainless steel, includes: (9) plated pot hooks. Mounted to cooks table.	Advanced Tabco, AUR-108	Custom Fabricated																					
9.07	Cold / Hot Production (41.8 nsm)	Stainless steel trench drain floor grate	~~1.3~~	Stainless steel construction, type 304, #4 finish, Length and width to suit design x 150mm deep, All radius corners, 1.6mm stainless steel pan Honeycomb or other patterned grating, removable in sections, Provide strainer at all drains. Positioned at kettles and tilt fry pan. ~~Quantity and~~ size to be confirmed based on final design.	Custom Fabricated	Custom Fabricated	Floor		See Long Description	See Long Description	See Long Description											2 @ 3" direct to grease trap			
9.07	Cold / Hot Production (41.8 nsm)	Rapid thaw cabinet	2	Neo Multi-Function Blast Chilling/Shock Freezing/Thawing/Retarding/Slow Cooking, electric, (12) 1/1 GN capacity, side runners, heated core probe, 7" touch screen display, 79 lbs. blast chilling/53 lbs. shock freezing capacity, indirect blowing fans, hermitic compressor, copper-aluminum evaporator, automatic defrosting cycles, R404A refrigerant, USB connection, stainless steel construction, 7.4 amps, 3.2 kW, 208v/60/3-ph. Hand Shower for NEO Multi-Function units. Caster Kit, (2) with brake	Lainox, NEOG121	Inox	Floor		28.0	33.0	82.0	208	20	60				Yes									
9.09	Packaging (7.4 nsm)	Pre-fabricated insulated wall and ceiling panels and refrigeration system	Combine with 9.27																								
9.09	Packaging (7.4 nsm)	Insulated transport carts	6	Ultra Camcart® Food Pan Carrier, front loading, one-piece double wall polyethylene shell, foam insulation, holds (16) 2-1/2" deep full size pans, (12) 4" deep full size pans, (8) 6" deep full size pans, (4) 8" deep full size pans; approximate capacity 90 qt., molded-in handles & bumpers, nylon latch, air-tight gasket, vent cap, (4) 6" casters (2 fixed, 2 swivel, 1 with brake), black, NSF. Camchiller®, full size GN, 20-7/8" x 12-7/8" x 1-1/2"H, maintains chilled foods in transport, cold blue, dishwasher safe, stackable, NSF. ThermoBarrier®, 20-7/8"L x 12-7/8"W x 1-3/8"H, removable insulated shelf divides the interior into hot and cold areas, for UPC1200, CVC72 & CVC724, dishwasher safe, dark brown, NSF.	Cambro, UPC-1200	Rubbermaid	Mobile																				
9.09	Packaging (7.4 nsm)	Stainless steel mobile work table	2	Stainless steel construction, type 304, #4 finish, Length to suit design x 30" wide x 34" high, stainless steel top with stainless steel or galvanized steel sub-top, Hat channel reinforcement to be stainless steel or galvanized steel on centre, Legs to be stainless steel , tubing or square welded to subtop, Stainless steel cross bracing as required, Sound deadening as required, 4 all swivel non-marking rubber cart-washable casters with brakes, S.S. drawers	Custom Fabricated	Custom Fabricated	Mobile		Varies based on layout - typically 48" to 60"	30.0	36.0							Yes									
9.09	Packaging (7.4 nsm)	Hand sink (complete with sanitizer and towel dispenser)	1	Hand Sink, wall mount, 13-1/2"Wide x 9-3/4" front-to-back x 6-3/4" deep bowl, 304 stainless steel construction, complete with electronic hands free splash mount gooseneck faucet, P-trap & tail piece, basket drain, deep-drawn seamless design-positive drain, inverted "V" edge, NSF.	Eagle Group, HSA-10-FA-PE	Tarrison	Wall Mount		14.5	18.5	12.8	120/1	2	60		Hardwire Connection		Yes			1/2"	1/2"		1 1/2" direct			
9.09	Packaging (7.4 nsm)	Bag Sealing Machine	1	PrimaVac Vacuum Packaging Machine, electric, countertop, 16.85"W x 20.12"D x 5.20"H single chamber, 16" removable seal bar , 24m³/h JetAire™ pump, vacuum gauge, (10) custom programs, adjustable soft air, gas flush, removable filler plate, includes maintenance kit, clear lid, stainless steel housing, 4" leg extenders, 120v/60/1-ph, 10.0 amps, 1000 watts, cETLus, NSF	Hamilton Beach, HVC406	Omcan	Counter Unit		33.0	17.0	13.0	120.0		60	50												
9.08	Blast Chilling / Blast Freezer (7.4 nsm)	Blast Chiller	1	HURRICHILL™ Modular Blast Chiller, Roll-In, remote water cooled refrigeration linked to building chilled water loop system, accepts (1) 26" W x 32" D x 73.5" H trolley, 200 lbs. from 160°F to 38°F chill capacity/90 minutes, 230 lbs. from 160°F to 38°F chill capacity/120 minutes, 7" LCD touch screen controller with Quick Start & A La Carte functionality, insulated panels, camlock assembly, automatic or manual operation, programmable, (1) core temp probe included, stainless steel interior & exterior, UL. 1 year parts & labor warranty standard. 208v/60/1-ph, 8.2 amps, standard. Air-cooled remote condensing unit, 208v/60/3-ph. Four year compressor warranty is standard, labor not included. Mobile racks available, 26" W x 32" D x 73.5" H. 2" insulated floor panel (this option will affect overall dimensions) (contact factory for price). Wi-Fi communication.	American Panel Corporation, AP20BC-1T	Delfield	Floor		52.0	42.0	92.0	208/3	60	60				Yes		Yes							
9.08	Blast Chilling / Blast Freezer (7.4 nsm)	Angle Racks	4	Tray Rack, mobile, end load, single section, pass-thru, 20"W x 63-1/4"H, 23"D, pass-thru, closed sides, with slides for (18) 15" x 20" or (18) 16" x 22" trays, slides on 3" centers, riveted aluminum construction, NSF. Continuous Bumper, gray. Mobile Tray Rack Pan stop.	Metro, RD15N	Hatch	Mobile		24.0	26.0	64.0							Yes									
9.08	Blast Chilling / Blast Freezer (7.4 nsm)	Blast Freezer	1	HURRICHILL™ Modular Blast Chiller/Shock Freezer, Roll-In, remote refrigeration, accepts (1) 26" W x 32" D x 73.5" H trolley, 200 lbs. from 160°F to 38°F chill capacity/90 minutes, 120 lbs. from 160°F to 0°F freeze capacity/240 minutes, 7" LCD touch screen controller with Quick Start & A La Carte functionality, insulated panels, camlock assembly, automatic or manual operation, programmable, (1) core temp probe included, stainless steel interior & exterior, UL. 208v/60/1-ph, 8.2 amps, standard. Air-cooled remote condensing unit, 208v/60/3-ph. Four year compressor warranty is standard, labor not included. Mobile racks available, 26" W x 32" D x 73.5" H. 2" insulated floor panel (this option will affect overall dimensions) (contact factory for price). Wi-Fi communication.	American Panel Corporation, AP20BCF-1T	Delfield	Floor		52.0	42.0	92.0	208/3	60	60				Yes		Yes							
9.10	Inventory Refrigerator (21.3 nsm)	Pre-fabricated insulated wall and ceiling panels and refrigeration system	1	ULC listed pre-fabricated insulated wall and ceiling panels, 4" (100mm) thick with polyurethane insulation, Panels to have a tongue and groove configuration and fastened together with a mechanical cam-lock fastener, Finish to be either white baked enamel, pvc or stainless steel	Norbec, Custom Fabricated	Canadian Curtis	Floor		Varies based on design	Varies based on design	96.0							Yes									
9.10	Inventory Refrigerator (21.3 nsm)	Refrigeration evaporator coil	1	Sized and balanced to match the compressor(s) and must be capable of maintaining internal room temperature (max. +3C for coolers, min. -18C for freezers) while considering humidity levels of surrounding areas, product type and load, heat infiltration and temperature of incoming product Corrosion free assembly, Time initiated air defrost cycles for coolers, Electric or hot gas defrost for freezers	Norbec, Custom Fabricated	Canadian Curtis	Mounted to ceiling of the walk in unit					120/1	10	60		Hardwire Connection		Yes			Yes				3/4" indirect		
9.10	Inventory Refrigerator (21.3 nsm)	Temperature Alarm	1	Hi-low temperature alarm, recessed in wall panels, with dry contacts for remote monitoring, rechargeable battery having operating range of -50C to +50C. Capillary temperature bulbs to be positioned behind evaporator coils (no visible wires). Interconnected to building automation system and remote monitoring and logging system.	Norbec, Custom Fabricated	Canadian Curtis	Integral to the walk in unit					120/1 per unit	5 per unit	60		Hardwire Connection		Yes			Yes						
9.10	Inventory Refrigerator (21.3 nsm)	Shelving unit	2	Constructed of steel with removable polypropylene overlays or polyester, thermoplastic/polypropylene construction, Construction to be corrosion resistant and coated with ant-microbial substance, Minimum dimensions to be 24" wide, All units to include cart washable casters, two locking, Minimum four tiers of shelves, Shelves to be adjustable. Typically 48 or 60" long.	Metro, Max Q	Cambro	Floor		Variable	18.0	72.0															
9.10	Inventory Refrigerator (21.3 nsm)	Angle Racks	8	Tray Rack, mobile, end load, single section, pass-thru, 20"W x 63-1/4"H, 23"D, pass-thru, closed sides, with slides for (18) 15" x 20" or (18) 16" x 22" trays, slides on 3" centers, riveted aluminum construction, NSF. Continuous Bumper, gray. Mobile Tray Rack Pan stop.	Metro, RD15N	Hatch	Mobile		24.0	26.0	64.0															
9.11	Inventory Freezer (9.3 nsm)	Pre-fabricated insulated wall and ceiling panels and refrigeration system	1	ULC listed pre-fabricated insulated wall and ceiling panels, 4" (100mm) thick with polyurethane insulation, Panels to have a tongue and groove configuration and fastened together with a mechanical cam-lock fastener, Finish to be either white baked enamel, pvc or stainless steel	Norbec, Custom Fabricated	Canadian Curtis	Floor		Varies based on design	Varies based on design	96.0															

9.11	Inventory Freezer (9.3 nsm)	Refrigeration evaporator coil	1	Sized and balanced to match the compressor(s) and must be capable of maintaining internal room temperature (max. +3C for coolers, min. -18C for freezers) while considering humidity levels of surrounding areas, product type and load, heat infiltration and temperature of incoming product Corrosion free assembly, Time initiated air defrost cycles for coolers, Electric or hot gas defrost for freezers	Norbec, Custom Fabricated	Canadian Curtis	Mounted to ceiling of the walk in unit					120/1	10	60		Hardwire Connection		Yes		Yes					3/4" indirect			
9.11	Inventory Freezer (9.3 nsm)	Temperature Alarm	1	Hi-low temperature alarm, recessed in wall panels, with dry contacts for remote monitoring, rechargeable battery having operating range of -50C to +50C, Capillary temperature bulbs to be positioned behind evaporator coils (no visible wires). Interconnected to building automation system and remote monitoring and logging system.	Norbec, Custom Fabricated	Canadian Curtis	Integral to the walk in unit					120/1 per unit	5 per unit	60		Hardwire Connection		Yes		Yes								
9.11	Inventory Freezer (9.3 nsm)	Shelving unit	2	Constructed of steel with removable polypropylene overlays or polyester, thermoplastic/polypropylene construction, Construction to be corrosion resistant and coated with ant-microbial substance, Minimum dimensions to be 24" wide, All units to include cart washable casters, two locking, Minimum four tiers of shelves, Shelves to be adjustable. Typically 48 or 60" long.	Metro, Max Q	Cambro	Floor		Variable	18.0	72.0																
9.11	Inventory Freezer (9.3 nsm)	Angle Racks	8	Steam Table Pan Rack, mobile, full height, open sides, 12" x 20" steamtable pans, all welded construction, with heavy duty 5" casters. Pan Stop (factory installed only). Pan Rack Bumpers (vertical) (set of 4) (factory installed only). Bolted Stem Caster with brake, 5" diameter (for use on welded pan racks)	Advance Tabco, STR20-3W	Custom Fabricated	Mobile		24.0	26.0	64.0															
9.12	Meals on Wheels / Catering / OP Meals / Nourishment Assembly Area (23.2 nsm)	Stainless steel table with sink	1	Stainless steel construction, type 304, #4 finish, Length to suit design x 30" wide x 34" high, stainless steel top with 2.0mm stainless steel or galvanized steel sub-top, Hat channel reinforcement to be stainless steel or galvanized steel on centre, Sink to be minimum 18" x 16" x 12" deep complete with hot and cold water faucet with swing spout, Legs to be stainless steel, tubing or square welded to subtop, Stainless steel cross bracing as required, Sound deadening as required, Backsplash to include radius coved corner, splayed to wall where required, Bullet feet for tables without m/e services, flanged feet secured to floor with s.s. fasteners for tables with m/e services, S.S. drawers	Custom Fabricated	Custom Fabricated	Floor		Varies based on layout - typically 60" to 72"	30.0	36.0	120/1	15	60				Yes			1/2"	1/2"			1 1/2" indirect			
9.12	Meals on Wheels / Catering / OP Meals / Nourishment Assembly Area (23.2 nsm)	Digital Scale	1	Bravo! Digital Scale by Edlund®, 20 lb. capacity in 0.2 increments, 7" x 7" removable stainless steel platform, LCD display, field calibratable, features On/Tare, Mode/Calibrate, zero, automatic Off, and Off function, includes AC adaptor and protective cover. (NAC can use (2) AA Batteries, cUL, NSF, CE	BRV-320	Edlund	On stainless steel table		10.0	10.0	3.0	120/1	10	60				Yes									
9.12	Meals on Wheels / Catering / OP Meals / Nourishment Assembly Area (23.2 nsm)	Reach-in refrigerator	2	Spec-Line Refrigerator, Reach-in, Two-Section, self-contained refrigeration, stainless steel exterior and interior, standard depth, full-height door, INTELA-TRAUL™ microprocessor controls, 6" adjustable stainless steel legs, 1/3 HP, cULus, NSF. 3 years parts & labour, 5 year compressor warranty, standard. 115v/60/1ph, 8.0 amps, with cord & NEMA 5-15P, standard. Door hinged on right, standard. NAFEM data protocol gateway (serves up to four units). Stainless steel back with rear louvers. Coolies (5" high locking feet of 4)	Traulsen, AHT126WUT-FHS	True Manufacturing	Floor		65.0	36.0	90.0	120/1	20	60				Yes									
9.12	Meals on Wheels / Catering / OP Meals / Nourishment Assembly Area (23.2 nsm)	Waste bin	4	Rubbermaid® Brute® Container, round, open type, 20-gallon capacity, high-impact plastic construction, grey. Rubbermaid® Brute® Lid, round, for 20 gallon, Brute container, blue. Rubbermaid® Brute® Dolly, for 20, 32, 44 & 55 gallon Brute containers, black.	Rubbermaid	Brute	Mobile																				
9.12	Meals on Wheels / Catering / OP Meals / Nourishment Assembly Area (23.2 nsm)	Stainless steel hand sink	1	Hand Sink, wall mount, 13-1/2"Wide x 9-3/4" front-to-back x 6-3/4" deep bowl, 304 stainless steel construction, complete with electronic hands free splash mount gooseneck faucet, P-trap & tail piece, basket drain, deep-drawn seamless design-positive drain, inverted "V" edge, NSF.	Eagle Group, HSA-10-FA-PE	Eagle Group, HSA-10-FA-PE	Tarrison		14.5	18.5	12.8	120/1	2	60		Hardwire Connection		Yes			1/2"	1/2"			1 1/2" direct			
9.12	Meals on Wheels / Catering / OP Meals / Nourishment Assembly Area (23.2 nsm)	Stainless steel mobile work table	2	Stainless steel construction, type 304, #4 finish, Length to suit design x 30" wide x 34" high, stainless steel top with stainless steel or galvanized steel sub-top, Hat channel reinforcement to be stainless steel or galvanized steel on centre, Legs to be stainless steel , tubing or square welded to subtop, Stainless steel cross bracing as required, Sound deadening as required, 4 all swivel non-marking rubber cart-washable casters with brakes, S.S. drawers	Custom Fabricated	Custom Fabricated	Mobile		Varies based on layout - typically 48" to 60"	30.0	36.0																
9.12	Meals on Wheels / Catering / OP Meals / Nourishment Assembly Area (23.2 nsm)	Storage shelf rack	1	Constructed of steel with removable polypropylene overlays or polyester, thermoplastic/polypropylene construction, Construction to be corrosion resistant and coated with ant-microbial substance, Minimum dimensions to be 24" wide, All units to include cart washable casters, two locking, Minimum four tiers of shelves, Shelves to be adjustable. Typically 48 or 60" long.	Metro, Max Q	Cambro	Floor		Variable - Typical 48" to 60"	18.0	72.0																
Warewashing Suite																											
9.14	Pot Washing (23.2 nsm)	Stainless steel pot wash table w/ three compartment sink	1	Stainless steel construction, type 304, #4 finish, Length to suit design x 30" wide x 34" high, 1.6mm stainless steel top with stainless steel or galvanized steel sub-top, Hat channel reinforcement to be stainless steel or galvanized steel on centre, triple Sinks to be minimum 18" x 16" x 12" deep complete with hot and cold water faucet with swing spout for each sink compartment, Legs to be stainless steel, tubing or square welded to subtop, Stainless steel cross bracing as required, Sound deadening as required, Backsplash to include radius coved corner, splayed to wall where required, Bullet feet for tables without m/e services, flanged feet secured to floor with s.s. fasteners for tables with m/e services, Complete with overshelf. This is ideally integrated into the soiled dish table at the dishwasher. Include removable stainless steel H-shpaed rails across all three sinks.	Custom Fabricated	Custom Fabricated	Floor		Variable	30.0	36.0										2@ 1/2"	2@ 1/2"			3@ 2" to grease trap			
9.14	Pot Washing (23.2 nsm)	Hose reel	1	36" long spray gun with s/s wand and moulded heat resistant grip. Adjustable spray nozzle for high/low pressure. 6' inlet supply hose. Inline water filter. Stainless steel wall mounted bracket with sturdy shelf. Bypass unloader valve allows unit to idle and recirculate. Three inch locking casters and rear wheels designed for wet conditions. Non-marking yellow Sage™ branded high pressure hose, either 30', 50' or 75' as standard, or 100' as an option. Stainless steel commercial quality construction casing. Pressure relief valve maintaining safe maximum pressure. Thermal relief valve prevents overheating. Autochem feature allows automatic switching from Chemical to rinse at the spray valve. Plug and play electrical connectors for easy upgrade and servicing options. De-liming assembly. Full service and warranty support. Proven tried and tested designs for commercial applications. Soap and sanitizer pump options for efficient chemical meterage. Hot water capability up to 71°C (160°F) inlet temperature. Three pressure options, 600,	Fisher	T&S Brass	Wall Mount													1/2"	1/2"						
9.14	Pot Washing (23.2 nsm)	Pot washer	1		Chamption Moyer Dibel EDI13	Hobart	Floor		50.0	30.0	80.0	208	3	100				Yes				3/4"	3/4"			2" to grease trap			
9.14	Pot Washing (23.2 nsm)	Stainless steel clean pot wash table	1	Stainless steel construction, type 304, #4 finish, Length to suit design x 30" wide x 34" high, stainless steel top with stainless steel or galvanized steel sub-top, Hat channel reinforcement to be stainless steel or galvanized steel on centre, triple Sinks to be minimum 18" x 16" x 18" deep complete with hot and cold water faucet with swing spout for each sink compartment, Legs to be stainless steel , tubing or square welded to subtop, Stainless steel cross bracing as required, Sound deadening as required, Backsplash to include radius coved corner, splayed to wall where required, Bullet feet for tables without m/e services, flanged feet secured to floor with s.s. fasteners for tables with m/e services, Complete with overshelf. This is ideally integrated into the soiled dish table at the dishwasher. Include removable stainless steel H-shpaed rails across all three sinks.	Custom Fabricated	Custom Fabricated	Floor		Variable	30.0	36.0																
9.14	Pot Washing (23.2 nsm)	Stainless steel overshelf	2	Stainless steel construction, type 304, #4 finish, Length to suit design x 12" wide x 6" high, stainless steel top with stainless steel or galvanized steel sub-top, Hat channel reinforcement to be stainless steel or galvanized steel on centre	Custom Fabricated	Custom Fabricated	Wall Mount		Variable	12.0	Variable																
9.14	Pot Washing (23.2 nsm)	Stainless steel trench drain	1	Stainless steel construction, type 304, #4 finish, Length and width to suit design x 150mm deep. All radius corners, 1.6mm stainless steel pan Honeycomb or other patterned grating, removable in sections. Provide strainer at all drains.	Custom Fabricated	Custom Fabricated	Floor		Variable	Variable	Variable													2 @ 3" direct drain to grease trap			
9.14	Pot Washing (23.2 nsm)	Pot rack	1	Mobile Pot & Pan Rack, 48"W x 24"D x 68"H, (4) shelves solid embossed stainless steel (2) 5MP polyurethane swivel casters & (2) 5MPB polyurethane swivel casters with brake, NSF.	Metro PR48ES	Cabro	Floor		Variable	24.0	68.0																
9.14	Pot Washing (23.2 nsm)	Waste bin	4	Rubbermaid® Brute® Container, round, open type, 20-gallon capacity, high-impact plastic construction, grey. Rubbermaid® Brute® Lid, round, for 20 gallon, Brute container, blue. Rubbermaid® Brute® Dolly, for 20, 32, 44 & 55 gallon Brute containers, black.	Rubbermaid	Brute	Mobile																				
9.14	Pot Washing (23.2 nsm)	Stainless steel hand sink	1	Hand Sink, wall mount, 13-1/2"Wide x 9-3/4" front-to-back x 6-3/4" deep bowl, 304 stainless steel construction, complete with electronic hands free splash mount gooseneck faucet, P-trap & tail piece, basket drain, deep-drawn seamless design-positive drain, inverted "V" edge, NSF.	Eagle Group, HSA-10-FA-PE	Tarrison	Wall Mount		14.5	18.5	12.8	120/1	2	60		Hardwire Connection		Yes			1/2"	1/2"			1 1/2" direct			
9.15	Dishwashing (55.7 nsm)	Soiled dish handling system	1	NSF rated. stainless steel constructed soiled dishtabling and scrapping table. Pre-rise sprayers. Motorized rollers. Table height to match dishwasher at loading end. Layout to minimize turning, conscious of staff ergonomics and allow for separation of waste (recycling, composting and general waste). Shelving for dish racks.	Bi-Line, Custom Fabricated	Aerowerks	Floor		Variable	Variable	Variable	120	10	60		Direct		Yes			2 @ 1"	2 @ 1"			2 @ 2" indirect drain			
9.15	Dishwashing (55.7 nsm)	Waste reduction system	1	PowerRinse® Trough (Model PRT™) - Complete Waste Collection System Package. Requires only 1 GPM (3.79 LPM) of fresh water per hour. Pre-rinse & scrapping system with 70 GPM (264.98 LPM) recirculated water flow capability, dry start protection, & adjustable run time. Pre-plumbed & pre-wired base assembly with control, solenoid & pump (requires additional plumbing for trough); integrated air gap; stainless steel mounting tray, base assembly, basket cover, pump housing, 1/4" pump inlet screen, & pump impeller; 1/4" perforated scrap basket with four ergonomic handles; flanged feet; check valves; 2" drain discharge; 1/2" NPT water inlets. (1) year On-Site parts & labor warranty from date of installation (standard). 110-120v/60/1-ph. Trough Mount, magnetic silver saver mounts to any trough system (13983). Remote start/stop (15533) (contact factory for price). Trough cover (15444) (contact factory for price). Trough diffuser assembly (15544) (contact factory for price). Additional scrap basket, high impact polymer with1/4" (6.35 mm) screen, (4) ergonomic handles, for any PowerRinse model (15427A) (contact factory for price).	InSinkErator, PRT	Salvajor	Floor		Variable	Variable	Variable	208/3	20	60				Yes			3/4"	3/4"			2" direct			
9.15	Dishwashing (55.7 nsm)	Digester	1	Vendor to size unit to suite capacity	ORCA		Floor					120	20	60		Plug								2" indirect			

APPENDIX 1H(I) FOOD SERVICES EQUIPMENT LIST

9.15	Dishwashing (55.7 nsm)	Rack Machine	1	Pro Series, 66"W rack conveyor dishwasher, with 22" pre-wash, Vent-less Heat Recovery technology, Proportional Rinse, Progressive anti-jam drive system, top mounted Prodigy series HMI user interface, Proactive maintenance software, 100 gallons per hour with energy sentinel (idle pump shut-off), (209) racks per hour, built-in 70° rise booster, electric tank heat, single-piece hood design, single-piece stainless steel upper & lower wash arms manifolds, internal removable scrap basket & dual-piece scrap screens, 20" standard vertical clearance which accommodate 18" x 26" sheet pans, full 90° opening leak proof insulated hinged access doors, automatic tank fill, door safety switches, leak-proof ball valve drains, lower front & side enclosure panels, stainless steel heavy gauge construction including base & legs, electric tank heat, 2 HP wash pump, single point machine & separate booster connection, vent fan control, stainless steel rear manifolds, NSF, CULus, Made in USA (consult factory for price). 1 year parts & labor warranty, standard. Dual point electrical connection (1) machine (2) built-in booster (completed in the field by certified electrician) (standard). Direction of operation to be specified. Electric tank heat, standard. Electric booster, 70° rise, built-in. Drain water tempering kit (un-mounted). Table limit switch, button style (unmounted).	Champion, 66 PRO VHR	Hobart	Floor		70.0	90.0	32.0	3 connections at 208-240/3	200	60		Direct		Yes			2 @ 3/4"	1 @ 3/4"			2" indirect			
9.15	Dishwashing (55.7 nsm)	Clean Dishtabling	1	S.S. clean dish table at discharge end to hold minimum of 5 dishracks. Provide all necessary limit switches and interconnections to dish machine and soiled dish table. Dishtable, clean, straight design, 84" LH, right-to-left, 9" splash, H-frame legs, 14/300 stainless steel construction, NSF. Fixed Undershelf, 18 gauge stainless steel	Bi-Line, Custom Fabricated	Aerowerks	Floor																				
9.15	Dishwashing (55.7 nsm)	Wash down hose system	1	36" long spray gun with s/s wand and moulded heat resistant grip. Adjustable spray nozzle for high/low pressure. 6' inlet supply hose. Inline water filter. Stainless steel wall mounted bracket with sturdy shelf. Bypass unloader valve allows unit to idle and recirculate. Three inch locking casters and rear wheels designed for wet conditions. Non-marking yellow Sage™ branded high pressure hose, either 30', 50' or 75' as standard, or 100' as an option. Stainless steel commercial quality construction casing. Pressure relief valve maintaining safe maximum pressure. Thermal relief valve prevents overheating. Autochem feature allows automatic switching from Chemical to rinse at the spray valve. Plug and play electrical connectors for easy upgrade and servicing options. De-liming assembly. Full service and warranty support. Proven tried and tested designs for commercial applications. Soap and sanitizer pump options for efficient chemical meterage. Hot water capability up to 71°C (160°F) inlet temperature. Three pressure options, 600,	Fisher	T&S Brass	Wall Mount														1/2"	1/2"						
9.15	Dishwashing (55.7 nsm)	Hand sink	1	Hand Sink, wall mount, 13-1/2"Wide x 9-3/4" front-to-back x 6-3/4" deep bowl, 304 stainless steel construction, complete with electronic hands free splash mount gooseneck faucet, P-trap & tail piece, basket drain, deep-drawn seamless design-positive drain, inverted "V" edge, NSF.	Eagle Group, HSA-10-FA-PE	Tarrison	Wall Mount		14.5	18.5	12.8	120/1	2	60		Hardwire Connection		Yes			1/2"	1/2"			1 1/2" direct			
9.15	Dishwashing (55.7 nsm)	Organics Bins	4	Rubbermaid® Brute® Container, round, open type, 20-gallon capacity, high-impact plastic construction, green. Rubbermaid® Brute® Lid, round, for 20 gallon, Brute container, blue. Rubbermaid® Brute® Dolly, for 20, 32, 44 & 55 gallon Brute containers, black.	Rubbermaid	Brute	Mobile																				
9.15	Dishwashing (55.7 nsm)	Soak Sink (Mobile)	2	Soak Sink, portable, 34" working height, sink outlet fitted with quick-release drain, 22" x 22" x 12" deep fabricated sink compartment, stainless steel construction, casters, accommodates 19-3/4" x 19-3/4" dishwasher baskets (by others), Perforated bottom strainer plate, stainless steel, removable, sits 1" above bottom of sink, fits Advance Tabco Fabricated 22" x 22" sink bowls only. Removable Chute only, for mobile & silver soak sinks. Corner Bumpers, for mobile, silver soak sinks & mobile super utensils (set of 4)	Advance Tabco, 9-FMS-12	Custom Fabricated	Mobile		24.0	24.0	30.0																
9.15	Dishwashing (55.7 nsm)	Shelving unit	1	Constructed of steel with removable polypropylene overlays or polyester, thermoplastic/polypropylene construction, Construction to be corrosion resistant and coated with ant-microbial substance, Minimum dimensions to be 24" wide, All units to include cart washable casters, two locking, Minimum four tiers of shelves, Shelves to be adjustable. Typically 48 or 60" long,	Metro, Max Q	Cambro	Floor		Variable	18.0	72.0																
9.13	Soiled Cart Parking (13.9 nsm)	Soiled Tray Return Cart	2	Mobile, NSF rated, stainless steel constructed tray delivery cart			Mobile		24.0	26.0	64.0																
9.18	Clean Cart Holding (13.9 nsm)	Stainless steel hand sink	1	Hand Sink, wall mount, 13-1/2"Wide x 9-3/4" front-to-back x 6-3/4" deep bowl, 304 stainless steel construction, complete with electronic hands free splash mount gooseneck faucet, P-trap & tail piece, basket drain, deep-drawn seamless design-positive drain, inverted "V" edge, NSF.	Eagle Group, HSA-10-FA-PE	Tarrison	Wall Mount		14.5	18.5	12.8	120/1	2	60		Hardwire Connection		Yes			1/2"	1/2"			1 1/2" direct			
9.18	Clean Cart Holding (13.9 nsm)	Soiled Tray Return Cart	2	*Mobile, NSF rated, stainless steel constructed tray delivery cart*			Mobile		24.0	26.0	64.0																
9.16	Cart Wash (16.7 nsm)	Stainless steel trench drain	2	Stainless steel construction, type 304, #4 finish, Length and width to suit design x 6" deep, All radius corners, 1.6mm stainless steel pan Honeycomb or other patterned grating, removable in sections, Provide strainer at all drains.	Custom Fabricated	Custom Fabricated	Floor		Dimension based on layout	Dimension based on layout	Dimension based on layout													2 @ 3" direct drain to grease trap			
9.16	Cart Wash (16.7 nsm)	Stainless steel wall cladding	1	2.0mm type 304 stainless steel wall cladding to be wall mounted where impact of moisture resistance is required by design.	Custom Fabricated	Custom Fabricated	Wall		Dimension based on layout	Dimension based on layout	Dimension based on layout																
9.16	Cart Wash (16.7 nsm)	Hose reel with chemical injection	1	36" long spray gun with s/s wand and moulded heat resistant grip. Adjustable spray nozzle for high/low pressure. 6' inlet supply hose. Inline water filter. Stainless steel wall mounted bracket with sturdy shelf. Bypass unloader valve allows unit to idle and recirculate. Three inch locking casters and rear wheels designed for wet conditions. Non-marking yellow Sage™ branded high pressure hose, either 30', 50' or 75' as standard, or 100' as an option. Stainless steel commercial quality construction casing. Pressure relief valve maintaining safe maximum pressure. Thermal relief valve prevents overheating. Autochem feature allows automatic switching from Chemical to rinse at the spray valve. Plug and play electrical connectors for easy upgrade and servicing options. De-liming assembly. Full service and warranty support. Proven tried and tested designs for commercial applications. Soap and sanitizer pump options for efficient chemical meterage. Hot water capability up to 71°C (160°F) inlet temperature. Three pressure options, 600,	Fisher	T&S Brass	Wall mount														1/2"	1/2"						
9.16	Cart Wash (16.7 nsm)	Compressed Air with Hose and Nozzle	1	To allow for drying of carts. Compressed clean air. External to cart wash			Wall mount														1/2"						
9.20	Housekeeping Closet (5.6 nsm)	Janitor sink	1	Janitor sink: 20" x 16" x 12" deep mop sink with drain, overhead shelf, rear-mounted mop holder with (2) locking cams, service faucet with vacuum breaker and 120" hose, 18/300 stainless steel			Floor		20.0	28.0	16.0										1/2"	1/2"			2" direct			
9.20	Housekeeping Closet (5.6 nsm)	Chemical storage shelf	1	Constructed of steel with removable polypropylene overlays or polyester, thermoplastic/polypropylene construction, Construction to be corrosion resistant and coated with ant-microbial substance, Minimum dimensions to be 24" wide, All units to include cart washable casters, two locking, Minimum four tiers of shelves, Shelves to be adjustable. Typically 48 or 60" long.	Metro, Max Q	Cambro	Floor		Varies based on layout of room	18.0	72.0																
9.20	Housekeeping Closet (5.6 nsm)	Wall mounted sink	1	Hand Sink, wall mount, 13-1/2"Wide x 9-3/4" front-to-back x 6-3/4" deep bowl, 304 stainless steel construction, complete with electronic hands free splash mount gooseneck faucet, P-trap & tail piece, basket drain, deep-drawn seamless design-positive drain, inverted "V" edge, NSF.	Eagle Group, HSA-10-FA-PE	Tarrison	Wall Mount		14.5	18.5	12.8	120/1	2	60		Hardwire Connection		Yes			1/2"	1/2"			1 1/2" direct			
9.20	Housekeeping Closet (5.6 nsm)	Housekeeping cart	1	Lodgix™ Essentials Housekeeping Cart, 60"L, standard 42"H, modular design, linen bag with hookless mount (1) center shelf, push handles, Polymer construction, 8" non-marking wheels. Under deck vacuum holder - Lodgix carts. Center compartment adjustable shelf - Lodgix carts. Side storage kit - standard height Lodgix carts. Locking door kit for side storage - standard height Lodgix carts. Waste Can, with Waste can holder - standard height Lodgix carts. Vinyl-coated nylon laundry bag - standard height Lodgix carts. Divider Tote Box, natural polypropylene, stackable, gray. Roller, corner bumper - Lodgix carts	Metro, LXHK3-ESS	Rubbermaid	Mobile		50.0	22.0	40.0																
Various	Refrigerations System	Mini Rack Refrigeration System		Rack Refrigeration System to support Rooms 9.04, 9.05, 9.09, 9.10, 9.11 and 9.27																								
Med IP Unit																											
25.78	In Patient Servery / Pantry	Stainless steel table	1	Stainless steel construction, type 304, #4 finish, Length to suit design x 30" wide x 34" high, stainless steel top with stainless steel or galvanized steel sub-top, Hat channel reinforcement to be stainless steel or galvanized steel on centre, Legs to be stainless steel , tubing or square welded to subtop, Stainless steel cross bracing as required, Sound deadening as required, Backsplash to include radius coved corner, splayed to wall where required, Bullet feet for tables without m/e services, flanged feet secured to floor with s.s. fasteners for tables with m/e services, S.S. drawers.	Custom Fabricated	Custom fabricated	Floor		Varies based on layout - typically 60" to 72"	30.0	36.0	120/1	15	60				Yes										
25.78	In Patient Servery / Pantry	S.S. Work Table with Sink	1	Stainless steel construction, type 304, #4 finish, Length to suit design x 30" wide x 34" high, stainless steel top with 2.0mm stainless steel or galvanized steel sub-top, Hat channel reinforcement to be stainless steel or galvanized steel on centre, Sink to be minimum 18" x 16" x 12" deep complete with hot and cold water faucet with swing spout, Legs to be stainless steel, tubing or square welded to subtop, Stainless steel cross bracing as required, Sound deadening as required, Backsplash to include radius coved corner, splayed to wall where required, Bullet feet for tables without m/e services, flanged feet secured to floor with s.s. fasteners for tables with m/e	Custom Fabricated	Custom Fabricated	Floor		Varies based on layout - typically 60" to 72"	30.0	36.0	120/1	15	60				Yes			1/2"	1/2"			1 1/2" indirect			
25.78	In Patient Servery / Pantry	Microwave Oven	1	Amana® Commercial Microwave Oven, 0.6 cu. ft. capacity, 1200 watts, heavy volume, 4-stage cooking, (11) power levels, (100) memory settings, 60-minute max cooking time, LED display, touch control, interlock safety switch, ADA compliant Braille touch pads, audible end of cycle signal, side hinged door with tempered glass, sealed ceramic interior shelf, lighted interior, stainless steel exterior & interior, 120v/60/1-ph, 16.8 amps, 20 MCA, 2000 watts (total), NEMA 5-20P, cETLus, ETL-Sanitation, 5-year full warranty	Amana, HDC12A2	Panasonic						120/1	20	60				Yes										
25.78	In Patient Servery / Pantry	S.S. Wall Mounted Microwave Shelving	1	2.0mm type 304 stainless steel wall cladding to be wall mounted where impact of moisture resistance is required by design.	Custom Fabricated	Custom fabricated	Wall Mount		Variable	12.0	Variable																

25.78	In Patient Servery / Pantry	Meal Tray Retherm and Delivery Cart	2	Unit to consist of a Base Station and mobile Pod. Base station to be floor mounted and to be made of 304 stainless steel with anit-static high impact thermoplastic decorative panel. Top and back section holds mechanical and electrical components. Convected heat and self contained refrigeration with forced air. (refrigeration unit to be air cooled) Top section can be raised or lowered to accept different size tray carriers. Tray carrier nests under the top section. Easy to reach control panel. Bretwise compatible. The Pod to be insulated tray carrier made of 304 stainless steel with foam in place insulation. Unit be be able to hold 30 trays. Divider wall separates hot and cold section of the flat tray. Heavy duty wrap around bumpers. Nests under the base station with ease. Tunnel washable, ergonomic	Burlodge Bpod		Floor/Wall		48	30	65	208/3	25	60				Yes										
25.78	In Patient Servery / Pantry	Reach in Dual Temp Double Door Refrigerator / Freezer	1	Spec-Line Refrigerator/Freezer Dual Temp Cabinet, reach-in, 48" wide, self-contained refrigeration, stainless steel exterior, aluminum interior, standard depth cabinet, (2) lockable full-height doors, (3) adjustable wire shelves per section, interior LED lighting, microprocessor controls, 1/5 HP & 1/3 HP, cULus, NSF. 3 year service/labor, 5 year compressor warranty, standard. 115v/60/1ph, 12.6 amps, with cord & NEMA 5-20P, standard. Left door hinged left/right hinged right, std. Locking hasp, padlock supplied by others, per door. Stainless steel back with rear louvers (not available on pass-thrus).	Traulsen, ADT232DUT-FHS	True Manufacturing	Floor		65	36	90	120/1	20	60				Yes										
25.78	In Patient Servery / Pantry	Utility Cart	1	MW Standard Duty Utility Cart, (3) solid shelves, open base, shelf size 36"W x 24"D, tubular stainless steel frame with (2) push handles, with (4) swivel/ resilient tread casters, NSF.	Metro, MW208	Rubbermain	Mobile		24.0	36.0	40.0																
25.78	In Patient Servery / Pantry	Soiled Tray Return Cart	4	Mobile,nesting style racks sized to accommodate trays	Burlodge BHATZ2-XXXX-30-3.5.		Mobile																				
25.78	In Patient Servery / Pantry	Hot Water Dispenser	1	39100.0005 HSX-DV PC Hot Water Dispenser, dual voltage, 5 gallon portion control, electronic temperature control 212° F, (3) programmable volume settings, push & hold continuous dispense button, 120v, 120/208v, 120/240v/60/1-ph, 1850/3050/4050 watts, 15.4/14.7/16.9 amps, UL, NSF. 39000.0001 EQHP-10L Easy Clean® Medium/High Water System, 10,000 gallon, reduced sediment, chlorine taste & odor, 1.5 gpm, scale inhibitors with "L" model, equipment protection, 10 micron, includes: a head assembly, integral mounting bracket and cartridge filter, Quick Connect, NSF.	Bunn, HSX-DV	Fetco	On Stainless Steel Table		20.0	10.0	30.0	120/1	30	60				Yes			1/4"							
25.78	In Patient Servery / Pantry	Conveyor Toaster	1	Toast-Qwik® Conveyor Toaster, horizontal conveyor, countertop design, all bread types toaster, approximately 30 slices capacity/min, 2" opening height, electronic controls, colorguard sensing system, 4.4 kW, cULus, UL EPH Classified, ANSI/NSF 4, Made in USA. Automatic Power Save Mode (switches to power save mode after 30 minutes of inactivity) (Available at time of purchase only)	Hatco, TQ-1800	Toastmaster	On Stainless Steel Table		20.0	25.0	18.0	208	30	60				Yes										
25.78	In Patient Servery / Pantry	Waste bin with dolly	2	Rubbermaid® Brute® Container, round, open type, 20-gallon capacity, high-impact plastic construction, grey. Rubbermaid® Brute® Lid, round, for 20 gallon, Brute container, blue. Rubbermaid® Brute® Dolly, for 20, 32, 44 & 55 gallon Brute containers, black.	Rubbermaid	Brute	Mobile											Yes										
25.78	In Patient Servery / Pantry	Coffee Brewer and Warmers	1	20900.0011 Dual® Coffee Brewer, Portable, mechanical thermostat, brews 18.9 gallons per hour capacity, stainless steel funnel, 3 batch-size settings, electronic timer & grinder interface, upper hot water faucet, variable water bypass, includes (2) GPR servers (20950.0004), 4" black adjustable legs, 120/240v/60/1-ph, 6890 watts, 29 amps, UL, NSF. 20950.0004 1.5GPR-FF Coffee Server, 1.5 gallon, top handles, fast flow faucet, stainless decor, NSF . 12203.0010 RWS1 Satellite Brewer Warmer, 4" adjustable plastic legs (for use with 1GPR and 1.5GPR servers), 120v/60/1-ph, 100w, 1 amps, cord attached, UL, NSF . 20138.1000 Paper Filters, 13-3/4" x 5-1/4", white, (for Tea & Coffee-1-1/2 gallons) (500 each per case, price based on 1-229 lbs total weight - call for price on greater quantities) . 39000.0005 EQHP-25 Easy Clear® High Water System, 25,000 gallon, reduced sediment, chlorine taste & odor, reduction @ 2.1 gpm, equipment protection, 0.2 micron, includes: a head assembly, integral mounting bracket and cartridge filter, Quick Connect, NSF . 20213.0103 Drip Tray Kit, stainless decor, for use with RWS1 .	Bunn, 20900.0011	Fetco	On Stainless Steel Table					120/208	30	60	Hardwire Connection			Yes			1/4"							
25.78	In Patient Servery / Pantry	Hand Free Hand Sink	1	Hand Sink, wall mount, 13-1/2"Wide x 9-3/4" front-to-back x 6-3/4" deep bowl, 304 stainless steel construction, complete with electronic hands free splash mount gooseneck faucet, P-trap & tail piece, basket drain, deep-drawn seamless design-sensitive drain, inverted "v" edge, NSF.	Eagle Group, HSA-10-FA-PE	Tarrison	Wall Mount		14.5	18.5	12.8	120/1	2	60	Hardwire Connection			Yes			1/2"	1/2"			1 1/2" direct			
25.78	In Patient Servery / Pantry	Ice / Water Dispenser	1	Ice Maker/Water Dispenser, Cubelet-Style, air-cooled, self-contained condenser, production capacity up to 282 lb/24 hours at 70°/50° (215 lb AHRI certified at 90°/70°), 10 lb built-in storage capacity, counter model, push button operation, stainless steel bin & exterior, protected with H-GUARD Plus Antimicrobial Agent, R-404A refrigerant, 4" legs, 115v/60/1-ph, 8.5 amps, NEMA 5-15P (optional stand sold separately), NSF, UL. Warranty: 3-Year parts & labor on entire machine. Warranty: 5-Year parts on compressor, air-cooled condenser. Equipment Stand, for icemaker/dispensers, cabinet base with locking door, stainless steel, corrosion resistant exterior, with flat top, with painted flanged legs, for use with Model #DCM-270 (-OS), ETL-Sanitation. Complete with water filter.	Hoshizaki, DCM-270BAH	Scotsman	Floor					120/1	20	60				Yes			1/2"				1 1/2" direct			
25.78	In Patient Servery / Pantry	Undercounter Dishwasher	1	Dishwasher, undercounter, 24"W x 26-3/4"D x 29-7/8"H (ADA compliant), high temperature sanitizing, with Heat Recovery Condensate Removal, Dry Assist & StemsSure™ soft start to protect glasses & dishes from chipping & breaking, (30) racks per hour capacity, 120 second cycle, top mounted precise digital temperature display & Vari-cycle controls, 12"H door opening, stainless steel top & side panels, insulated booster & panels, detergent & rinse aid pumps, automatic drain cycle, pumped drain, built-in electric booster for 180°F final rinse water (standard 66°F/82°C rise), rinse sentry – extends the cycle time to ensure 180°F final rinse, (1) peg rack, (1) flat rack, 1 HP wash pump motor, Multi-Power – includes: Multi-Volt & Multi-Phase (Allows for infield conversion to 208-240 volt and/or single to three phase with ease), NSF, cETLus, ENERGY STAR®. 1 year parts & labor warranty, standard. 115/208v/60/1-ph, 3 wire plus ground. Drain water tempering kit (universal) (unmounted for field installation). Door Interlock, keeps door locked until the heat recovery cycle is complete (factory installed) .	Champion, UH330ADA	Hobart	Floor		30	30	32	208/1	40	60		Hardwire Connection					1/2"	1/2"			1 1/2" direct			
Psych IP Unit																											
33.24	Retherm Kitchen / Servery	S.S. Work Table with Sink	1	Stainless steel construction, type 304, #4 finish, Length to suit design x 30" wide x 34" high, stainless steel top with 2.0mm stainless steel or galvanized steel sub-top, Hat channel reinforcement to be stainless steel or galvanized steel on centre, Sink to be minimum 18" x 16" x 12" deep complete with hot and cold water faucet with swing spout, Legs to be stainless steel, tubing or square welded to subtop, Stainless steel cross bracing as required, Sound deadening as required, Backsplash to include radius coved corner, splayed to wall where required, Bullet feet for tables without m/e services, flanged feet secured to floor with s.s. fasteners for tables with m/e services, S.S. drawers	Custom Fabricated	Custom Fabricated	Floor		Varies based on layout - typically 60" to 72"	30.0	36.0	120/1	15	60				Yes			1/2"	1/2"			1 1/2" indirect			
33.24	Retherm Kitchen / Servery	Microwave Oven	1	Amana® Commercial Microwave Oven, 0.6 cu. ft. capacity, 1200 watts, heavy volume, 4-stage cooking, (11) power levels, (100) memory settings, 60-minute max cooking time, LED display, touch control, interlock safety switch, ADA compliant Braille touch pads, audible end of cycle signal, side hinged door with tempered glass, sealed ceramic interior shelf, lighted interior, stainless steel exterior & interior, 120v/60/1-ph, 16.8 amps, 20 MCA, 2000 watts (total), NEMA 5-20P, cETLus, ETL-Sanitation. 5-year full warranty	Amana, HDC12A2	Panasonic						120/1	20	60				Yes										
33.24	Retherm Kitchen / Servery	S.S. Wall Mounted Microwave Shelving	1	2.0mm type 304 stainless steel wall cladding to be wall mounted where impact of moisture resistance is required by design.	Custom Fabricated	Custom fabricated	Wall Mount		Variable	12.0	Variable							Yes										
33.24	Retherm Kitchen / Servery	Reach in Dual Temp Double Door Refrigerator / Freezer	1	Spec-Line Refrigerator/Freezer Dual Temp Cabinet, reach-in, 48" wide, self-contained refrigeration, stainless steel exterior, aluminum interior, standard depth cabinet, (2) lockable full-height doors, (3) adjustable wire shelves per section, interior LED lighting, microprocessor controls, 1/5 HP & 1/3 HP, cULus, NSF. 3 year service/labor, 5 year compressor warranty, standard. 115v/60/1ph, 12.6 amps, with cord & NEMA 5-20P, standard. Left door hinged left/right hinged right, std. Locking hasp, padlock supplied by others, per door. Stainless steel back with rear louvers	Traulsen, ADT232DUT-FHS	True Manufacturing	Floor		65	36	90	120/1	20	60				Yes										
33.24	Retherm Kitchen / Servery	Roll in Single Door Refrigerator	1	Spec-Line Refrigerator, Roll-in, One-Section, self-contained refrigeration, stainless steel exterior, aluminum interior, standard depth cabinet, full-height doors, accepts 72" high racks (by others) with microprocessor controls, 1/3 HP, cULus, NSF. 1 years parts & labour, 5 year compressor warranty, standard. Self-Contained refrigeration standard. Vertically mounted LED light tube lights (refrigerator only). Stainless Steel finished back with rear louvers.	Traulsen, ARI132HUT-FHS	True Manufacturing	Floor		36	36	90	120/1	20	60				Yes										
33.24	Retherm Kitchen / Servery	Bulk Retherm Cart	1	The Multigen 105 Series advances sleek, contemporary, functional design that's engineered for the most rigorous conditions. Notable features include the curved, tempered glass sneeze-guard and stainless steel doors. The gantry houses the LCD Control Centre and Food Probe as halogen lights on the unit properly showcase food options. Operators have the option to place condiment containers on top of the gantry or the service railing, while cutlery and other important service items remain within easy reach. As highly dependable and durable equipment that's designed to handle the uncompromising pace of the high capacity food service industry, some of the more notable attributes of the Multigen include: Dual oven technology which substantially improves food quality, temperature and presentation, reduced energy consumption, minimal heat loss, LCD Electronic Controls with HACCP and/or Online Monitoring System, Smartcard User Access ID, Cleaning Cycle. Optional Gantry with heating and lighting system for enhanced food presentation and temperature retention, Air Curtain System, Temperature probe linked to menu with ½ degree accuracy.	Burlodge, Multigen	Hatch			52	30	56	208/3	20	60				Yes										
33.24	Retherm Kitchen / Servery	Rapid cook oven	1	(MerryChef (Garland Canada)) eikon™ Oven, Accelerated Cooking Technology™, 29", electric microwave-convection combination, multi-stage programming (3 stages per program) and up to 99 menu items, touch screen control, accepts 1/4" metal pans, ventless cooking, 6.2kW, 208/240v/60/1-ph, 30 amp, NEMA 6-30P, NSF, cULus, CE, ETL, to include stainless steel equipment stand.	Merry Chef, E4	Turbo Chef	On Shelf or Counter		30.0	26.0	32.0	208/240	3	30				Yes										
33.24	Retherm Kitchen / Servery	Utility Cart	1	MW Standard Duty Utility Cart, ~~MW100 series~~ (3) solid shelves, open base, shelf size 36"W x 24"D, tubular stainless steel frame with (2) push handles, with (4) swivel/ resilient tread casters, NSF.	Metro, ~~MW100~~ MW208	Rubbermain	Mobile		24.0	36.0	40.0																
33.24	Retherm Kitchen / Servery	Soiled Tray Return Cart	2	Mobile,nesting style racks sized to accommodate trays	Burlodge BHATZ2-XXXX-30-3.5.		Mobile																				

APPENDIX 1H(I) FOOD SERVICES EQUIPMENT LIST

33.24	Retherm Kitchen / Servery	Counter Soup Well	1	SinAqua™ Souper Induction Kettle, 11 quart, adjustable temperature (holding from 140°-200°F / rethermalizing from 170°-200°F), programmable stir notification, touch pad controls with digital temperature display, includes: (1) 11 qt. 18/8 stainless steel soup tureen & lid, spun aluminum exterior construction and high-gloss polycarbonate fascia & tureen liner, 200-240/50/60/1-ph, 4.0 amps, 0.8kW, cord, NEMA 6-20P, cETLus, NSF, CE. Two year limited parts and labor warranty in US/Canada only and 7 year enrollment in the CookTek Advanced Replacement Program (ARP). - 4ZX2001 Brushed aluminum finish	CookTek, 676201	Hatco	On Stainless Steel Table		12.0	12.0	18.0	120/1	15	60				Yes										
33.24	Retherm Kitchen / Servery	Hot Water Dispenser	1	39100.0005 HSX-DV PC Hot Water Dispenser, dual voltage, 5 gallon portion control, electronic temperature control 212° F, (3) programmable volume settings, push & hold continuous dispense button, 120v, 120/208v, 120/240v/60/1-ph, 1850/3050/4050 watts, 15.4/14.7/16.9 amps, UL, NSF. 39000.0001 EQHP-10L Easy Clear® Medium/High Water System, 10,000 gallon, reduced sediment, chlorine taste & odor, 1.5 gpm, scale inhibitors with "L" model, equipment protection, 10 micron, includes: a head assembly, integral mounting bracket and cartridge filter, Quick Connect, NSF.	Bunn, HSX-DV	Fetco	On Stainless Steel Table		20.0	10.0	30.0	120/1	30	60				Yes			1/4"							
33.24	Retherm Kitchen / Servery	Conveyor Toaster	1	Toast-Qwik® Conveyor Toaster, horizontal conveyor, countertop design, all bread types toaster, approximately 30 slices capacity/min, 2" opening height, electronic controls, colorguard sensing system, 4.4 kW, cULus, UL EPH Classified, ANSI/NSF 4, Made in USA. Automatic Power Save Mode (switches to power save mode after 30 minutes of inactivity) (Available at time of purchase only)	Hatco, TQ-1800	Toastmaster	On Stainless Steel Table		20.0	25.0	18.0	208	30	60				Yes										
33.24	Retherm Kitchen / Servery	Waste bin with dolly	1	Rubbermaid® Brute® Container, round, open type, 20-gallon capacity, high-impact plastic construction, grey. Rubbermaid® Brute® Lid, round, for 20 gallon, Brute container, blue. Rubbermaid® Brute® Dolly, for 20, 32, 44 & 55 gallon Brute containers, black.	Rubbermaid	Brute	Mobile											Yes										
33.24	Retherm Kitchen / Servery	Coffee Brewer and Warmers	1	20900.0011 Dual® Coffee Brewer, Portable, mechanical thermostat, brews 18.9 gallons per hour capacity, stainless steel funnel, 3 batch-size settings, electronic timer & grinder interface, upper hot water faucet, variable water bypass, includes (2) GPR servers (20950.0004), 4" black adjustable legs, 120/240/60/1-ph, 6890 watts, 29 amps, UL, NSF. 20950.0004 1.5GPR-FF Coffee Server, 1.5 gallon, top handles, fast flow faucet, stainless decor, NSF . 12203.0010 RWS1 Satellite Brewer Warmer, 4" adjustable plastic legs (for use with 1GPR and 1.5GPR servers), 120v/60/1-ph, 100w, 1 amps, cord attached, UL, NSF . 20138.1000 Paper Filters, 13-3/4" x 5-1/4", white, (for Tea & Coffee-1-1/2 gallons) (500 each per case, price based on 1-229 lbs total weight - call for price on greater quantities) . 39000.0005 EQHP-25 Easy Clear® High Water System, 25,000 gallon, reduced sediment, chlorine taste & odor, reduction @ 2.1 gpm, equipment protection, 0.2 micron, includes: a head assembly, integral mounting bracket and cartridge filter, Quick Connect, NSF. 20213.0103 Drip Tray Kit, stainless decor, for use with RWS1 .	Bunn, 20900.0011	Fetco	On Stainless Steel Table					120/208	30	60		Hardwire Connection		Yes			1/4"							
33.24	Retherm Kitchen / Servery	Juice machine	1	37300.0000 JDF-4S Silver Series® 4-Flavor Cold Beverage System, (3) 12 oz. drinks/min capacity, 2-modular dispense decks, 18 lb. ice bank, 7" cup clearance, dispense 1.0 to 1.5 ounces per second flow rate, pumps & mixes 2+1 to 11+1 concentrated beverages, 4+1 high viscosity & 5+1 juices, dispenses frozen and ambient products, High Intensity™ mixing technology, push button and portion control, door lock, juice display, 120v/60/1-ph, 6 amps, NEMA 5-15P, NSF, ETL . 39000.0004 EQHP-10 Easy Clear® Medium/High Water System, 10,000 gallon, reduced sediment, chlorine taste & odor, 1.5 gpm, equipment protection, 10 micron, includes: a head assembly, integral mounting bracket and cartridge filter, Quick Connect, NSF. 39000.1004 EQHP-10CRTG Easy Clear® Cartridge, high performance. 37309.0000 Drip Tray Drain, for Gourmet Juice® System.	Bunn, 37309.0000	By Vendor	On beverage station		24.0	28.0	30.0	120/1	15	60				Yes			1/2"				1 1/2" indirect			
33.24	Retherm Kitchen / Servery	Hand Free Hand Sink	1	Hand Sink, wall mount, 13-1/2"Wide x 9-3/4" front-to-back x 6-3/4" deep bowl, 304 stainless steel construction, complete with electronic hands free splash mount gooseneck faucet, P-trap & tail piece, basket drain, deep-drawn seamless design-positive drain, inverted "L" edge, NSF.	Eagle Group, HSA-10-FA-PE	Tarrison	Wall Mount		14.5	18.5	12.8	120/1	2	60		Hardwire Connection		Yes			1/2"	1/2"			1 1/2" direct			
33.24	Retherm Kitchen / Servery	Ice / Water Dispenser	1	Ice Maker/Water Dispenser, Cubelet-Style, air-cooled, self-contained condenser, production capacity up to 282 lb/24 hours at 70°/50° (215 lb AHRI certified at 90°/70°), 10 lb built-in storage capacity, counter model, push button operation, stainless steel bin & exterior, protected with H-GUARD Plus Antimicrobial Agent, R-404A refrigerant, 4" legs, 115v/60/1-ph, 8.5 amps, NEMA 5-15P (optional stand sold separately), NSF, UL. Warranty: 3-Year parts & labor on entire machine. Warranty: 5-Year parts on compressor, air-cooled condenser. Equipment Stand, for icemaker/dispensers, cabinet base with locking door, stainless steel, corrosion resistant exterior, with flat top, with painted flanged legs, for use with Model #DCM-270 (-OS), ETL-Sanitation. Complete with water filter.	Hoshizaki, DCM-270BAH	Scotsman	Floor					120/1	20	60				Yes			1/2"				1 1/2" direct			
33.24	Retherm Kitchen / Servery	Undercounter Dishwasher	1	Dishwasher, undercounter, 24"W x 26-3/4"D x 29-7/8"H (ADA compliant), high temperature sanitizing, with Heat Recovery Condensate Removal, Dry Assist & StemsSure™ soft start to protect glasses & dishes from chipping & breaking, (30) racks per hour capacity, 120 second cycle, top mounted precise digital temperature display & Vari-cycle controls, 12"H door opening, stainless steel top & side panels, insulated booster & panels, detergent & rinse aid pumps, automatic drain cycle, pumped drain, built-in electric booster for 180°F final rinse water (standard 66°F/82°C rise), rinse sentry – extends the cycle time to ensure 180°F final rinse, (1) peg rack, (1) flat rack, 1 HP wash pump motor, Multi-Power – includes: Multi-Volt & Multi-Phase (Allows for infield conversion to 208-240 volt and/or single to three phase with ease), NSF, cETLus, ENERGY STAR®. 1 year parts & labor warranty, standard. 115/208v/60/1-ph, 3 wire plus ground. Drain water tempering kit (universal) (unmounted for field installation). Door Interlock, keeps door locked until the heat recovery cycle is complete (factory installed) .	Champion, UH330ADA	Hobart	Floor		30	30	32	208/1	40	60		Hardwire Connection					1/2"	1/2"			1 1/2" direct			
33.24	In Patient Servery / Pantry	Breakfast Cart	1	The mobile service system has multiple drawers for holding baskets, hotel pans, or ingredient containers . China can be carried on-board in three standard 500mm square cup baskets. Units are to hold trays, cups and food ingredients. Complete with on-board water boiler, fre-flow "one click" beverage crystal dispenser, basket, bins and condiment containers.	Burlodge, Breakfast Cart	Hatch	Mobile		22.0	45.0	53.0	120	15	60		Plug												

APPENDIX 1H(II)

LAUNDRY EQUIPMENT LIST

Mills Memorial Hospital

Preliminary Laundry Equipment List - DBA Execution Draft v1

Value Engineering Exercise

3.21 Laundry Services

FP#	Room Name	Description	Qty	Long Description	Base Manufacturer and Model	Alternative Equivalent Manufacturers	Mounting	Max Weight (lbs)	Ship Weight (lbs)	Width (in)	Depth (in)	Height (in)	Volts	Amps	Hz	Watts	Plug Type	BTU/hr	Air Connection	Air Pressure	Water Connection	Water - Cold	Water - Hot	Inlet Water	Steam	Drain	Vent	Gas	Item Notes
		20 Pound Washer	1	Unit to Provides optimal wash performance with deep-water wash and rinse cycle options and vigorous cleaning action. Traditional flex-vane agitator with four distinct wash profiles—from aggressive to gentle—designed to pull clothes from the top to the bottom of the wash basket. PowerWash cycle provides more agitation for the dirtiest loads. Mechanical controls provide a simple user interface with robust, easy-to-use knobs. Enhanced design of the triple-lip seal and stainless-steel shaft, in addition to the premium bearings, delivers reliability and consistency. ½-HP PSC motor and quad-gear transmission create an efficient wash for	Maytag, MAT20MN	Samsung	bolted to floor			26	30	43	208	15	60		3 phase					3/4"	3/4"			2"				Concrete pad
		20 Pound Dryer	1	7.4-cu.-ft. capacity allows for large loads to be dried effectively and efficiently. Optimal drying experience maximizes facility productivity. Mechanical controls provide a simple user interface with robust, easy-to-use knobs. Designed to provide consistent and dependable drying, cycle after cycle. Possesses the strength and craftsmanship required for the traffic of a commercial laundry environment. Boosts durability and aesthetics. Sleek, one-piece full-metal console is robust and easy to clean. Protects internal components from unexpected liquids or vapors. Easy to remove, streamlining service by providing fast access to internal components. Provides users unhindered access while loading and unloading clothes. Offers convenience and optimal flexibility for a given space.	Maytag, MDE20MN	Samsung	bolted to floor			28	47	64	208	15	60		3 phase	73,000			3/4" F.N.P.T						650 CFM	1/2" NPT	
		Linen Carts for Mills Memorial	45	Convertible Linen Truck, 3-sided top frame, 70"H, 60"W x 24"D, standard duty, stainless steel, aluminum tubes, open wire design (2) 6P & (1) pair BL6P, Super Erecta® Cart Push Handle, 24"L, chrome plated finish. METRO® Cart Cover, 60"W x 24"D x 74"H, uncoated knitted polyester with pvc	Metro, 24X60X74UC	Cambro	on casters																			
		MIP Carts for Wards, ER and ICU	8	Laundry Cart, 12 bushel capacity, heavy duty polyurethane lift-out tub, silver finish steel tube frame, full wrap-around grey vinyl bumper, (4) 5" dia. grey wheels (2 rigid, 2 swivel casters). Corner Bumpers, revolving, grey (factory installed). Spring lift insert. Upgrade to all swivel casters	Forbes industries, 1179-B	Metro	on casters																			
		Mesh Bags for MIP carts	488	mesh bags for MIP carts																								

Excludes escalation beyond 2019

SCHEDULE 2

REVIEW PROCEDURE

1. SUBMITTAL SCHEDULE

1.1 The parties agree that the preliminary schedule for Submittals (the "**Submittal Schedule**") is included in the Time Schedule that is included in the Proposal Extracts, and that the Submittal Schedule will conform to the requirements identified in the Design-Build Agreement and the applicable schedules. The Submittal Schedule may be amended by agreement of the parties in accordance with the terms of this Section 1. Any amendment to the Submittal Schedule will provide for a progressive and orderly flow of Submittals from the Design-Builder to the Authority as appropriate to allow sufficient time for review of each Submittal by the Authority, taking into account both the resources necessary to be available to the Authority to conduct such review and any user group consultations.

1.2 Unless a longer period is required by this Agreement or is otherwise reasonably required by the Authority, the Submittal Schedule will allow a minimum of:

(a) 15 Business Days for the Authority's review of Submittals submitted in relation to the Design pursuant to this Schedule, or

(b) 10 Business Days for the Authority's review of other Submittals,

from the date of receipt for review of and response to each Submittal, provided that if the Design-Builder has made major changes to the grouping and volume of Submittals, such period of time will be adjusted, acting reasonably, taking into account the factors set forth in this Section 1.

1.3 The Design-Builder will in scheduling Submittals and in the performance of the Design and the Construction, allow adequate time prior to performing the Design and the Construction that are the subject of the Submittals, for review of the Submittals and for the Design-Builder to make changes to the Submittals, the Design and the Construction that may be required if comments are received on the Submittals.

1.4 If the Submittal Schedule indicates that a large number of Submittals will be made at one time, the Authority may request a longer period for review or a staggering of the Submittals, and the Design-Builder will revise the Submittal Schedule accordingly, taking into account both the availability of resources required by the Authority to conduct such review and whether delay in the review of the subject matter of the Submittal will have a material impact on the Design-Builder's ability to progress future anticipated Submittals and the Design or Construction in accordance with the Time Schedule.

1.5 The Design-Builder will submit the Submittal Schedule, including amendments prior to the start of Construction and, subsequently, to the Authority on a monthly basis until Substantial Completion of the Project is achieved.

1.6 All amended Submittal Schedules will be required to meet all the requirements of this Section 1.

1.7 The Design-Builder will submit all Submittals to the Authority in accordance with the current amended Submittal Schedule.

1.8 The Design-Builder will bear the risk of delays and additional costs caused as a result of the late submission of Submittals to the Authority, by Submittals which are rejected and required to be re-submitted in accordance with the terms of this Schedule 2 – Review Procedure, or by changes in the Design and Construction required as a result of comments made pursuant to this Schedule 2 – Review Procedure.

2. GENERAL REQUIREMENTS FOR SUBMITTALS

2.1 Unless otherwise specified by this Agreement or by the Authority, the Design-Builder will issue an electronic copy of each Submittal in .pdf format or other format agreed by the parties acting reasonably. Unless otherwise required by this Agreement or by applicable Law to be signed or sealed at the time the Submittal is first provided to the Authority, upon assignment of the comment "REVIEWED" by the Authority of each Submittal the Design-Builder will issue a paper copy (or an electronically sealed copy if agreed by the Authority) of the Submittal that has been sealed by the Design-Builder's Consultant as required by Section 2.4 below.

2.2 The Design-Builder will compile and maintain a Submittal log that includes the date, contents and status of the submission of all Submittals, including the date, contents and status of the submission of all Submittals, including the date of receipt and content of all returned Submittals and comments thereon.

2.3 All Submittals will be in English.

2.4 All Submittals, and all amended versions of Submittals, required by this Agreement or by applicable Law to be signed or sealed by persons with professional designations (including where applicable by registered professional architects or engineers) will be so signed and, where applicable, sealed, and will include confirmation by such person or persons that the Work proposed by the Submittal meets the requirements of the Agreement, including the Statement of Requirements.

2.5 All Submittals will include all documents to be reviewed and will clearly identify the purpose of the Submittal, the Design-Builder's proposed course of action relating to the Submittal and the Design and the Construction that are the subject of the Submittal.

2.6 All Submittals will refer to the relevant provisions of Schedule 1 – Statement of Requirements and to any matter that has previously been subject to review. All Submittals will:

(a) be clearly identified as a Submittal and will be delivered with appropriate covering documentation, which will include a list of all attached Submittals and for each Submittal the document number(s) or drawing number(s);

(b) include revision numbers (if applicable);

(c) include document or drawing title(s);

(d) include name of entity that prepared the Submittal;

(e) include details of the Submittal log showing date and delivery information and/or log number of all previous submissions of that Submittal; identification of any previous Submittal superseded by the current Submittal, and a description of the portions of the Submittal that are the subject of review.

3. COMMENTS

3.1 The Authority will review and respond to each Submittal in accordance with the applicable time periods for the Submittal.

3.2 The Authority will return Submittals to the Design-Builder and assign one of the following comments:

(a) "REVIEWED";

(b) "CORRECT DEFICIENCIES";

(c) "REJECTED"; or

(d) "NOT-REVIEWED".

3.3 The comment "REVIEWED" will be assigned to those Submittals that, in the opinion of the Authority, acting reasonably, conform to the requirements of this Agreement. The Design-Builder will comply with and implement such Submittals.

3.4 The comment "CORRECT DEFICIENCIES" will be assigned to those Submittals that, in the opinion of the Authority, acting reasonably, generally conform to the requirements of this Agreement, but in which minor deficiencies have been found and identified by the Authority's review. The Design-Builder will, to the extent necessary, correct these Submittals and provide a copy of such Submittals to the Authority before the Design-Builder implements the portions of such Submittals that have received comments, but may proceed on the portions of such Submittals that have not received comments. The Design-Builder will comply with and implement such corrected Submittals. If at any time it is discovered that the Design-Builder has not corrected the deficiencies on Submittals that were correctly stamped "CORRECT DEFICIENCIES", then the Design-Builder will be required to modify the Submittals, the relevant Design and the Construction as required to correct the deficiencies and the Design-Builder may be required, at the Authority's discretion, acting reasonably, to resubmit relevant Submittals.

3.5 The comment "REJECTED" will be assigned to those Submittals that, in the opinion of the Authority, acting reasonably, contain significant deficiencies or do not conform with the requirements of this Agreement, including this Schedule 2 – Review Procedure. The Design-Builder will correct and re-submit these Submittals within 10 Business Days after the comment has been provided to the Design-Builder. The Authority will then review such corrected Submittals and assign a comment to the corrected Submittal. The Submittals will be corrected, revised and resubmitted as often as may be required to obtain a comment that permits the Design-Builder to proceed. Except with the written consent of the Authority, the Design-Builder will not proceed with any Design or Construction to which such Submittals receiving the comment "REJECTED" relate until the Design-Builder obtains a comment that permits the Design-Builder to proceed.

3.6 The comment "NOT-REVIEWED" will be assigned to those Submittals that, in the opinion of the Authority, acting reasonably, are not required to be reviewed pursuant to this Agreement, including this Schedule 2- Review Procedure. The Submittal will be returned to the Design-Builder with no action taken by the Authority.

3.7 The Authority may request additional time for the review of any Submittal, including where the Submittal is voluminous or requires extensive review by representatives (including consultants) of

the Authority, and the Design-Builder will extend such time for any reasonable requests by the Authority.

3.8 If the Authority does not respond to a Submittal within the applicable time periods for the Submittal, the Submittal will be deemed "REVIEWED" and the Design-Builder may proceed with and implement the Design and the Construction on the basis set forth in the applicable Submittal without any further action or documentation required.

3.9 Where the Authority issues the comment "CORRECT DEFICIENCIES" or "REJECTED", the Authority will provide reasons for the comment, referencing the particulars of the Section(s) of the Agreement (including the Statement of Requirements) that the Submittal fails to satisfy.

3.10 If at any time after assigning any comment to a Submittal or where Section 3.8 of this Schedule has applied, the Authority or the Design-Builder discovers deficiencies or any failure to conform to the requirements of this Agreement, the Authority may revise the comment assigned to any Submittal. If the parties agree or it is determined in accordance with Section 63 (Dispute Resolution) of the Agreement that the revised comment is correct, the Design-Builder will make all such corrections to the Submittals and the Design and the Construction.

3.11 For the purpose of facilitating and expediting the review and correction of Submittals, the Authority's Representative and the Design-Builder's Representative will meet as may be mutually agreed to discuss and review any outstanding Submittals and any comments thereon.

3.12 In lieu of returning a Submittal, the Authority may by letter notify the Design-Builder of the comment assigned to the Submittal and if such comment is "CORRECT DEFICIENCIES" or "REJECTED" the letter will contain comments in sufficient detail for the Design-Builder to identify the correction sought.

4. USER CONSULTATION PROTOCOL

4.1 The Design-Builder acknowledges that review of the Design by the Authority and consultation with the Facility users is an essential step in the completion of the detailed design of the Facility. Accordingly, the Design-Builder will conduct consultations with representatives of the Facility users (the "**User Consultation Groups**") as described in this Schedule 2 – Review Procedure. The Authority will make reasonable efforts, as requested by the Design-Builder, to assist and support the Design-Builder with the consultation process, but nothing in this Section 4 will be interpreted to give the Authority responsibility for the Design, the Design schedule or the user consultation process.

4.2 The Authority will establish User Consultation Groups that may include the Authority, the Authority's Representatives, employees, agents, contractors and subcontractors, physicians, nurses, other clinicians, patients, visitors, students and volunteers. The Authority may also from time to time include residents, families and neighbours in the user consultation process.

4.3 Unless agreed by the Authority, all aspects of the Design will be subject to review by one or more User Consultation Groups.

4.4 The User Consultation Groups will include a User Consultation Group designated as the "Core User Group" with responsibility for coordinating the Design review process with the Design-Builder.

4.5 Unless otherwise agreed, Submittals will be provided and reviewed in accordance with the following:

(a) Draft Submittal to the Authority:

(i) The Design-Builder will provide a draft Submittal as indicated on the Submittal Schedule that includes all relevant material with a covering transmittal indicating the purpose of the Submittal, and the information that should be reviewed by the Authority and the User Consultation Groups.

(ii) All changes from a previous Submittal should be clearly indicated in accordance with Section 7 of this Schedule 2 – Review Procedure.

(b) User Consultation Group:

(i) 5 Business Days following the draft Submittal, the Design-Builder will present the relevant material at a meeting of the relevant User Consultation Group(s).

(ii) The presentation will be made in person by the Architect or, if the Authority agrees, the Design-Builder's engineer or other subject matter expert.

(iii) The Design-Builder's presentation will include a page-by-page review of the draft Submittal.

(iv) The Design-Builder must be in attendance, preferably in person but teleconference is acceptable.

(v) During the presentation, a representative of the Design-Builder will take "live minutes" so that all parties can agree on the content of the minutes during the meeting. The Design-Builder will circulate the minutes immediately after the meeting to all parties and within 3 Business Days the Design-Builder must circulate formal minutes for review. If the Authority notifies the Design-Builder of any errors in the minutes, the Design-Builder will correct such errors within 3 Business Days of the Authority's notice.

(c) Informal Comments from the Authority:

(i) The Authority will provide any informal feedback through to the Design-Builder.

(ii) The Authority will provide additional informal feedback within one week after the presentation, unless the Authority advises the Design-Builder in writing. The period will not exceed two weeks unless agreed with the Design-Builder.

(d) Formal Submittal to the Authority:

(i) The Design-Builder will make the formal Submittal within 10 Business Days following the presentation (or 5 Business Days after receiving additional informal feedback).

(ii) If the Design-Builder does not address the feedback received at the presentation or subsequently provided by the Authority, the Design-Builder will provide commentary on the reasons for not addressing the feedback.

(e) Formal Response from the Authority:

(i) The Authority will respond within 15 Business Days following the formal Submittal in accordance with this Schedule 2 – Review Procedure.

4.6 The process set out in this Section 4 will be set out in the Submittal Schedule.

4.7 The parties acknowledge that Design development is an iterative and interactive process and that additional User Consultation Group review and meetings may be required from those shown on the Submittal Schedule. The parties will co-operate to amend the Submittal Schedule as may be required from time to time to ensure that sufficient consultations with the User Consultation Group in relation to each component of the Design (and changes to the Design resulting from such consultations) are completed prior to the Design-Builder making the formal Submittal.

4.8 The Authority and the Design-Builder will not be bound by the consultations with the User Consultation Groups, unless reflected in the formal Submittal and comments from the Authority.

4.9 If the Design-Builder considers that compliance with any comment raised by a User Consultation Group member would lead to a Change, the Design-Builder will, before taking into account such comment or objection, notify the Authority. If it is agreed by the Authority that such comments or objections would lead to a Change then the procedure as detailed in Part E- CHANGES of the Design-Build Agreement will apply. In all cases, the parties will cooperate to identify potential alternative solutions to any comments or objections raised that would not lead to a Change.

4.10 The User Consultation Group consultation meetings will be held in Terrace, BC, or another location designated by the Authority, at a space made available by the Authority.

5. DISPUTES

5.1 If the Design-Builder disputes any comment issued by the Authority in respect of a Submittal, including on the basis that the comment is or would result in a Change, the Design-Builder will promptly notify the Authority of the details of such Dispute and will submit the reasons why the Design-Builder believes a different comment should be assigned, together with appropriate supporting documentation. The Authority will review the Submittal, the reasons and supporting documentation and within 7 Business Days after receipt thereof will either confirm the original comment or notify the Design-Builder of a revised comment. Nothing in this Section 5 will limit either party's right to refer a Dispute for resolution in the first instance to the Authority's Consultant under Section 63 (Dispute Resolution) of the Agreement.

6. EFFECT OF REVIEW

6.1 Any review of and comment by the Authority on any Submittals are for general conformity to the obligations and requirements of this Agreement, and any such review and comment will not relieve the Design-Builder of the risk and responsibility for the Design and the Construction and for meeting all of its obligations and requirements of this Agreement, and will not create any new or additional obligations or liabilities for the Authority. Without limiting the generality of the foregoing any and all errors or omissions in Submittals or of any review and comment will not

exclude or limit the Design-Builder's obligations or liabilities in respect of the Design or the Construction under this Agreement or exclude or limit the Authority's rights in respect of the Design and the Construction under this Agreement.

7. SUBMITTAL EXPLANATION

7.1 At any time, the Authority may, acting reasonably, require the Design-Builder, including the Design-Builder's Consultant, Subcontractors and any other relevant personnel, at no additional cost to the Authority, to explain to the Authority and the Authority's advisors the intent of the Design-Builder's Submittals, including in relation to any design and any associated documentation and as to its satisfaction of the Statement of Requirements.

8. REVISIONS

8.1 The Design-Builder will ensure that Submittals keep the same, unique reference number throughout the review process, and that all subsequent revisions of the same Submittal are identified by a sequential revision number and identified and tracked in the Submittal log. Correspondence related to such Submittal will reference the reference number and revision number.

8.2 Re-submittals will clearly show all revisions from the previous Submittal. Bound documents, including reports and manuals, will contain a preface that clearly states how revisions are marked and the previous revision number against which the revisions have been marked and highlighted within the document. A consistent format for mark-ups of documents will be used (e.g. deletions struck out and additions underscored). Revised portions of drawings will be clearly marked (with appropriate means to visually distinguish between the parts of the drawing that are revised and the parts that are not revised) and the revision number and description of the revision will be included on the drawing.

8.3 All revisions on print media will be initialed by hand by the individual designer, design checker and, where applicable, by the drafter and the drafting checker and will identify the persons who initialed the Submittal. Electronic versions of the Submittal will identify the persons who initialed the revisions to the printed version of the Submittal.

8.4 The Design-Builder will keep all Drawings and Specifications current. If any Drawings and Specifications are revised as part of a Submittal, all other Drawings and Specifications relying on or based on those Drawings and Specifications will also be revised accordingly. All such revised Drawings and Specifications will also be submitted with the Submittal to which it relates.

9. AUDIT BY THE AUTHORITY

9.1 Without limiting any other right under the Agreement, the Authority will have the right to audit all Submittals, including comparing all Submittals to previous Submittals.

9.2 If during an audit or at any other time it is discovered by the Authority or the Design-Builder that any Submittals were not correctly implemented, the Design-Builder will at its sole cost immediately take all necessary steps to correct and modify the applicable Submittals and the Design and Construction to which they relate and will advise the Authority of all such corrections and modifications.

SCHEDULE 3

MANAGEMENT SYSTEMS AND PLANS

1. GENERAL

1.1. Capitalized Terms

Capitalized terms used in this Schedule have the definitions as set out in the Design-Build Agreement (the "**DBA**") to design and build the Facility in Terrace, British Columbia between the Authority, and the Design-Builder, or as set out in other Schedules to the DBA, as applicable, unless expressed otherwise. Unless otherwise provided, references to Section numbers are references to Sections in this Schedule.

2. REQUIREMENTS

The following general requirements are applicable to all Management Systems and Plans listed below unless indicated otherwise:

2.1. Content of Plans

The content of this Schedule 3 [Management Systems and Plans] will be in addition to drafts of certain Management Systems and Plans included in this Agreement and the provisions of this Agreement.

This Schedule is to be read as supplementary to cross-reference the requirements of this Agreement including Schedule 1 [Statement of Requirements] and in accordance with all procedures set out in the DBA.

2.2. Development of Plans and Update Timing

All Management Systems and Plans are to be developed and updated as indicated in the DBA, this Schedule and in accordance with the Schedule 2 [Review Procedure].

2.3. User Engagement and Review Process

User engagement in developing and in reviewing each Management System and Plan will be in accordance with Schedule 2 [Review Procedure].

2.4. Cost Implications

Management Systems and Plans are a key element in success of the Work and the Authority has assigned a monetary value related to the development and execution of each Management System and Plan in accordance with final Reviewed version. The payment for completing the plans and holdbacks will be applied in accordance with Schedule 7 [Schedule of Prices].

For purposes of applying the monetary amounts in the table below, the Authority will in its discretion, acting reasonably, use the following guidelines:

(a) The value assigned to submission of the first draft of the applicable detailed Management System and Plan will be withheld from payment until the Management System and Plan is submitted as per the content requirements described in this Schedule;

(b) The value assigned for receipt of the final Management System and Plan with "Reviewed" will be withheld from payment until the Management System and Plan achieves 'Reviewed' status in accordance with the provisions of Schedule 2 [Review Procedure]; and

(c) The value deducted from a payment for non-compliance with a Management System and Plan will be determined by the Authority based on the severity of the non-compliance as described below:

(i) Severe – could potentially cause injury, project delay, or cost to the Authority if not rectified;

(ii) Significant – could potentially cause a minor delay, additional user engagement, or inconvenience, and include failure to achieve 'Reviewed' status 30 days after the required dates as indicated in the table;

(iii) Minor – not material as a standalone incident but indicative of a lack of care, poor supervision or diligence in delivering a high quality project; and

(iv) Repeat – same or similar incident reported in sequential months or an incident unresolved in a subsequent month. Also include failure to achieve 'Reviewed' status 60 days after the required dates as indicated in the table. Note that the value of a repeat non-compliance is not related to level of severity.

Each incident of non-compliance will be assigned an amount as indicated in the table. For non-compliances related to each plan, the Authority may make only one deduction in any six month period in relation to that plan. The deduction will be made for the non-compliance with the highest level of deduction amount. The Authority will only make deductions for non-compliances communicated in writing to the Design-Builder prior to the end of the month and not cured to the satisfaction of the Authority, acting reasonably, within 30 days after the end of that month. If a non-compliance is rectified to the satisfaction of the Authority before the payment invoice is submitted, the amounts related to the corrected non- compliance will not be deducted.

The deductions set out for non-compliance with certain plans do not limit any other remedies of the Authority for non-compliances with those plans or for non-compliances with other plans for which no deduction is set out.

2.5. Amending Plans

All Management Systems and Plans can be amended with the Authority's approval through the sequential review process described in Schedule 2 [Review Procedure] and in accordance with the DBA or, if it is determined that a plan cannot be followed for justifiable reasons acceptable to the Authority and it is necessary to make amendments outside the normal usual Review Procedure, the Design-Builder may request consideration of an amendment with supporting reasons. Until the Authority indicates that the proposed amendment is acceptable, all provisions of this Schedule, including deductions, will apply.

Plan	Plan Details	Reviewed Status as per Schedule 2	Monthly Deduction for Non-Compliance with Reviewed Plan
Quality Management Plan	The Quality Management Plan (set out in Section 9 of this Agreement) means the plan outlining the requirements for quality management including quality control and quality assurance with respect to the Work. A draft of such plan will be included in the Proposal Extracts, together with such changes to the plan that are prepared by the Design-Builder and submitted to the Authority under the Review Procedure for approval The plan will satisfy the following: i. meet all applicable requirements of this Agreement; ii. outline the procedures to be implemented to ensure robust and thorough quality control and quality assurance by the Design-Builder and its Subcontractors; iii. clearly indicate the processes, testing, certification and auditing that will be performed to verify all parts of the Work comply with this Agreement; iv. clearly indicate the timing of the elements of the plan itself and the documentation to demonstrate compliance that will be obtained by the Design-Builder and its Subcontractors and provided to the Authority; v. include all processes, testing, certification, auditing and documentation reasonably required by the Authority's Consultant; and vi. ensure that the Work will meet the requirements of this Agreement.		Severe - Significant - Minor - Repeat -
Energy Management Plan	The Energy Management Plan means the plan which implements the requirements set out by the Authority within Schedule 9 [Energy and Carbon Guarantees] of this Agreement within the design and construction of the Facility. Requirements regarding energy consumption monitoring, energy guarantees, carbon guarantees and environmental credits will be outlined within such plan in accordance with the requirements of this Agreement and the Authority. The Design-Builder will, with each Submittal under the Review Procedure, identify any impacts on the energy guarantees, carbon guarantees or the assumptions set out in Appendix 1, for review by the Authority.		N/A

Infection Prevention and Control Plan	The Infection and Prevention Control Plan means the plan developed by the Design-Builder in compliance with all applicable infection control standards. This plan is required by the Authority for the purpose of designing the building to mitigate and prevent, where possible, the spread of infection, movement of dust, debris and control moisture through the selection of materials, form of construction and design of the Facility.		Severe - Significant - Minor - Repeat -
Project Management Plan	The Project Management Plan means the management plan that (i) sets out a high-level work plan to describe the manner in which the Design-Builder will manage the Project, including to address related matters such as traffic management and communications, and (ii) is prepared by or for the Design-Builder and submitted to the Authority for review and approval. The Project Management Plan will include, but is not limited to: i. all Site preparation; ii. Construction of the Facility, including the requirements and timing for construction and commissioning (including all systems and equipment); iii. demolition; iv. Site landscaping; v. parking, access and traffic flows, including maintaining adequate vehicle, delivery and pedestrian access; and vi. compliance with all requirements of the Agreement.		Severe - Significant - Minor - Repeat - Note: Deductions may be made in any six month period for non-compliances with the Project Management Plan or the Construction Plan, but not for both in the same month.
Health and Safety Plan	The Health and Safety Plan means a plan that sets out applicable requirements of this Agreement with respect to health and safety at the Site and that addresses the safety of the Authority, patients and others who may be on the Site or on property in the vicinity of the Site. Requirements of the Design-Builder will include, but are not limited to: i. provide safety fencing and hoarding as necessary to limit access to the Site in accordance with requirements of the Authority; ii. ensure plan is consistent with and accommodates any requirements of, the Authority's policies regarding safety; iii. ensure plan specifically addresses the safety of the Authority, patients, visitors and others who may be on the Site or on property in the vicinity of the Site; iv. maintain and comply with such plan in all material respects during execution of the Work; and		N/A

	v. provide health and safety orientation in accordance with this Health and Safety Plan prior to any person accessing the Site pursuant to the Agreement. The Design-Builder acknowledges that: (1) Northern Health Authority's Health and Medical Services Plan Best Management Guide for Industrial Camps and requirements of the Office of Health and Resource Development (in this Schedule, the "Camp Requirements") apply to any workforce camp or worker accommodation provided by the Design-Builder or its Subcontractors despite this Project not being an industrial or resource development project; and (2) the Camp Requirements, including any approvals given under those Camp Requirements, are made by Northern Health Authority in its capacity as a health authority and not in its capacity as a party under this Agreement. Refer to: - https://www.northernhealth.ca/sites/northern_health/files/services/office-health-resource-development/documents/industrial-camps-BMG.pdf - https://www.northernhealth.ca/services/programs/office-health-and-resource-development#covid-19-communications-to-industry-partners#guidance-documents The Health and Safety Plan will include requirements to demonstrate compliance with the Camp Requirements.		
Construction Plan	The Construction Plan means the Design-Builder's plan for the construction of the Work which plan will include, but is not limited to, the construction staging plan setting out construction scheduling, phasing, laydown areas and storage, trailer areas, trailer locations, priorities as to site use, ingress/egress and will address the guidelines and requirements for similar matters pertaining to the Work pursuant to the requirements of this Agreement and the Authority. In addition, procedures for the assignment of responsibilities, safety precautions and programs applicable to the Work will be set out within this plan.		Severe - Significant - Minor - Repeat - Note: Deductions may be made in any six month period for non-compliances with the Project Management Plan or the Construction Plan, but not for both in the same month.

Strategic Communication Plan	The purpose of the Strategic Communication Plan is to ensure the public and other stakeholders remain involved and informed about the progress, value and benefits of the Project. The project communication plan means the plan prepared by the Authority which sets out the roles and requirements of the Design-Builder and the Authority pursuant to the Authority's best practices regarding communications, specifically communications planning, Indigenous engagement and community relations. The Design-Builder will be provided with the project communication plan prepared by the Authority and applicable to this Project and will support the implementation of the strategies and activities listed within such plan. The Design-Builder will lead the development with respect to an overall Strategic Communication Plan for the Project which will include plans for communications, Indigenous engagement, local supplier, employment and contractor engagement, community relations, consultation, media relations and emergency communications. The Design-Builder and the Authority will play either lead or supporting role within each of the categories of the Strategic Communication Plan. The Strategic Communication Plan will include : 1. Identifying opportunities for procurement and contracting on a competitive basis; 2. Apprenticeship programs; and 3. Monthly reporting.		N/A
Commissioning Plan	The Commissioning Plan means a detailed testing and commissioning plan that is consistent with the requirements for testing and commissioning of the Facility as identified in the SOR. The Commissioning Plan sets out the commissioning activities the Design-Builder intends to carry out to satisfy Section 33 of this Agreement and to achieve Substantial Completion of the Building, Substantial Completion of the Seven Sisters Facility and Substantial Completion of the Project. Such commissioning activities will include, but are not limited to: i. a description of the specific equipment and systems to be tested and commissioned and the associated commissioning requirements, including those to be completed before each of Substantial Completion of the Building, Substantial Completion of the Seven Sisters Facility and Substantial Completion of the Project;		Severe - Significant - Minor - Repeat

	ii. a schedule, related to the Time Schedule, showing the timing of all testing and commissioning activities; and iii. supporting documentation, including as appropriate (a) design calculations and/or assumptions; and (b) manufacturer's specifications. The Design-Builder will retain a qualified independent commissioning agent (acceptable to the Authority, acting reasonably) to test and commission all equipment and systems in the Facility as set out in Section 33 of this Agreement.		

SCHEDULE 4

INSURANCE CONDITIONS

Without restricting the generality of the indemnification provisions in Section 58, insurance and coverage will be arranged and paid for as follows:

1. WRAP-UP LIABILITY INSURANCE

1.1 The Authority will provide, maintain and pay for one or more Wrap-up Liability Insurance each with a limit of inclusive per occurrence, and no less than general aggregate for bodily injury, death, and damage to property including loss of use thereof, product/completed operations liability with a limit of aggregate.

1.2 This insurance will cover the Authority, Design-Builder & Subcontractors, Architects, Engineers, Consultants and anyone employed by them to perform a part or parts of the Work (includes both Construction and Design services, but excludes all professional services, under this Agreement) but excluding suppliers whose only function is to supply and/or transport products to the project site or security protection persons or organizations providing site protection on or at the insured project. The insurance does not extend to any activities, works, jobs or undertakings of the insureds other than those directly related to the Work of this Agreement. The insurance does not extend to any liability arising in relation to any workforce camp or worker accommodation or any related services.

1.3 The insurance will preclude subrogation claims by the insurer against anyone insured hereunder except for claims arising out of the rendering of professional services from any architect, engineer, surveyor, or other professional design consultants.

1.4 The insurance will include coverage for:

(a) Products or Completed Operations Liability for a period of

(b) Blanket Contractual Liability;

(c) Cross Liability;

(d) Contingent Employer's Liability;

(e) Personal Injury Liability;

(f) Shoring, Blasting, Excavating, Underpinning, Demolition, Piledriving and Caisson Work, Work Below Ground Surface, and Grading, as applicable (details of such work must be reported to insurer);

(g) Liability with respect to Non-Owned Licensed Vehicles

(h) Broad Form Property Damage;

(i) Limited Pollution Liability

(j) Employees as Additional Insureds;

(k) Broad Form Tenants Legal Liability

(l) Operation of Attached Machinery; and

(m) Forest Fire Fighting Expenses

1.5 Any applicable deductibles will not exceed per occurrence.

1.6 This insurance will be maintained continuously from commencement of the Work until Substantial Completion of the Building and Substantial Completion of the Seven Sisters Facility, plus cover completed operations for a further period of After Substantial Completion of the Building and Substantial Completion of the Seven Sisters Facility, at the Authority's option, the same policy may either be extended until Substantial Completion of the Project or the Authority may place and maintain a separate policy from Substantial Completion of the Building and Substantial Completion of the Seven Sisters Facility until Substantial Completion of the Project, plus cover for completed operations for further period of in relation to Work that is in addition to the Building.

1.7 If the Project involves hot roofing work for renovations or existing structures, the Design-Builder will take out and maintain in force, or will cause to be taken out and maintained, commercial general liability insurance which will include the following:

(a) coverage in an amount not less than inclusive per occurrence and in the aggregate against bodily injury, personal injury and property damage and including liability assumed under this Agreement;

(b) include the Authority as an additional insured;

(c) be endorsed to provide the Authority with advance written notice of adverse material change or cancellation;

(d) include a cross liability clause; and

(e) this policy will be treated as primary coverage and the Authority's Wrap-Up Liability Insurance will be treated as excess coverage. This insurance shall be maintained continuously from commencement of hot roofing work until such work is completed.

2. PROFESSIONAL LIABILITY INSURANCE

2.1 The Design-Builder or the Design-Builder's Consultant during the term of this Agreement will provide and maintain continuously from the commencement of the Work, until 2 (two) years after Substantial Completion of the Project, the following insurance which will be placed with such company or companies and in such form and amounts and with such deductibles as may be acceptable to the Authority:

(a) Project Specific Professional Errors and Omissions Liability Insurance, protecting the Design-Builder or the Design-Builder's Consultant, sub-consultant(s) and their respective servant(s), agent(s) or employee(s) against any loss or damage arising out of the Design under this Agreement. Such insurance will be for the adequate amount acceptable to the

Authority and will in any event be not less than per claim and with a limit of aggregate, such limits to be dedicated specifically to the Project;

2.2 This insurance will be endorsed to provide the Authority with advance written notice of cancellation.

3. PROPERTY COVERAGE INSURANCE

3.1 The Authority will provide, maintain and pay for Course of Construction coverage, against "All Risks" of direct physical loss or damage including flood and earthquake, and will cover all materials, property, structures and equipment purchased for, entering into, or forming part of the Work whilst located anywhere within Canada and continental United States of America during construction, erection, installation and testing, but such coverage will not include coverage for Design-Builder's and Subcontractors' equipment of any description. Such coverage will be maintained until Substantial Completion of the Building or the Seven Sisters Facility, as applicable. No coverage will be provided for the Work that is in addition to the Building or the Seven Sisters Facility, as applicable. No coverage will be provided for any workforce camp or worker accommodation.

(a) Deductibles, per occurrence, will not exceed the following amounts; if more than one deductible applies, the highest one will apply:

i. For floods,

ii. For water damage and sewer back up,

iii. Design Error, LEG3

iv. For earthquakes, the greater of of the total project value insured;

v. For testing and commissioning, and

vi. For all other insured perils,

(b) Waiting period deductibles, per occurrence, not exceeding the following amounts to be applied separately from any property damage deductible:

i. For soft costs, a waiting period for each month of the project duration subject to a minimum waiting period of

3.2 The coverage will include as a protected entity, each Design-Builder, Subcontractor, Architect or Engineer who is engaged in the Project.

3.3 The coverage will contain a waiver of the Authority's rights of subrogation against all protected entities except where a loss is deemed to have been caused by or resulting from any error in design or any other professional error or omission, or manufacturers (not employees of the insured).

3.4 The Design-Builder will, at his own expense, take special precaution to prevent fires occurring in or about the Work and will observe, and comply with, all insurance policy warranties and all laws and regulations in force respecting fires.

3.5 At the Authority's option, the same policy may apply to both (1) the portion of the Work that is the Building and (2) the Seven Sisters Facility, or the Authority may place and maintain a separate policy for each of (1) the portion of the Work that is the Building and (2) the Seven Sisters Facility.

3.6 If the Course of Construction coverage does not include inland transit in Canada and/or the continental United States of America, the Authority or the Design-Builder, at the Authority's cost, will provide inland cargo insurance within Canada and the continental United States of America, as applicable. The Design-Builder will administer and provide all reporting required under such insurance.

4. AUTOMOBILE LIABILITY INSURANCE

4.1 The Design-Builder will provide, maintain and pay for, and require all Subcontractors to provide, maintain and pay for Automobile Liability Insurance in respect of all owned or leased vehicles, subject to limits of not less than inclusive per occurrence. The insurance will be placed with such company or companies and in such form and deductibles as may be acceptable to Authority.

5. AIRCRAFT AND/OR WATERCRAFT LIABILITY INSURANCE

5.1 The Design-Builder will provide, maintain and pay for liability insurance with respect to owned or non-owned aircraft (including unmanned aerial vehicles, uncrewed aerial vehicles or drones) and watercraft if used directly or indirectly in the performance of the Work, subject to limits of not less than inclusive per occurrence for bodily injury, death, and damage to property including loss of use thereof and including Aircraft Passenger Hazard where applicable. The insurance will name the Authority as an additional insured, include a cross liability clause, be endorsed to provide the Authority with advance written notice of cancellation and be placed with such company or companies and in such form and deductibles as may be acceptable to Authority.

5.2 The Design-Builder will provide, maintain and pay for marine cargo insurance covering all materials, equipment and other property supplied under or used during the project and which are critical to performance of the Work if such materials, equipment and other property are conveyed by ocean marine transport. The insurance will include the following terms:

(a) coverage in an amount not less than the full replacement value of the shipment;

(b) coverage for the Design-Builder and all Subcontractors;

(c) include the Authority as an additional named insured;

(d) subject to the conditions of the Institute Cargo Clauses (All Risks), including war and strikes extensions, and including transit and storage where applicable;

(e) if an entire vessel is chartered for shipping materials, equipment or property then charterer’s liability insurance will also be provided in amounts sufficient to protect and

indemnify the Authority, Design-Builder and all Subcontractors from and against all liability arising out of the chartering of such vessel; and

(f) a deductible not exceeding per occurrence;

6. CONTRACTORS POLLUTION LIABILITY INSURANCE

6.1 When applicable (hazardous materials and/or asbestos abatement work), the Design-Builder (or Design-Builder's Subcontractors) will require all Subcontractors to provide, maintain and pay for:

(a) Contractors Pollution Liability insurance, where the Design-Builder's performance (or Design-Builder's Subcontractor's performance) of the work is associated with hazardous materials clean up, removal and/or containment, transit or disposal. This insurance must have a limit of liability not less than inclusive per occurrence insuring against bodily injury, death, and damage to property including loss of use thereof.

Any insurance required under this Section 6 must name the Authority as an additional insured but only with respect to liability arising out of the Design-Builder's performance of the Work. Such insurance shall not be impaired by any time element limitations, biological contaminants (without limitation, mould and bacteria), asbestos, or lead-based paint exclusions. Any "Insured versus Insured" exclusion shall not prejudice coverage for the Authority and shall not affect the Authority's ability to bring suit against the Design-Builder as a third party.

6.2 Any insurance required under this Section 6 must be endorsed to provide the Authority with 30 days' advance written notice of cancellation. If any such insurance is provided on a claims-made basis and that insurance is cancelled or not renewed, such policy must provide a extended reporting period.

6.3 The Design-Builder must cause all Subcontractors to provide to the Authority a Certificate of Insurance confirming all policies and endorsements necessary to comply with the insurance requirements outlined herein, or upon request, a certified copy of the required insurance policy.

7. COMMERCIAL GENERAL LIABILITY INSURANCE

7.1 The following coverage is only required during the period that the Wrap Up Liability Insurance is not in force under Section 1, Wrap-Up Liability Insurance. The Design-Builder will take out and maintain in force, or will cause to be taken out and maintained, commercial general liability insurance which will include the following:

(a) Commercial general liability insurance in an amount not less than inclusive per occurrence against bodily injury, personal injury and property damage and including liability assumed under this Agreement. This insurance must:

i. include the Authority as an additional insured
ii. be endorsed to provide the Authority with advance written notice of adverse material change or cancellation; and
iii. include a cross liability clause.

8. HCPP PROPERTY COVERAGE

8.1 From Commencement of the Work until Substantial Completion of the Building and Substantial Completion of the Seven Sisters Facility, the Authority may take out and maintain in force, or may cause to be taken out and maintained in force, under the HCPP, insurance covering Medical Equipment purchased for, entering into and forming part of the Facility, that is not otherwise covered by the construction property policy, and such policy:

(a) will be made available to the Design-Builder by HCPP and HCPP's obligations under such policy will be supported by an indemnity from the Province of British Columbia in favour of HCPP;

(b) will provide insurance coverage comparable to or better than the coverage required for such equipment under the Property Coverage Insurance as described in Section 3 of this Schedule;

(c) will satisfy the requirements set out in Section 9 of this Schedule; and

(d) will be on terms comparable to or better than those offered by insurers licensed in British Columbia.

Medical Equipment is defined as "medical, diagnostic or imaging equipment".

9. GENERAL

9.1 The description of the Authority arranged insurance described herein is provided on a summary basis only and is not a statement of the actual policy terms and conditions. The Authority does not represent or warrant that the Authority arranged insurance contains insurance for any and all losses. It is the Design-Builder's responsibility to ascertain the exact nature and extent of coverage provided by the Authority arranged insurance, to review all policies pertaining thereto and to obtain any other insurance that it may be prudent for the Design-Builder to obtain.

9.2 The Design-Builder will also provide, maintain and pay for any other insurance that the Design-Builder is required by law to carry, or which the Design-Builder considers necessary.

9.3 Unless specified otherwise, the duration of each coverage and insurance policy will be from the date of commencement of the Work until the date of final certificate for payment.

9.4 The Authority will, upon request, provide the Design-Builder with proof of insurance of those coverages and insurances required to be provided by the Authority prior to commencement of the Work and subsequent certified copy of policies within a reasonable time period thereafter.

9.5 The Design-Builder and/or its Subcontractors, the Design-Builder's Consultants and sub-consultants as may be applicable, will be responsible for any deductible amounts under the policies of coverage and insurance except for perils of flood and earthquake, provided however that the Authority will be responsible for the portion of any deductible, including the waiting period deductible in Section 3.1(b) of this Schedule, that exceeds the amount of a deductible set out in this Schedule.

9.6 The Design-Builder will provide the Authority with proof of insurance for those insurances required to be provided by the Design-Builder (or Design-Builder's Consultant) prior to the

commencement of the Work in the form of a completed Certificate of Insurance and will also provide a certified copy of any required policies upon request.

9.7 The Authority will not be responsible for injury to the Design-Builder's employees or for loss or damage to the Design-Builder's or to the Design-Builder's employees' machinery, equipment, tools or supplies which may be temporarily used or stored in, on or about the premises during construction and which may, from time to time, or at the termination of this Agreement, be removed from the premises. The Design-Builder hereby waives all rights of recourse against the Authority or any other contractor with regard to damage to the Design-Builder's property.

9.8 If the Design-Builder fails to provide, maintain and pay for insurance as required by this Schedule, other than automobile liability insurance, the Authority may obtain and pay for the required insurance, the cost of which will be payable on demand by the Design-Builder. The Authority may offset such amounts from any monies due to the Design-Builder if not paid within

SCHEDULE 5

COMMUNICATION ROLES

The Authority and the Design-Builder will share responsibilities for communications, including community relations, stakeholder consultation, media relations and emergency communications on the terms set out in this Schedule.

1. GENERAL

1.1 The Design-Builder will be guided by the Authority's best practices regarding communications. Unless otherwise specified by the Authority, the governing document relating to best practices will be the disclosure guidance document entitled "Procurement Related Disclosure for Major Infrastructure Projects" posted at www.infrastructurebc.ca.

1.2 The Design-Builder will consult and cooperate with the Authority regarding communications activities relating to the Project.

1.3 The desired outcome of communications activities is to inform and involve the public and other stakeholders about the progress, value and benefits of the Project and to develop and maintain support for the Project.

1.4 Communications strategies and plans involving the interests of both parties are to be prepared on a joint basis, with one party taking a lead role and the other a supporting role, as described in this Schedule.

1.5 Where communications strategies and plans involve the interests of both parties, each party will give the other a reasonable opportunity (taking into account the need for timely communications) to consider communications strategies and plans initiated by the other and, if information is supplied by a party, it should include or be accompanied by sufficient explanatory or other material to enable the information to be properly considered.

1.6 The Design-Builder will consider and, acting reasonably, take into account, public and other stakeholder input in regard to its plans for the Design and Construction.

1.7 This Schedule is a guideline and may be amended by mutual agreement. Non-compliance with this Schedule by either party will not constitute a breach of this Agreement.

1.8 No communication regarding the subject matter of a Dispute, including one resolved under Section 63 (Dispute Resolution) of the Agreement, will be made without the prior written consent of the Authority or the Design-Builder, as the case may be, unless otherwise ordered under the Dispute resolution procedure.

1.9 The Design-Builder acknowledges that FIPPA applies to the Authority, that nothing in this Schedule limits any requirements for compliance with FIPPA and that the Authority may be required to make disclosure of information under FIPPA.

1.10 The Design-Builder acknowledges that the Authority will be free to disclose (including on Websites) this Agreement and any and all terms hereof, except for those portions that would not be required to be disclosed under FIPPA. The Authority will consult with the Design-Builder prior to such disclosure.

1.11 Except for Section 1.10, this Schedule is subject to the parties' obligations in respect of Confidential Information pursuant to Section 66 of this Agreement.

2. CATEGORIES OF COMMUNICATIONS

The following categories of communications are covered by this Schedule and each category applies during the Construction period:

(a) Communications Planning: the Design-Builder will be provided with a copy of parts of the Project Communications Plan prepared by the Authority and applicable to this Project and will support the implementation of the strategies and activities listed in it;

(b) Community Relations: keeping all key audiences including external and internal Project stakeholders (as identified in communications plans) informed, including providing overall Project information, including information about schedule, design, construction (including traffic management), facilities management and other services, using any and all appropriate communications tools and tactics;

(c) Consultation: engaging in discussions with Project stakeholders;

(d) Media Relations: providing media with Project updates and responding to issues raised by the media; and

(e) Emergency Communications: preparing and implementing crisis communications planning and preparedness.

3. LEAD AND SUPPORTING ROLES

3.1 Within each category of communications set out in Section 2 of this Schedule, the Design-Builder will play either a lead or supporting role, working with the Authority to achieve the desired communications outcomes.

3.2 For all categories of communication, and whether communication occurs as part of a lead or supporting role, no advertising that involves payment, by the Design-Builder, to a third party may include the Authority or the Project unless the Design-Builder obtains the prior consent of the Authority, not to be unreasonably withheld or delayed.

4. LEAD RESPONSIBILITIES

The following is an overview of the responsibilities associated with lead roles:

(a) developing an overall strategic communications plan for the Project, that includes plans for communications, community relations, consultation, media relations and emergency communications;

(b) having regard for the input of the supporting party, approving communication plans and tactics in response to specific circumstances, unless otherwise indicated in this Schedule;

(c) implementing its role in approved plans;

(d) achieving the outcomes set out in the strategic communication plan;

(e) maintaining constructive and positive relationships with the public and other stakeholders;

(f) providing information, as required by the supporting party and its team members, to support communication and consultation activities;

(g) as relevant to its lead role, organizing, attending and participating in community and other stakeholder consultation meetings and carrying out other communication activities to consult with and report back to the community and other stakeholders, including open houses, information updates, public displays, advertising, website creation, maintenance updates, construction notices, milestone celebration events, news releases and tours, and directing inquiries to the supporting party as appropriate;

(h) assuming responsibility for costs related to carrying out lead responsibilities to a standard acceptable to the Authority, in the amounts and in the manner approved by the Authority;

(i) monitoring whether the Design and Construction are conducted in a manner consistent with strategic communication plans and advising the parties of any material inconsistency; and

(j) having a trained media relations spokesperson available 24/7 to respond to media requests.

5. SUPPORTING RESPONSIBILITIES

The following is an overview of the responsibilities associated with supporting roles:

(a) assisting with the implementation of plans, including drafting of other communication documents, as directed by the lead party;

(b) implementing its role in approved plans;

(c) maintaining constructive and positive relationships with the public and other stakeholders;

(d) providing information, as required by the lead party and its team members, to support communication and consultation activities;

(e) as relevant to its supporting role, organizing, attending and participating in community and other stakeholder consultation meetings and carrying out other communication activities to consult with and report back to the community and other stakeholders, including open houses, information updates, public displays, advertising, website creation, maintenance updates, construction notices, milestone celebration events, news releases and tours, and directing inquiries to the lead party as appropriate;

(f) assuming responsibility for costs related to carrying out supporting responsibilities to a standard acceptable to the Authority, in amounts and in a manner approved by the Authority; and

(g) having a local, trained media relations spokesperson available 24/7 to respond to media requests.

6. ALLOCATION OF LEAD AND SUPPORTING ROLES

The lead and supporting roles will be allocated as set out in the following table, unless otherwise required by the Authority in consultation with the Design-Builder:

CATEGORY	LEAD	SUPPORTING
Communications Planning	Authority	Design-Builder
Community Relations	Authority	Design-Builder
Consultation	Authority	Design-Builder
Media Relations	Authority	Design-Builder
Emergency Communications Relating to existing Authority employees, programs, services and facilities; and Design-Builder performance	Authority	Design-Builder
Emergency Communications related to Design-Builder Site health and safety	Design-Builder and Authority	Authority
Construction	Authority	Design-Builder
Moves	Authority	Design-Builder
Traffic	Authority	Design-Builder
Noise	Authority	Design-Builder

7. AUTHORITY RIGHT TO STEP IN AT DESIGN-BUILDER'S COST

If the Design-Builder is required to take a lead role but fails to comply with its obligations under this Schedule in any material respect, the Authority may give reasonable notice to the Design-Builder that it intends to undertake and assume the lead role obligations of the Design-Builder, at the expense of the Design-Builder, including all direct costs of engaging third party assistance with communication responsibilities and all direct costs of the Authority in connection with fulfilling the Design-Builder's obligations under this Schedule.

SCHEDULE 6

KEY INDIVIDUALS

Individual's Name	Company Name	Role	Duties
Les Krusel	PCL Constructors Westcoast Inc.	Design-Build Director	Represents the Design-Builder and has overall responsibility to design and build the Project.
Les Krusel	PCL Constructors Westcoast Inc.	Design-Build Design Manager	Representative in charge of oversight of the design-build design team.
Michael King	PCL Construction Management Inc.	Design-Build Construction Manager	Responsible for leading the construction of the Project, and conducting constructability review through the Project's design development process.
John Etcher	HDR Architecture Associates, Inc.	Lead Architect	Responsible for leading the design of the Project.
Kevin Sharples	Smith and Andersen Consulting Engineering	Mechanical Design Engineer Lead	Responsible for leading the mechanical design of the Project.
Simon Aspinwall	Smith and Andersen Consulting Engineering	Electrical Design Engineer Lead	Responsible for leading the electrical design of the Project.
George Moussa	PCL Constructors Westcoast Inc.	Quality Manager	Responsible for the overall quality of the design and construction of the Project.
Langdon Baker	Smith and Andersen Consulting Engineering	Communication (IT) Lead	Responsible for the deployment of Information Technology (IT) and communications infrastructure through design, construction, equipment fit out and commissioning and integration with other systems.

SCHEDULE 7

SCHEDULE OF PRICES

The Contract Price represents the entire compensation to the Design-Builder by the Authority for any and all costs related to the Work, including but not limited to all fees, cash allowances, contingencies and all duties and taxes, excluding GST payable by the Authority to the Design-Builder.

The attached schedule is a breakdown of the Contract Price solely for the purpose of assisting the parties to develop the Schedule of Values, and will not be used or relied upon by the Design-Builder for any purpose.

DBA Schedule 7: Schedule of Prices
Mills Memorial Hospital Redevelopment Project
28-May-21

Period Ending	Expected Monthly Construction Period Payments
Month 1 (Jun 2021)	$
Month 2	$
Month 3	$
Month 4	$
Month 5	$
Month 6	$
Month 7	$
Month 8	$
Month 9	$
Month 10	$
Month 11	$
Month 12	$
Month 13	$
Month 14	$
Month 15	$
Month 16	$
Month 17	$
Month 18	$
Month 19	$
Month 20	$
Month 21	$
Month 22	$
Month 23	$
Month 24	$
Month 25	$
Month 26	$
Month 27	$
Month 28	$
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Month 30	$
Month 31	$
Month 32	$
Month 33	$
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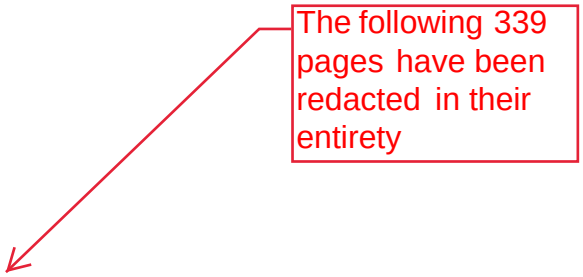
Month 35	$
Month 36	$
Month 37	$
Month 38	$
Month 39	$
Month 40	$
Month 41	$
Month 42	$
Month 43	$
Month 44	$
Month 45	$
Month 46	$
Month 47	$
Month 48	$
Month 49	$
Month 50	$
Month 51	$
Month 52	$
Month 53	$
Month 54	$
Month 55	$
Month 56	$
Month 57	$
Month 58	$
Month 59	$
Month 60	$
Month 61 (Jun 2026)	$
Nominal Cost of the Proposal	**$ 511,489,907**

SCHEDULE 8

PROPOSAL EXTRACTS

Attachment 1: Summary Schedule



SCHEDULE 9

ENERGY AND CARBON GUARANTEES

1. INTERPRETATION

1.1 Definitions

In this Schedule, in addition to the definitions set out in Section 1 of this Agreement:

"**Approved Energy Modeller**" means an individual who is (i) listed on the CaGBC Experienced Modellers List or has the Building Energy Modeling Professional (BEMP) designation, (ii) is approved by the British Columbia Hydro and Power Authority to provide energy models for the BC Hydro Powersmart New Construction Program (if applicable), and (iii) and has experience with EnergyPlus (software) for the purpose of the Project;

"**Building Energy Modeling Professional (BEMP)**" means an individual who has earned the ASHRAE BEMP designation, as listed on ASHRAE website http://certificants.ashrae.org/;

"**CaGBC Experienced Modellers List**" means the most recent version of the Canada Green Building Council's Experienced Modellers List;

"**Carbon Emissions**" for a period means the total amount of carbon equivalent greenhouse gas emissions associated with Energy Consumption during that period, expressed in metric tonnes of equivalent carbon dioxide (tCO2e) and calculated using the following formula:

(tCO2e) = electricity consumption (MWh) x 0.011 tCO2e/MWh +
natural gas consumption (eMWh) x 0.180 tCO2e/eMWh

"**Carbon Guarantee**" has the meaning given in Section 4 of this Schedule;

"**Carbon Target**" means * CFA (m^2) per year (including kitchen and MDRD loads);

"CFA" means conditioned floor area used for evaluating compliance with Energy Target and Carbon Target and equals to total gross building area minus mechanical penthouse area.

"**Cooling Degree Days**" for a period means the figure obtained or calculated from the Site Weather Data setting out the extent to which the average outdoor temperature during that period at the Site was greater than a mean temperature of +18 degrees Celsius;

"**Energy**" means electrical and thermal energy used within, by or for the Facility, including electrical and thermal energy used within, by or for exterior elements connected to the Facility's electrical and thermal systems;

"**Energy Consumption**" for a period means the total amount of Energy consumed during that period, expressed in MWh as reflected by the readings for the metered utilities, whether or not directly from utility providers, and as calibrated by the Independent Energy Consultant;

"**Environmental Credit**" means any income, credit, right, benefit or advantage relating to environmental matters including type and level of emissions (including Carbon), means of production of Energy, input sources and compliance with any environmental laws, regulations, rules or orders;

"**Energy Dashboard**" means a password protected web-accessible tool that can display real time (with up to 2 hour lag time) energy consumption and CO2 emission for a range of time increments (including hourly, daily, monthly, and yearly) and broken down by energy type (electrical and thermal at a minimum) and major end uses, with comparison to the Energy Target;

"**Energy Guarantee**" has the meaning given in Section 3 of this Schedule;

"Energy Model" means the hourly energy simulation model produced using whole building energy modelling software. The energy model shall follow energy methodology appendix and the results of which are used to calculate Energy Consumption and Carbon Emissions and operating cost based on the assumptions in Appendix 1;

"**Energy Modeller**" means a BEMP engaged by the Design-Builder to prepare the Energy Model and confirm associated Energy Consumption and Carbon Emissions;

"**Energy Target**" means * CFA (m^2) per year;

"**Heating Degree Days**" for a period means the figure obtained or calculated from the Site Weather Data setting out the extent to which the average outdoor temperature during that period at the Site was less than a mean temperature of +18 degrees Celsius;

"**EUI**" means the energy use index expressed in KWh/m2/year for end use divided by floor area;

"**Independent Energy Consultant**" means consultant acceptable to the Authority, in the Authority's discretion, acting reasonably, that includes a team of specialized consultants in the following areas: Energy Modeling approved professional, Healthcare Designer, Building HVAC Controls Specialist, and Commissioning and M&V jointly retained by Design-Builder and the Authority, at Design-Builder's cost;

"**Megawatt hour**", or "**MWh**", is the unit of energy to be used throughout this Schedule and 1 MWh is equivalent to 3.6 GJ;

"**Modelled Weather Data**" means the weather data for Terrace, British Columbia;

"Renewable Energy" means energy generated from renewable resources such as solar power or wind power;

"Weather Data" means the actual historic weather data obtained from Environment Canada's "National Climate Data and Information Archive" including but not limited to daily temperature;

"Test Period" means the 18 month period commencing on the first day of the first complete calendar month that is 6 months after the Building Substantial Completion Date.

2. ENERGY CONSUMPTION MONITORING EQUIPMENT

Design-Builder will install equipment, including metering satisfactory to the Authority to measure, record and monitor consumption of Energy in the Building for purposes of the Energy Guarantee and Carbon Guarantee.

Metering equipment must be capable of measuring the input and output energy of major equipment.

Such metering equipment must be suitable and properly calibrated to enable a detailed measurement, recording and monitoring of Energy and to allow analysis of the data collected to enable various matters, including:

(a) comparisons to be made with the Energy Guarantee and Carbon Guarantee;

(b) early warning of malfunctions and deviations from norms; and

(c) to provide an Energy Dashboard to the Authority.

the metering equipment must also be of a suitable quality to provide accurate measurements to within +/-3% within full range of operation (i.e. if a fan system is designed to modulate from 0-2,000 litres/s, the associate flow meter shall provide accurate readings to within +/-3% of this range).

Such equipment must secure all such properly recorded information so that it is not lost or degraded as a result of any equipment or service malfunctions and is secure from adjustment, modification or loss from any source.

Design-Builder will make submission to the Authority for review of the proposed equipment at the Schematic Design stage described in Schedule 1 – Statement of Requirements.

3. ENERGY GUARANTEE

3.1 Facility to Meet or Beat Energy Target

The Design-Builder warrants to the Authority that the Facility will be designed and constructed so that the Energy Consumption per year will not exceed the Energy Target (the "**Energy Guarantee**").

The Energy Target and Energy Guarantee exclude the Seven Sisters Facility.

3.2 Construction Period

The Design-Builder warrants to the Authority that at all times during construction and prior to and including as a condition of Substantial Completion, upon completion of construction in compliance with the current Reviewed Drawings and Specifications, not exceed the Energy Target.

The Design-Builder will, with each Submittal under the Review Procedure, identify any impacts on the Energy Guarantee or the assumptions set out in Appendix 1, for review by the Authority. Any such impacts will not be effective unless agreed in writing by the Authority. If the Design-Builder does not identify any impacts, the Submittal will be deemed to have no impact on the Energy Guarantee or the assumptions set out in Appendix 1.

At each of the following Design stages:

(a) Schematic Design - 30% complete;

(b) Design Development - 60% complete;

(c) Pre-Tender - 95% complete; and

(d) Issued for Construction - 100% complete;

and together with the application for the Certificate of Substantial Completion, Design-Builder will provide an updated Energy Model prepared by the Energy Modeller that demonstrates that the Energy Guarantee will be met.

If the Design-Builder at any time prior to Substantial Completion fails to demonstrate that the Energy Guarantee will be met, Design-Builder will:

(a) revise the Design and re-submit the Reviewed Drawings and Specifications, together with an updated Energy Model prepared by the Energy Modeller demonstrating the Energy Guarantee will be met, to the Authority for review under the Review Procedure; and

(b) modify the Work as required to comply with the revised Reviewed Drawings and Specifications.

The Authority will not be required to make any payment for any Design or Construction that fails to comply with, or will cause Design-Builder to fail to comply with, the Energy Guarantee. The Authority's Consultant will assess any such Design and Construction and apply a holdback for the value of correction of such Design and Construction, until the Design and Construction is modified to comply with the Reviewed Drawings and Specifications that demonstrate that the Energy Guarantee will be met.

The Design-Builder will engage an Energy Modeller who will:

a) review the Energy Model updates and confirm that the Energy Guarantee will be met.

b) ensure the Energy Model is updated on an-ongoing basis with each Submittal and notify Design-Builder and the Authority of changes to the proposed building energy performance and Carbon Emissions resulting from the Submittals; and

c) provide updates relating to the proposed Facility's Energy Consumption and Carbon Emissions to the Authority at regular intervals as required by the Authority.

The Authority reserves the right to require that the Independent Energy Consultant acceptable to the Authority, acting reasonably, be jointly retained by the Authority and the Design-Builder, at the Design-Builder's cost, to review the Energy Model updates and confirm that the Energy Guarantee will be met.

3.3 Monitoring of Energy Consumption during Test Period

During the Test Period, the Design-Builder and the Authority will monitor Energy Consumption in order to determine the Energy Consumption for the Test Period.

3.4 Adjustment to Energy Target

Before the end of the Test Period, the Design-Builder and the Authority will jointly retain the Independent Energy Consultant, at the Design-Builder's cost, to determine whether and to what extent the Energy Target should be adjusted based on factors which, in the Independent Energy Consultant's professional opinion, are applicable, including actual climate conditions, occupancy, equipment use and Authority controlled effects during the Test Period, and differ from the factors taken into account in the energy model assumptions set out in Appendix 1 to this Schedule.

The Independent Energy Consultant will develop a more detailed methodology for such adjustment to the satisfaction of the Authority and the Design-Builder. The Independent Energy Consultant may use the Energy Model or another analytical tool. The detailed methodology will include a simplified summary of inputs, assumptions, and changes reasonably required by each party for purposes of clearly explaining the adjustments.

3.5 Energy Consumption Certificate

At the end of the Test Period, the Independent Energy Consultant will assess whether the Energy Consumption during the Test Period exceeds the Energy Target. Following this assessment, and within 30 days after the end of the Test Period, the Design-Builder will deliver to the Authority a certificate of the Independent Energy Consultant showing:

(a) the Energy Consumption for the Test Period;

(b) the adjusted Energy Target;

(c) the Weather Data for the Test Period, including the number of Cooling Degree Days and Heating Degree Days; and

(d) any other variable that affects or invalidates the Energy Model assumptions set out in Appendix 1 to this Schedule.

3.6 Failure to Achieve Energy Target

If at the end of the assessment outlined in Section 3.5 of this Schedule, the Independent Energy Consultant determines that the Energy Consumption during the Test Period exceeds the Energy Target, the Design-Builder will pay liquidated damages to the Authority in accordance with the following formula:

[Energy Consumption during Test Period (MWh/year) - Energy Target (MWh/year)] x $700/ MWh. The maximum amount of the total aggregate liability of the Design-Builder to the Authority under this Section 3.6 is $3,100,000.

4. CARBON GUARANTEE

4.1 Facility to Meet or Beat Targets

Design-Builder warrants to the Authority that the Facility will be designed and constructed so that the Carbon Emissions per year will not exceed the Carbon Target (the "**Carbon Guarantee**").

The Carbon Target and Carbon Guarantee exclude the Seven Sisters Facility.

4.2 Construction Period

Design-Builder warrants to the Authority that at all times during construction and prior to and including as a condition of Substantial Completion, the Facility will, upon completion of construction in compliance with the current Reviewed Drawings and Specifications, not exceed the Carbon Target.

Design-Builder will, with each Submittal under the Review Procedure and with each Energy Model provided as required by this Section 4.2, identify any impacts on the Carbon Guarantee or the assumptions set out in Appendix 1, for review by the Authority. Any such impacts will not be effective unless agreed in writing by the Authority. If the Design-Builder does not identify any impacts, the Submittal will be deemed to have no impact on the Energy Guarantee or the assumptions set out in Appendix 1.

At each of the following Design stages:

(a) Schematic Design - 30% complete;

(b) Design Development - 60% complete;

(c) Pre-Tender - 95% complete; and

(d) Issued for Construction - 100% complete;

and together with the application for the Certificate of Substantial Completion, the Design-Builder will provide an updated Energy Model prepared by the Energy Modeller that demonstrates the Carbon Guarantee will be met.

If the Design-Builder at any time prior to Substantial Completion fails to demonstrate that the Carbon Guarantee will be met, Design-Builder will:

(a) revise the Design and re-submit the Reviewed Drawings and Specifications, together with an updated Energy Model prepared by the Energy Modeller demonstrating the Carbon Guarantee will be met, to the Authority for review under the Review Procedure; and

(b) modify the Work as required to comply with the revised Reviewed Drawings and Specifications.

The Authority will not be required to make any payment for any Design or Construction that fails to comply with, or will cause Design-Builder to fail to comply with, the Carbon Guarantee. The Authority's Consultant will assess any such Design and Construction and apply a holdback for the value of correction of such Design and Construction, until the Design and Construction is modified to comply with the Reviewed Drawings and Specifications that demonstrate that the Carbon Guarantee will be met.

The Design-Builder will engage an Energy Modeller who will:

(a) review the Energy Model updates and confirm that the Carbon Guarantee will be met;

(b) ensure the Energy Model is updated on an-ongoing basis with each Submittal and notify Design-Builder and the Authority of changes to the proposed building energy performance and Carbon Emissions resulting from the Submittals;

(c) provide updates relating to the proposed Facility's Energy Consumption and Carbon Emissions to the Authority at regular intervals as required by the Authority.

If retained, as set out above, the Independent Energy Consultant will review the Energy Model updates and confirm that the Carbon Guarantee will be met.

4.3 Monitoring of Carbon Emissions during Test Period

During the Test Period, the Design-Builder and the Authority will monitor Carbon Emissions in order to determine the Carbon Emissions for the Test Period.

4.4 Adjustment to Carbon Target

Before the end of the Test Period, the Independent Energy Consultant will be engaged to determine whether and to what extent the Carbon Target should be adjusted based on factors which, in the Independent Energy Consultant's professional opinion, are applicable, including actual climate conditions, occupancy, equipment use and Authority controlled effects during the Test Period, and differ from the factors taken into account in the energy model assumptions set out in Appendix 1 to this Schedule.

The Independent Energy Consultant will develop a more detailed methodology for such adjustment to the satisfaction of the Authority and the Design-Builder. The Independent Energy Consultant may use the Energy Model or another analytical tool. The detailed methodology will include a simplified summary of inputs, assumptions, and changes reasonably required by each party for purposes of clearly explaining the adjustments.

4.5 Carbon Emissions Certificate

At the end of the Test Period, the Independent Energy Consultant will assess whether the Carbon Emissions during the Test Period exceeds the Carbon Target. Following this assessment, and within 30 days after the end of the Test Period, the Design-Builder will deliver to the Authority a certificate of the Independent Energy Consultant showing:

(a) the Carbon Emissions for the Test Period;

(b) the adjusted Carbon Target;

(c) the Weather Data for the Test Period, including the number of Cooling Degree Days and Heating Degree Days; and

(d) any other variable that affects the Carbon Emissions relative to the Energy Model assumptions set out in Appendix 1 to this Schedule.

4.6 Failure to Achieve Carbon Target

If at the end of the assessment outlined in Section 4.5 of this Schedule, the Independent Energy Consultant determines that the Carbon Emissions during the Test Period exceeds the Carbon Target, the Design-Builder will pay liquidated damages to the Authority in accordance with the following formula:

[Carbon Emissions during Test Period (tCO2e/year] - Carbon Target (tCO2e/year)] x $5,000/tCO2e

The maximum amount of the total aggregate liability of the Design-Builder to the Authority under this Section 4.6 is $1,600,000.

5. ENVIRONMENTAL CREDITS

5.1 Entitlement to Environmental Credits

The Authority will be entitled to any and all Environmental Credits related to the Facility and its operation and the Design-Builder will use commercially reasonable efforts to assist the Authority in achieving the maximum Environmental Credits available with respect to the Facility.

APPENDIX 1 TO SCHEDULE 9

[See attached.]

1. ENERGY MODELING METHODOLOGY AND ASSUMPTIONS

The intent of this section and associated Appended tables is to create consistency between proponents by providing clarity regarding modeling methodologies and assumptions, especially related to authority-controlled variables.

1.1 GENERAL

(a) The Design-Builder shall apply the modeling assumptions and methodologies outlined in this Schedule for all energy models and supporting documentation submitted in relation to Energy Management Plan and the Design and Construction Energy Target.

(b) The methodology for producing energy models as described in this appendix shall take precedence over LEED, ASHRAE 90.1-2010 Appendix G Rating Method, NECB Performance Compliance or other protocols. Where not specified herein, follow modelling procedures in accordance with protocols of LEED and ASHRAE 90.1-2010 Appendix G Performance Rating Method.

(c) A 'baseline' or 'reference' building simulation is not required for the Design and Construction Energy Target.

(d) Compliance with the energy target provisions of Schedule 9 is required regardless of simulation and calculation tools, or techniques employed by the proponent.

(e) Referenced tables are included at the end of the Appendix.

1.2 TERMINOLOGY

(a) Modeled Floor Area (MFA).

(b) The total enclosed floor area of the building, as reported by the energy simulation software, excluding exterior areas and indoor (including underground) parking areas. All other spaces, including partially-conditioned and unconditioned spaces, are included in the MFA. The MFA must be within 5% of the gross floor area from the architectural drawings, unless justification is provided demonstrating where the discrepancy arises and why the MFA should differ from the gross floor area by greater than 5%.

(c) Total Energy Use Intensity.

(d) The sum of all energy used on site (i.e. electricity, natural gas), minus all renewable energy generated on site, divided by the Modelled Floor Area (MFA), reported as kWh/m2/year.

(e) Process Load.

(f) Energy consumption other than zone lighting or zone receptacle loads that in general are a function of the occupant-driven or commercial processes occurring within the building rather than energy consumption associated with operation of the building.

(g) Utility Rate Scenarios.

(h) Utility Rate Scenario 1 specifies utility cost and emission tariffs reflecting current economic conditions.

(i) Utility Rate Scenario 2 specifies tariffs that reflect higher ratio of natural gas to electricity prices and a premium or tax on energy consumption associated with greenhouse gas emissions.

(j) Climate Scenarios.

(k) Climate Scenario 1 reflects current weather information (CWEC 2016 weather data).

(l) Climate Scenario 2 reflects future weather information, as prepared by the Pacific Climate Impacts Consortium for the year 2050.

1.3 SIMULATION SCENARIOS

(a) Four distinct simulations will be required after the successful proponent is established, per Table 1, for the purpose of informing the Authority utility budget planning process.

Table 1: Simulation Scenarios Definition

Simulation Scenario	Utility Rate Scenario	Climate Scenario	End-Use Breakdown	Utility & Emission Summary	Output Variables	Compliance Statement
A	1	1	●	●	●	●
B	1	2	●	●		
C	2	1	●	●		
D	2	2	●	●		

(b) The combination of climate and utility scenarios distinguish the simulation end-use breakdown.

1.4 SIMULATION ENGINES

(a) For determining the Design and Construction Energy Target, simulation engines shall at a minimum have the following abilities:

(b) Explicitly model 8760 hours per year,

(1) Hourly variations in occupancy, lighting power, miscellaneous equipment,

(2) HVAC system operation variations in setpoints and schedules,

(3) Part-load performance curves for systems & equipment,

(4) Output time-series variables in the following electronic file format:

(A) Tab- or comma-separated values

(B) Spreadsheet files

(c) Other supporting calculations tools are at the discretion of the proponent.

(d) The authority infers no preference or requirement for a specific simulation engine in the list.

(e) It is expected that proponents will perform spreadsheet calculations outside of a simulation engine by utilizing time-series output data from the simulation to perform calculations that the simulation engine cannot.

1.5 ENERGY MODEL REPORTING CONTENT

Provide an Energy Model Report including:

(a) Executive Summary

(b) Statement of software used and version,

(c) Summary of Modeled Floor Area (MFA) broken down into:

(d) Total MFA (m2) – refer to section 1.2

(e) Conditioned Area (m2)

(f) Semi-Conditioned Area (m2)

(g) Unconditioned Area (m2)

(h) Parking Area (m2)

(i) Use ASHRAE 90.1 definition of conditioned, semi-conditioned and unconditioned spaces.

(j) Description of modeled building systems.

(k) Description of modeling methodologies, including description of any workarounds or post-processing of results made outside of software.

(l) Detailed summary of all energy model inputs and assumptions.

(m) Include assumptions & parameters not described, or that deviate from those described herein with a rational and solution used for any deviation.

(n) Provide output summary reports from the energy simulation software.

(o) Per Table A2, provide energy consumption end-use breakdown including:

(p) Interior Lighting

(q) Exterior Lighting

(r) Task Lighting

(s) Fans

(t) Pumps

(u) Cooling & Heat Rejection

(v) Process Cooling

(w) Heat Pumps

(x) Heating

(y) Humidification

(z) Service Water Heating

(aa) Receptacle Loads

(bb) Electrical Losses

(cc) Elevators & Escalators

(dd) Medical Equipment

(ee) Other Process

(ff) Miscellaneous

(gg) Total

(hh) Identify for each end-use the energy consumption the fuel type, i.e., electricity, natural gas, or any other source of energy that may be available

(ii) For the Design and Construction Energy Target, provide calculations and results for:

(1) Total indicative building annual energy consumption, both as MWh and energy use intensity (kWh/m2/year), and by sourced energy type.

(2) Total building greenhouse gas emissions, both as tCO2e/year and carbon intensity (kg/ m2/year), and by sourced energy type.

(3) Total building energy cost, as $/year and monthly, and by sourced energy type.

(jj) Use the format of Tables A1, A2 and A3 for submission of the Design and Construction Energy Target results.

(kk) Input Summary Reporting

(ll) Use the template provided in Table A4, or greater level of detail, to document key energy modeling inputs and assumptions as part of the Energy Management Plan.

(mm) Output Variable Reporting

(nn) At the discretion of the authority, hourly output variables of the simulation will be submitted by proponents in electronic format.

(oo) Scenarios

(pp) In addition to the preceding, provide the following if requested by the Authority:

(qq) Use the format of Tables A1, A2, and A3 for reporting results of Simulation Scenarios B, C, and D.

1.6 GENERAL INDEPENDENT ASSUMPTIONS

(a) To ensure comparable simulations while allowing flexibility in modeling approach, use the default assumptions shown in the following sections to determine operating parameters for the various spaces, unless other Owner-provided data contradicts these assumptions, or where knowledge or experience dictate that a different assumption would better reflect actual operating conditions. If deviations are made to assumptions made herein provide a rational to why different assumptions have been used and what they are.

(b) Weather File

(c) Weather Data for the energy models shall be based on two scenarios:

(d) CWEC2016 Weather data for Terrace, BC.

(e) 2041-2070 Weather data for Terrace, BC created by the Pacific Climate Impacts Consortium

(f) Utility & Emission Rates

(g) Utility rates for calculation of annual energy cost, including applicable taxes, are to be as shown in Table 2. Natural Gas rates for Scenario 1 are based on a Carbon Tax: $40/tCO2e + Carbon Offset: $25/tCO2e. Natural Gas rates for Scenario 2 are based on a Carbon Tax: $50/tCO2e + Carbon Offset: $110/tCO2e

(h) Emission rates for calculation of annual greenhouse gas emissions, are to be as identified in Table 2.

Table 2: Utility Rates and Emissions Factors

	Energy & Emission Costs		Emission Factor
Utility / Emission	**Scenario 1**	**Scenario 2**	**kg CO_2e / MWh**
Blended Electricity	$87.68 / MWh	$87.68 / MWh	0.011
Blended Natural Gas	$50.62 / MWh	$68.14 / MWh	0.180

1.7 ENVELOPE MODELING METHODOLOGY

(a) Take-offs and building constructions as per design. Glazing areas to represent the total area of the rough opening including glass + frame.

(b) Any windows, curtainwall and spandrel walls must include the thermal bridging impact of framing.

(c) Building opaque thermal performance must account for: variations in construction types and assemblies, above and below ground.

(d) Major structural penetrations, such as balcony slabs, beams, girders, columns, and ornamentation or appendages that must completely penetrate the building envelope to perform their intended function should be taken into account, provided that the sum of the cross-sectional areas at such major structural penetrations exceeds 2% of the above-ground building envelope area.

(e) Structural penetrations that partly penetrate the building envelope assembly, such as slab edges, should be accounted.

(f) Infiltration: 0.20 (L/s)/m² of gross wall area.

(g) For thermal bridges to be included and excluded, follow methodology outlined in City of Vancouver Energy Modeling Guideline v.2.0, Section 3. Overall opaque assembly U-values must be determined using the Enhanced Thermal Performance Spreadsheet (available from BC Hydro New Construction Program), performance data for clear fields and interface details from the Building Envelope Thermal Bridging Guide (BETBG), and the calculation methodology as outlined in the BETBG.

1.8 THERMAL ZONES

(a) Zoning Methodology

(b) Thermal zones in the simulation are to reflect the zones in the design except in cases where doing so would cause simulation issues or inaccuracies, such as:

(c) Zones served by single-zone equipment such as cooling fan coils and ventilation air provided by a central VAV system.

(d) Large, open spaces served by multiple air terminals or supplemental HVAC units.

(e) Other may to be identified by the proponent.

(f) Internal loads of thermal zones are to be based on the sum of internal loads applied to the spaces with the thermal zones.

(g) Schedules and temperature settings may be applied to thermal zones based on those of the dominant space.

(h) Combination of like interior zones are to follow the following criteria:

(i) Same internal load density (lighting, plug & process loads, and occupant).

(j) Same minimum outdoor air and supply air exchange rates.

(k) Served by the same air system and no zone supplemental equipment.

(l) Same operating schedules.

(m) Combination of like exterior zones are to follow the following criteria:

(1) Criteria (a) through (d) per interior zones

(2) Same net floor area +/- 20%

(3) Within a tolerance of 10%, zones have the same ratio of net floor area to: design cooling airflow; design heating airflow; and perimeter heating capacities.

(4) Same exterior surface & window constructions, and shading elements.

(5) Same ratio of net floor area to exterior wall & window areas within a tolerance of 10%, and facing directions within 10° or all exterior surfaces facing +/- 40° from true north.

(6) All zones are completely shaded, or all zones are completely unshaded by topographical features, other buildings, or by surfaces of the building itself.

1.9 ZONE INDEPENDENT ASSUMPTIONS

(a) Schedules & Hours of Operation

(b) All schedules applicable to the simulation are to be referenced in NECB 2017.

(c) Room Set-Points

(d) All space temperature and humidity setpoints are to be set as indicated in CSA Z317.2

(e) Where space temperature and humidity setpoints are not indicated in CSA Z317.2, setpoints are to be per the relevant NECB operating schedule by space type.

(f) Appended Table A5 identifies departments and the associated NECB schedule that is to be used for simulation parameters. The NECB schedule is to be used for the following parameters:

(g) Occupants: occupant schedule for spaces within the department

(h) Lighting: lighting schedule for spaces within the department

(i) Receptacle equipment: receptacle equipment schedule for spaces within the department

(j) NECB Fans Schedule: departmental occupied and unoccupied hours, as referenced by CSA 317.2 for occupied and unoccupied period flow rates

(k) On a space-by-space basis, NECB is to be referenced for occupant density.

1.10 AIR SYSTEMS

(a) Ventilation Rates

(b) Apply CSA Z317.2-15 minimum air change rates.

(c) Ventilation setback is permitted where identified in CSA Z317.2.

(d) Air System Heat Recovery

(e) Air system heat recovery effectiveness is normally a function of the fraction of actual-to-nominal airflow. If the simulation engine's heat recovery algorithm cannot accommodate adjusting the parameters of this function, the nominal effectiveness is to be adjusted so that the simulated effectiveness is less than or equal to the rated effectiveness throughout the range of airflow ratios.

(f) If exhaust-to-supply-air enthalpy wheels are incorporated in the design, latent effectiveness should be simulated if the design employs capacity modulation by air-bypass.

(g) If the heat recovery capacity modulation is by varying the wheel's angular velocity, latent effectiveness may only be simulated if the following requirements and methods are met:

(1) A detailed performance map is provided by the device manufacturer showing sensible effectiveness as a function of angular velocity and latent effectiveness as a function of angular velocity.

(2) Both dew-point and temperature set point control for heat recovery can be accommodated, the simulation engine's heat recovery algorithm must be parameterized to calculate both:

(A) latent effectiveness as a function of modulated sensible effectiveness

(B) sensible effectiveness as a function of modulated latent effectiveness.

(h) The heat recovery equipment manufacturer guarantees performance as stated.

(i) Controls

(j) Zone temperature setpoints are to have a deadband of 0.5°C, meaning that a zone thermostat setpoint of 22.5°C will result in the VAV damper increasing airflow above the minimum CSA Z317 airflow only when the space temperature has approached 23°C, and the reheat valve is not opened until the space temperature has approached 22°C. The simulation engine utilized by the Design-Builder is to have the ability to model control with a deadband no greater than 0.5°C if this is achieved by separate cooling and heating setpoints.

1.11 PROCESS AND MISCELLANEOUS LOADS

(a) Exterior Lighting

(b) Lighting load as per design. Total kW with schedule based on photocell controls per ASHRAE 90.1-2016.

(c) Elevator Electricity Consumption

(d) Use BC Hydro NCP Guide for elevator energy assumptions

(e) Parking Garage – if applicable

(f) Based upon the design. Assume 6 hours daily exhaust fan operation controlled by vehicle emission sensors. Lighting is to be continuously available.

(g) Service Water Heating

(h) Service water heating load need not be modelled at the zone level. Model 230 kW peak load following NECB Schedule B, Service Water Heating

(i) Electrical Losses

(j) For transformer losses in electrical rooms, schedule the loss based on the actual load on the transformer and efficiency of the transformers.

(k) Create polynomial curves based on the 4 part-load efficiency points specified by DOE 10 CFR Part 431 2016 / NRCan 2019 Energy Efficiency Requirements for MVDT Transformers

(l) Process Loads shall be per NECB with the exceptions noted in Table A-6 – Special Inputs.

1.12 APPENDED TABLES

A1 – Energy Cost & Emission Summary

A2 – End Use Breakdown

A3 – Energy Use Intensity by End Use

A4 – Modelling Input Summary Table

A5 – Department Operating Schedules

A6 – Special Inputs

Table A1 Energy, Cost & Emission Summary		Total	Electricity		Natural Gas		Greenhouse Gas	
		Cost	Cost	Demand	Cost	Demand	Cost	CO_2e tonne
			Cost	Energy		Energy		
January	kW	*$*	*$*	*kW*		*kW*	*$*	*tonne*
	MWh		*$*	*MWh*		*MWh*		
February	kW							
	MWh							
March	kW							
	MWh							
April	kW							
	MWh							
May	kW							
	MWh							
June	kW							
	MWh							
July	kW							
	MWh							
August	kW							
	MWh							
September	kW							
	MWh							
October	kW							
	MWh							
November	kW							
	MWh							
December	kW							
	MWh							
Annum	kW							
	MWh							

Table A2 Energy Consumption by End-Use MWh/year		
End Use	**Electricity**	**Natural Gas**
Interior Lights		
Task Lights		
Exterior Lights		
Fans		
Pumps		
Cooling & Heat Reject.		
Process Cooling		
Heat Pumps		
Heating		
Humidification		
Service Water Heating		
Receptacles		
Electrical Losses		
Elevators & Escalators		
Medical Equipment		
Other Process		
Miscellaneous		
Total		

Table A3 Energy Use Intensity by End-Use kWh/m^2/year		
End Use	**Electricity**	**Natural Gas**
Interior Lights		
Task Lights		
Exterior Lights		
Fans		
Pumps		
Cooling & Heat Reject.		
Process Cooling		
Heat Pumps		
Heating		
Humidification		
Service Water Heating		
Receptacles		
Electrical Losses		
Elevators & Escalators		
Medical Equipment		
Other Process		
Miscellaneous		
Total		

Table A-4

Inputs	Energy Model Assumptions Reporting
Software used and version	
Climate Zone & Weather File	
Building Floor Area and MFA	
Hours of operation	
Utility Rates & Emission Factors	
Electricity	
Gas	
Energy Center (DES)	
Other Fuel Sources	
Envelope Performance	
Roof R-value (effective) ($^oK \cdot ft^2/btuh$)	For each type
Wall Above Grade R-value (effective) ($^oK \cdot ft^2/btuh$)	For each type
Wall Below Grade R-value (effective) ($^oK \cdot ft^2/btuh$)	For each type
Slab on grade ($^oK \cdot ft^2/btuh$)	
WWR Glazing (%)	
Glass U-value including frame ($btu/h.ft^2.F$), and Solar Heat Gain Coefficient (SHGC)	For each type
Shading Devices	
Infiltration Rate	
Internal Loads	
Occupant Density & Schedule	
Lighting Power Density & Schedule	
Interior Lighting Controls	
Exterior Lighting	
General Plug Loads & Schedule	
Process Loads & Schedule	
Elevators & Schedule	
Domestic Hot Water & Schedule	
Operating Conditions	
Room Set-points	Temperature, Humidity
Air Handling Units	Per AHU and MAU– list all that applies:

APPENDIX 1 OF SCHEDULE 9 - ENERGY

Inputs	Energy Model Assumptions Reporting
	Area it serves Min OA Flow and % of total Total Supply Air Flow Heating Coil Capacity Cooling Coil Capacity Reheat Coil Capacity Fan Power Supply Fan Power Return Fan Power Exhaust Supply Air Temperature Humidification Controls / Variable / Constant Volume / DCV
Heat Recovery Ventilators	Per HRV or ERV -list all that applies: Min OA flow Sensible efficiency % Latent efficiency %
Zone Terminal Systems	List all that applies for heating and cooling
Zone Exhausts	Per System: Air Flow Fan Power
Central Plant	
Heating Equipment Type	Type, Capacity, Efficiency, Temperature
Hot Water Loop	Per Hot Water Loop – list all that applies: Supply Water Temperature Return Water Temperature Description of Reset / Controls Heat Rejection/Heat Recovery
Cooling Equipment Type	Type, Capacity, Efficiency, Temperature
Chilled Water Loop	Per Chilled Water Loop – list all that applies: Supply Water Temperature Return Water Temperature Heat Rejection/ Heat Recovery
Heat Rejection	Type, Capacity, Efficiency, Temperature
Condenser Water Loop	Per Condenser Water Loop –list all that applies: Supply Water Temperature Return Water Temperature Heat Rejection/ Heat Recovery
Steam System	Type, Capacity, Efficiency, Temperature
Domestic Hot Water Preheat	Type, Capacity, Temperature
Domestic Hot Water	Type, Capacity, Efficiency, Temperature, Storage Capacity
Pumps	For all pumps: Flow, Power
Other	
Renewable Energy	List all that applies: Type, Capacity

APPENDIX 1 OF SCHEDULE 5 - ENERGY

Table A5 Department Operating Schedule	
Department	**NECB 2017 Schedule**
A Emergency Services	H
B Critical Care	H
C Inpatient Care	J
D Renal Outpatient	H
E Maternity Centre	H
F Urban Health and Integrated Mental Health and Substance Use	
F1 Stabilization Unit	H
F2 Outpatient Services	B
F3 Mental Health Inpatients	J
F4 Transitional Care Centre	J
G Surgical and Interventional Services	H
H Outpatient Care Centre	A
I Medical Imaging	H
J Clinical Support Services	H
K Centre for Healthy Aging	C
L Rehabilitation Centre	C
M Main Entrance and Public Services	
M1 Main Entrance	H
M2 Food Court	B
M3 Public Services	H
M4 Volunteer Services	B
M5 Clinical Operations Centre	B
M6 Roman Catholic Chapel	H
M7 All Nations Sacred Space	H
M8 Meditation Space	H
N Education and Learning	
N1 Learning Commons	C
N2 Conference Centre	C
N3 Clinical Skills	C
N4 Media Services	C
N5 On-Call Support	G
O Operational Support	
O1 Biomedical Engineering	A
O2 MDRD	A
O3 Central Food Production	B
O4 FMO	B
O5 Logistics Centre	H
O6 Integrated Protection Services	H
O7 Equipment Depot	H
O8 Environmental Services	H

APPENDIX 1 OF SCHEDULE 5 - ENERGY

Table A5 Department Operating Schedule	
Department	**NECB 2017 Schedule**
O9 Cycling Centre	H
O10 Waste Management	H
O11 Laundry and Linen Services	H
O12 Central Mail Services	H
O13 Support Services Administration	A
P Management and Administration	A

Table A6 Special Inputs				
Reference	**Category or Zone**	**Input Parameter**	**Input**	**Comment**
1	Kitchen	Process - Elec	7.5 W/ft2	30% sensible gain to space
2	Kitchen	Process - Gas	28.3 W/ft2	30% sensible gain to space
3	Diagnostic Imaging	Process - Elec	10.0 W/ft2	
4	MDRD	Process - Elec	0.0 W/ft2	
5	MDRD	Process - Gas	0.0 W/ft2	

SCHEDULE 10

APPRENTICESHIP POLICY

1. APPRENTICESHIP POLICY

1.1 The Design-Builder acknowledges that it has obtained a copy of and has reviewed the Ministry of Jobs, Tourism and Skills Training (JTST) policy set out in Apprentices on Public Projects Policy and Procedure Guidelines, Date: July, 2015, Update: March, 2016 available at https://www2.gov.bc.ca/assets/gov/business/economic-development/assets/apprentices-on-public-projects/policy_and_procedure_guidelines.pdf (the "**Apprenticeship Policy**").

1.2 Unless defined in this Agreement, capitalized terms in this Schedule have the meaning given in the Apprenticeship Policy.

2. APPLICATION

2.1 The Design-Builder agrees that the Apprenticeship Policy applies to this Agreement and the Design-Builder will, subject to the reasonable assistance of the Authority, comply with the requirements of the Apprenticeship Policy.

2.2 The Design-Builder agrees that the Authority requires the Design-Builder to apply the Apprenticeship Policy to Subcontractors and Subcontracts (of all tiers) valued at $500,000 or more.

3. REQUIREMENTS

3.1 The Design-Builder acknowledges that the requirements of the Apprenticeship Policy and this Schedule include:

(a) using Registered Apprentice(s) in respect of Specified Trades valued at $500,000 or more;

(b) reporting in Form A: Confirmation of Intent to Use Registered Apprentices as soon as practicable and at least 5 days prior to commencement of Work under this Agreement or work under the applicable Subcontract and completing all supplementary forms (Form A) as required;

(c) reporting in Form B: Apprentice Utilization Report quarterly and upon completion of Work under this Agreement or work under the applicable Subcontract; and

(d) complying with applicable requirements in relation to Personal Information.

3.2 The Design-Builder further acknowledges that under the Apprenticeship Policy the Authority may, or may permit JTST, to exercise all provisions of the Apprenticeship Policy applicable to the Contracting Authority or the Province (whether through JTST or otherwise) provisions that permit the Contracting Authority:

(a) to delay the start of Work on the Project until the Authority has confirmed, through JTST, that Registered Apprentices will be used on the Project; and

(b) to delay issue of final payment in relation to the applicable Work until the final Form B is submitted.

3.3 The Design-Builder represents that the Design-Builder will ensure that the provisions of this Schedule are incorporated into applicable Subcontracts.

3.4 The Design-Builder and the Authority acknowledge that any change to the Apprenticeship Policy will, if required by the Authority to be implemented for purposes of this Agreement, be implemented as a Change under Part E- Changes.

SCHEDULE 11

SITE PLAN

[see attached]

Emergency Entrance/Exiting

Security Shack

Gate

Permanent Construction Road

Incoming Underground Utilities

Concrete Pumping

Laydown Area

Vista Vault

Concrete Pumping

Laydown Area

New Mills Memorial Hospital

Concrete Pumping

Temporary Construction Road

Haugland St

Highway 16 / Keith Ave

Existing Mills Memorial Hospital

Temporary Construction Road

Temporary Construction Fence

Laydown Area

Laydown Area

Existing Seven Sisters

Gate

Trade Trailers

Site Parking

Existing Sleeping Beauty
PCL Management Office

84' - 0"

60' - 0"

48' - 0"

60' - 0"

Gate

Site Office

Phase 1A/1B:

Tetrault St

Security Shack
Shipper/Receiver

Orientation / Safety

Main Worker Entrance
Turnstile

- Temporary Site Fence
- Gates
- Permanent Roads
- Temporary Construction Access Road
- Laydown
- MMH PCL Trailers/Office
- MMH Trade Trailers
- Seven Sisters Trailers
- Washcar
- Security Shack
- Lighting Tower

1 Site Logistics - Phase 1
1 : 500

PCL CONSTRUCTION
PCL Construction Management Inc.
2882 Gateway Road
Edmonton, Alberta, T6E 2P4
Phone: 780-733-6000
www.PCL.com

REV	Date	By	Description

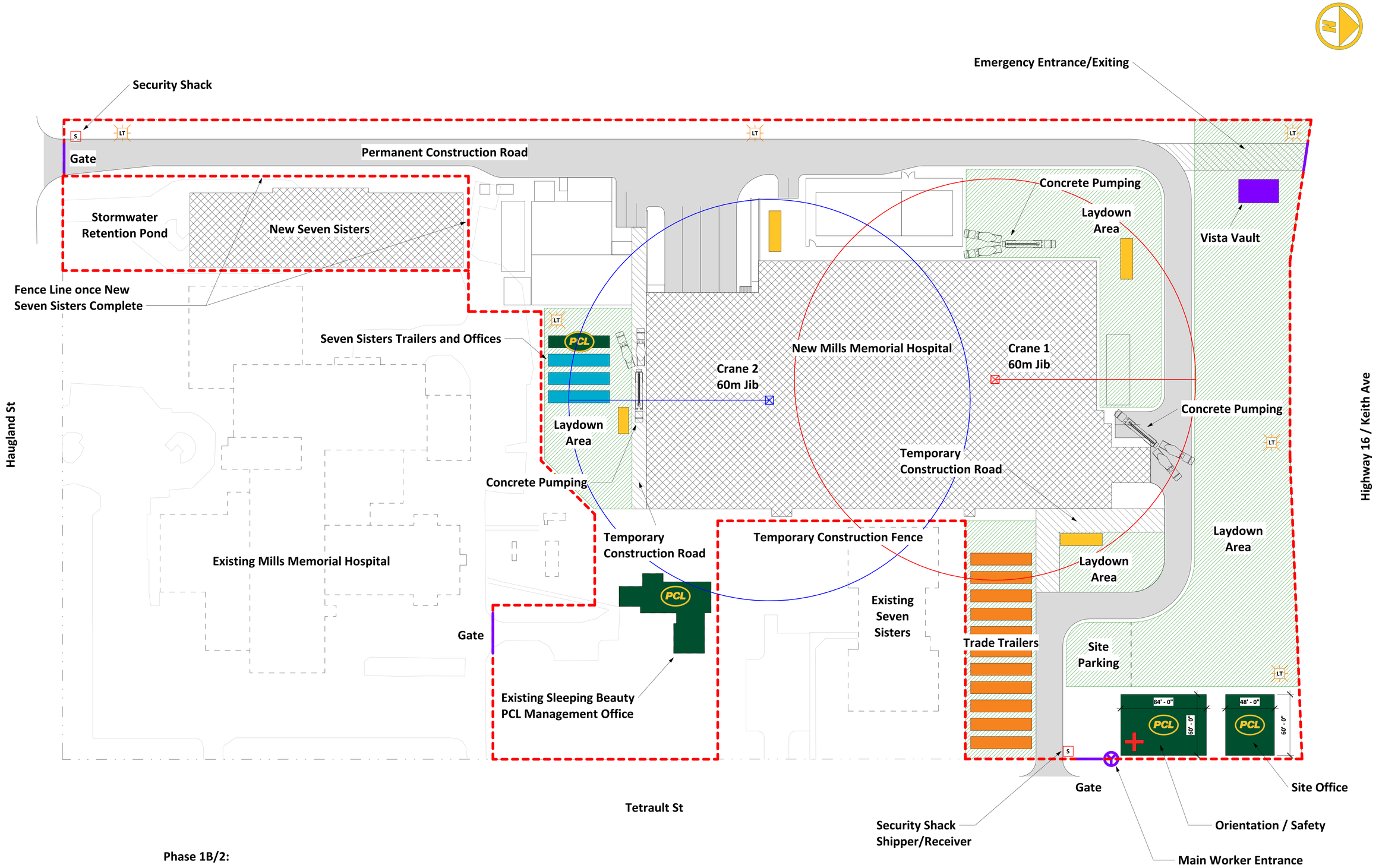
SCALE: 1 : 500
PLOT DATE AND TIME: 8/18/2020 3:12:33 PM
DESIGN BY: Designer
DRAWN BY: Author
CHECKED BY: Checker

Mills Memorial Hospital

Site Logistics - Phase 1

102

N:\District Office\VC\PJRSJ\TS\Mills Memorial\MMH PCL Working File.rvt



1 Site Logistics - Phase 2
1 : 500

PCL CONSTRUCTION
PCL Construction Management Inc.
2882 Gateway Road
Edmonton, Alberta, T6E 2P4
Phone: 780-733-6000
www.PCL.com

- Temporary Site Fence
- Gates
- Permanent Roads
- Temporary Construction Access Road
- Laydown
- MMH PCL Trailers/Office
- MMH Trade Trailers
- Seven Sisters Trailers
- Washcar
- Security Shack
- Lighting Tower

REV	Date	By	Description

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DRAWN BY: Author
CHECKED BY: Checker

Mills Memorial Hospital

Site Logistics - Phase 2

103

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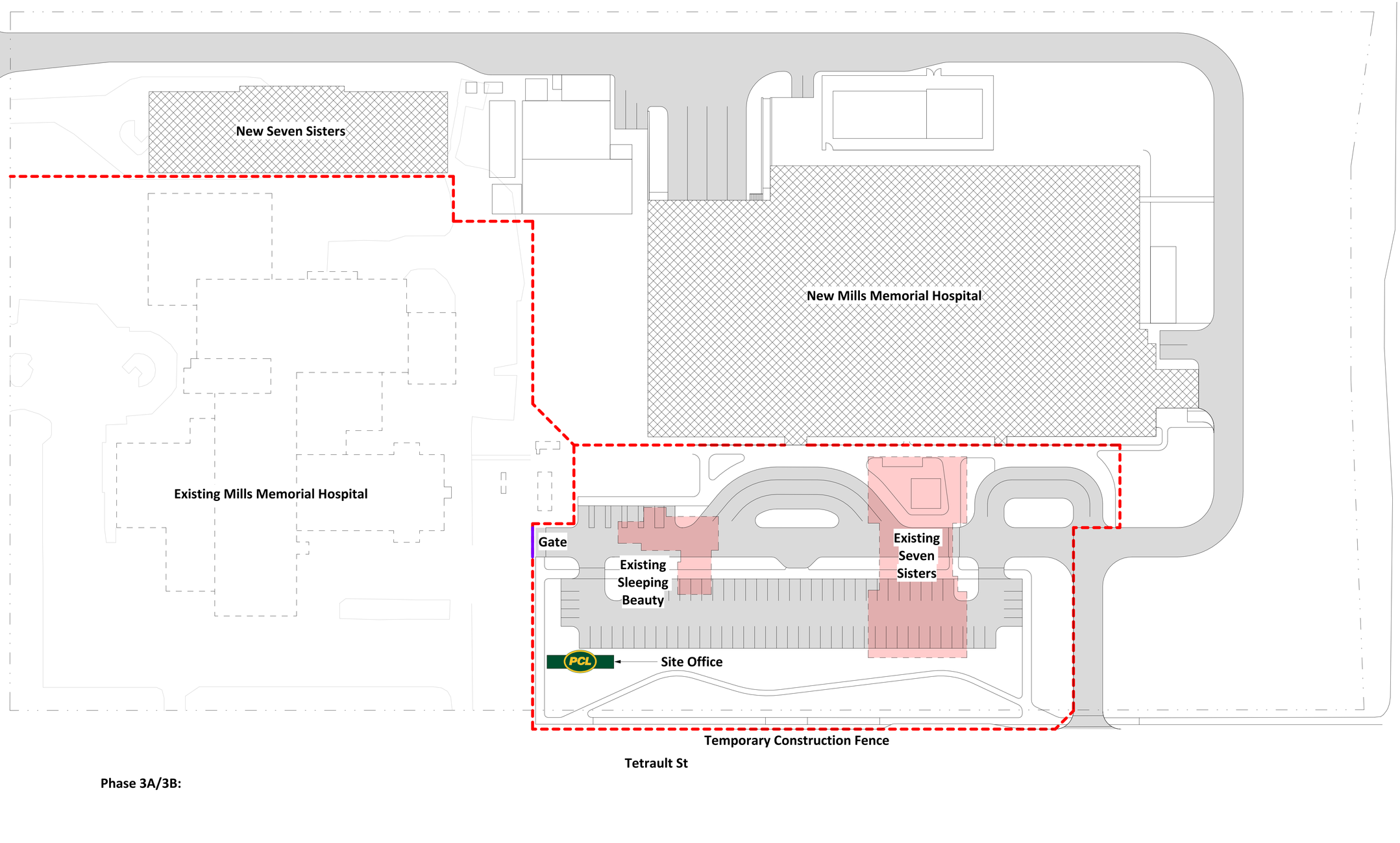

Phase 3A/3B:

1 **Site Logistics - Phase 3**
1 : 500

PCL CONSTRUCTION
PCL Construction Management Inc.
2882 Gateway Road
Edmonton, Alberta, T6E 2P4
Phone: 780-733-6000
www.PCL.com

- Temporary Site Fence
- Gates
- Permanent Roads
- Temporary Construction Access Road
- Laydown
- MMH PCL Trailers/Office
- MMH Trade Trailers
- Seven Sisters Trailers
- Washcar
- Security Shack
- Lighting Tower

REV	Date	By	Description

SCALE: 1 : 500
PLOT DATE AND TIME: 8/18/2020 3:12:37 PM
DESIGN BY: Designer
DRAWN BY: Author
CHECKED BY: Checker

Mills Memorial Hospital

Site Logistics - Phase 3

104

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Phase 4:

1 Site Logistics - Phase 4
1 : 500

PCL
CONSTRUCTION
PCL Construction Management Inc.
5400 - 99th Street
Edmonton, Alberta, T6E 3P4
Phone: 780-733-6000
www.PCL.com

- Temporary Site Fence
- Gates
- Permanent Roads
- Temporary Construction Access Road
- Laydown
- MMH PCL Trailers/Office
- MMH Trade Trailers
- Seven Sisters Trailers
- Washcar
- Security Shack
- Lighting Tower

REV	Date	By	Description

SCALE: 1 : 500
PLOT DATE AND TIME: 8/18/2020 3:12:38 PM
DESIGN BY: Designer
DRAWN BY: Author
CHECKED BY: Checker

Mills Memorial Hospital

Site Logistics - Phase 4

105

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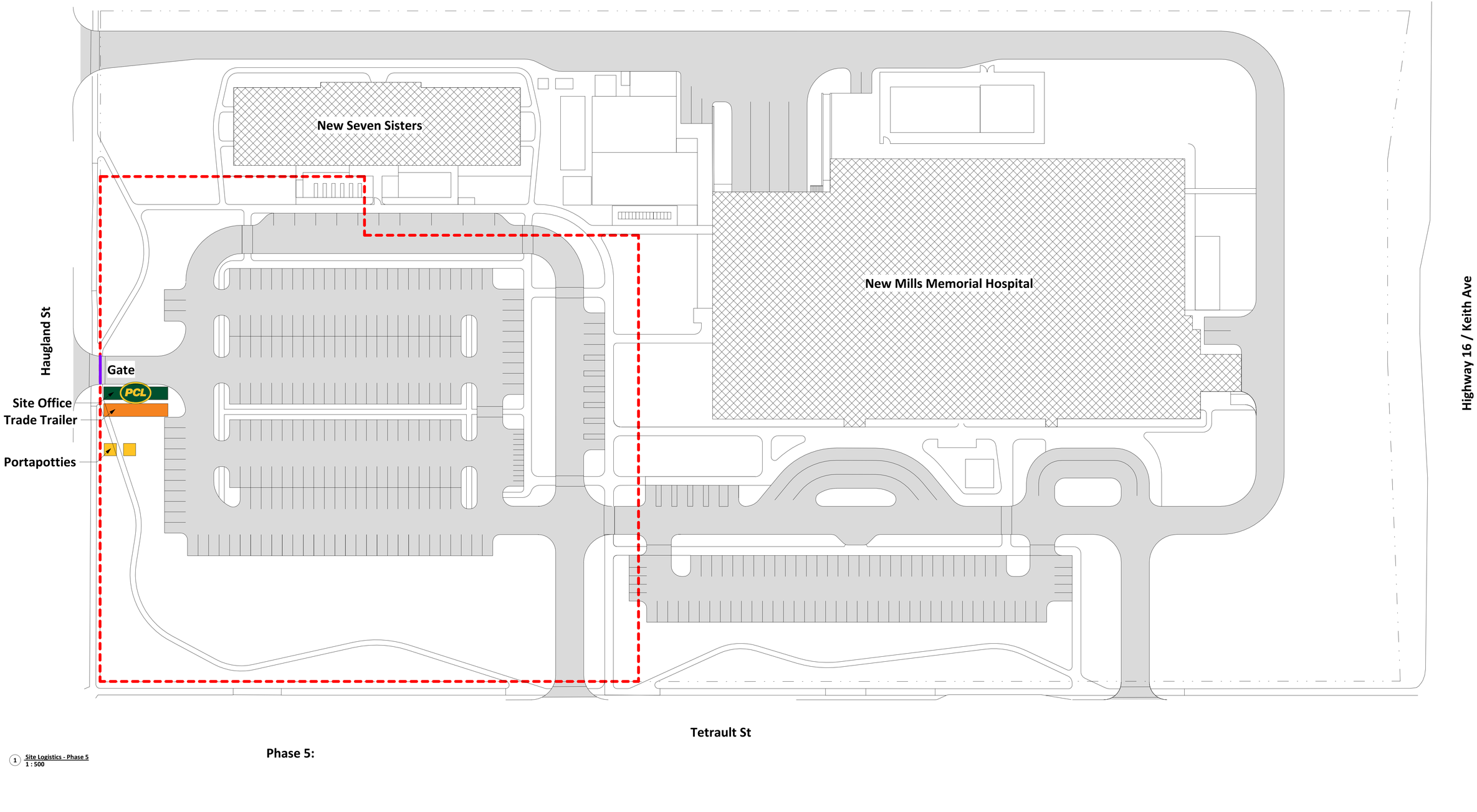

Phase 5:

1 Site Logistics - Phase 5
1 : 500

PCL
CONSTRUCTION
PCL Construction Management Inc.
2882 Gateway Road
Edmonton, Alberta, T6E 5T4
Phone: 780-733-6000
www.PCL.com

- Temporary Site Fence
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- Seven Sisters Trailers
- Washcar
- S — Security Shack
- LT — Lighting Tower

REV	Date	By	Description

SCALE: 1 : 500
PLOT DATE AND TIME: 8/18/2020 3:12:40 PM
DESIGN BY: Designer
DRAWN BY: Author
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Mills Memorial Hospital

Site Logistics - Phase 5

106

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