

**-ADDENDUM NUMBER 3**

**May 10, 2023**

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**PROJECT:  
CITY OF MOBILE PARK IMPROVEMENTS**

**GMC PROJECT NO. AMOB220095**

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**AD3-1 CLARIFICATIONS / RFI RESPONSES / ADDITIONS / ETC.:**

**AZALEA**

- A. Bidders shall acknowledge receipt of the Addendum in writing, as provided on the Acknowledgment Receipt.
- B. Bids shall be due on May 24, 2023.
- C. The contract bid time has been changed to 120 calendar days from the Notice to Proceed for commencement of the Work for Azalea. See Construction Contract in Project Manual attached.

**BAUMHAUER**

- A. Bidders shall acknowledge receipt of the Addendum in writing, as provided on the Acknowledgement receipt.
- B. Bids shall be due on May 31, 2023.
- C. **Question:** The True Form Laboratory is it a double and a countertop? **Response:** It is a double vanity.
- D. **Question:** The ice machine and drink machine is that in the scope of work? **Response:** The ice machine and refrigerator (residential) is provided by contractor and installed by contractor. The drink machine is being removed from project. An Appliance allowance for \$5,000.00 has been added to the Baumhauer bid form. See attachment.
- E. **Question:** The fencing around splashpad is that aluminum or regular chain-link fence? **Response:** Contractor shall provide and install vinyl coated chain link fencing at 4'tall and with a gate.
- F. **Question:** Sheet C1.07, there are notes for structure B and C, I am not sure what this is. **Response:** See legend on bottom left side of C1.07.

**HOPE**

- A. Bidders shall acknowledge receipt of the Addendum in writing, as provided on the Acknowledgement receipt.
- B. Bids shall be due on May 17, 2023.
- C. Contractor shall install adequate BMPs to prevent sediment from entering Wimbush St.

- D. **Question:** I don't see the length of the operable wall in the drawing. Please advise.  
**Response:** The operable wall is approximately 40'-2" long, as always contractor shall field verify.
- E. The gym lights will not be in the project as previously stated in Addendum #2.
- F. The contract bid time has been changed to 120 calendar days from the Notice to Proceed for commencement of the Work for Hope. See Addendum #2 Project Manual for Hope.

**TAYLOR**

- A. Bidders shall acknowledge receipt of the Addendum in writing, as provided on the Acknowledgement receipt.
- B. Bids shall be due on June 7, 2023.
- C. Duralife Lockers is approved as an equal. See attached substitution request.
- D. **Question:** How many bleachers are needed? **Response:** Two bleachers in the gym. Two bleachers for football field.
- G. Contractor shall provide and install vinyl coated chain link fencing at 4'tall and with a double gate on each side.
- H. Remove concrete and bleachers from project on Civil sheet C1.06 for Taylor Park softball field. The concrete sidewalk/trail will remain in project.

**AD3-2 ISSUED PROJCT MANUAL:**

**AZALEA**

- A. Replace Azalea Combined Specs in its entirety.

**BAUMHAUER**

- A. Replace Baumhauer Bid Form in the Baumhauer Project Manual.

**AD3-3 ATTACHMENTS:**

- A. Addendum #3 Acknowledgment Receipt
- B. Azalea Specs
- C. Baumhauer Bid Form
- D. Hope Community Bid Form

**END OF ADDENDUM**

PREPARED BY

Sarah M. Downs  
Goodwyn Mills Cawood  
11 North Water Street  
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Mobile, Alabama 36602  
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F 251.460.4223





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## FASCIMILE TRANSMITTAL COVER SHEET

**DATE:** May 10, 2023

**TO:** Doris Howard

**FROM:** Planholder

**PROJECT:** Parks Improvements  
Azalea City Golf Course, Baumhauer-Randle Park, Hope Community Center, and Taylor Park  
For CITY OF MOBILE  
GMC PROJECT NO. AMOB220095

**RE:** ADDENDUM NO. 3 AND ACKNOWLEDGEMENT OF RECEIPT OF ADDENDUM NO. 3

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### ACKNOWLEDGEMENT OF RECEIPT:

PLEASE PRINT RECIPIENT'S NAME, FIRM, AND DATE RECEIVED.

THEN FAX BACK TO (251) 460-4423 or EMAIL [doris.howard@gmcnetwork.com](mailto:doris.howard@gmcnetwork.com)  
FOR OUR RECORDS AND TO ACKNOWLEDGE YOUR RECEIPT OF THIS ADDENDUM.

NAME (PLEASE PRINT)

FIRM (PLEASE PRINT)

DATE RECEIVED (PLEASE PRINT)



# **PROJECT MANUAL**

**FOR**

**AZALEA CITY GOLF COURSE  
RANGE BUILDING, CLUBHOUSE  
RESTROOM & EQUIPMENT BUILDING  
1000 Gaillard Drive  
Mobile, Alabama 36608  
PR-029-21**

**Advertisement Date: APRIL 12, 2023**

**Goodwyn Mills Cawood, Inc.**  
11 North Water Street, Suite 15250  
Mobile, Alabama 36602

**and**

**City of Mobile  
Architectural Engineering Department**  
205 Government Street  
P.O. Box 1827  
Mobile, Alabama 36633

**Bid Date:** \_\_\_\_\_

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### **GENERAL CONDITIONS:**

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- .. PROJECT DIRECTORY
- .. CAD FILE REQUEST

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- 00200 INSTRUCTIONS TO BIDDERS – AIA DOCUMENTS A701
- 00300 SUPPLEMENTARY INSTRUCTIONS TO BIDDERS
- 00400 BID FORM  
SALES TAX FORM C-3A  
OFFICE OF SUPPLIER DIVERSITY SUBCONTRACTING AND MAJOR  
SUPPLIER PLAN
- 00500 STANDARD FORM OF AGREEMENT BETWEEN OWNER AND  
CONTRACTOR- AIA DOCUMENTS A101
- 00600 BONDS, CERTIFICATES AND AFFIDAVITS  
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(AZALEA CITY GOLF COURSE) AND AIA DOCUMENT G703 WITH DBE  
UTILIZATION REPORT  
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DOCUMENT G706  
CONTRACTOR’S AFFIDAVIT OF RELEASE OF LIENS – AIA DOCUMENT  
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END OF SECTION

**PROJECT DIRECTORY**

**OWNER:** **CITY OF MOBILE**  
Post Office Box 1827  
Mobile, Alabama 36633  
Phone: (251) 208.7635  
**William S. Stimpson, Mayor**

**ARCHITECT:** **GOODWYN, MILLS & CAWOOD, INC.**  
11 North Water Street, Suite 15250  
Mobile, Alabama 36602  
Phone: (251) 460-4006  
Fax: (251) 460-4423  
**James R. Walker, AIA, Project Architect**  
[jim.walker@gmcnetwork.com](mailto:jim.walker@gmcnetwork.com)

**MECHANICAL ENGINEER:** **Dell Consulting**  
813 Downtowner Boulevard, Suite D  
Mobile, Alabama 36609  
Phone: (251) 316-0015 x205  
**Mike Pruett, P.E.**

**ELECTRICAL ENGINEER:** **Dell Consulting**  
813 Downtowner Boulevard, Suite D  
Mobile, Alabama 36609  
Phone: (251) 316-0015 x200  
**Andy Maurin, P.E., LEED AP**

**PLUMBING ENGINEER:** **Dell Consulting**  
813 Downtowner Boulevard, Suite D  
Mobile, Alabama 36609  
Phone: (251) 316-0015 x205  
**Mike Pruett, P.E.**

**STRUCTURAL ENGINEER:** **MBA ENGINEERS, INC.**  
300 20<sup>th</sup> Street North  
Suite 100  
Birmingham, AL 35203  
Phone: (205) 515-6835  
**Trip Lindsey, P.E., S.E.**

**CIVIL ENGINEER:** **Driven Engineering, Inc.**  
8005 Morris Hill Road  
Semmes, AL 36575  
Phone: (251) 649-4011 x111  
**Avalisha Fisher, P.E., CFM**

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**Goodwyn Mills Cawood**

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[www.gmcnetwork.com](http://www.gmcnetwork.com)

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Goodwyn, Mills and Cawood, LLC. (GMC) in cooperation with its Consultants may, at its sole discretion, provide electronic document and file conversion services to the prime entity holding, or intending to enter into, an Agreement with an Owner for construction of a Project. GMC will typically accept only one request per project from one entity, typically the General Contractor.

Consultants referred to herein are all consultants to GMC for or in connection with the Project, including but not limited to those listed above.

It is acknowledged that neither GMC nor its Consultants are under any obligation to furnish electronic files to any party. The General Contractor and/or Sub-contractors should not, under any circumstances, assume they will receive any or all requested electronic files. Whether files are provided or not, the General Contractor remains completely responsible for performing all work required of the Contract Documents in full, including the preparation of accurate and detailed required shop-drawings.

When furnished, files will be transmitted electronically via FTP Site, or similar file transfer mechanism. It is the intent of GMC to furnish files in a timely manner, typically within two (2) weeks of receipt of payment of fees. However, the complexity and scale of the conversion is directly related to the requested file format and quantity of files requested. Where GMC believes a request will require additional time, we will notify the User and make reasonable effort to deliver files in phases if beneficial.

Please contact Jim Walker at (251) 460-4006 with any questions.

GOODWYN, MILLS & CAWOOD, LLC.

**PROJECT**

Project Name: **CITY OF MOBILE- PARK IMPROVEMENTS  
(AZALEA, BUAMHAUER, HOPE, TAYLOR)**

Project No.: **AMOB220095**

Document Issue Date:

Prime Architect/ Engineer: **GOODWYN, MILLS & CAWOOD, LLC.**

Consultants:

- Civil Engineer: Goodwyn, Mills & Cawood, LLC.
- Mechanical Engineer: Dell Consulting
- Electrical Engineer: Dell Consulting
- Plumbing Engineer: Dell Consulting
- Civil Engineer: Driven Engineering
- Structural Engineer: MBA Engineering, INC

Goodwyn Mills and Cawood, LLC. (hereafter "GMC"), for itself and its identified Consultants, hereby grants non-exclusive use of the requested electronic files to the party (User) listed below. User accepts that GMC and its Consultants reserve the right to convey or not convey electronic files at their sole discretion. User further agrees, as a precedent to transmittal of digital files to any other party, to require written agreement of equivalent confidentiality and indemnification provisions from any party that receives the digital files. The digital information furnished under this agreement is proprietary, is the property of GMC and/or its Consultants, and is protected by applicable copyright laws.



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LIMITED USE: The use of any digital file(s) is solely limited to the listed Project below. In no event shall files be utilized for any other Project, or any use beyond the use specifically listed herein. Further, under no circumstances may the General Contractor or and Sub-Contractor submit files furnished under this Agreement as required shop drawing submittals. By execution of this Agreement, the User acknowledges these limitations, and shall comply fully therewith.

CONFIDENTIALITY: User agrees to hold Project information strictly confidential, and User agrees it shall limit the use of transmitted electronic files solely to those applications necessary to perform work required for the Project.

INDEMNIFICATION: User hereby agrees to indemnify, defend, and hold harmless GMC, its directors, officers, and employees, and its Consultants, Consultant's directors, Consultants officers and employees, and the insurers, agents, and affiliates of both GMC and its Consultants, from any and all liability including claims for consequential damages or attorney's fees that may arise out of or relate in any matter to the authorized or unauthorized use, reuse, or alteration of this information by User, its employees or agents, vendors, contractors, sub-contractors, or any other party.

REVISIONS: The Contract Documents are subject to change, and revisions are not always incorporated throughout the documents. It is the User's sole responsibility to review the complete current Contract Documents, and identify inconsistencies between the electronic files and the current Contract Documents.

DIGITAL PROTOCOL: The USER is solely responsible for examination of digital files for virus contamination. Neither GMC nor its Consultants, or the directors, officers, employees, insurers, agents, or affiliates of either are responsible for damages incurred due to virus contamination, or for software version and/or file compatibility, or any similar hardware or software compliance issues.

FEE STRUCTURE: Prior to conversion of files, GMC must receive this complete Electronic File Conversion and Transfer Agreement, completed in full, and executed by a representative of the User with authorization to enter into contracts on behalf of the User.

		PER SHEET FEE
Civil	C	\$125
Architecture	A	\$150
Structural	S	\$125
Mechanical	M, P, FP	\$125
Electrical	E	\$125
Acoustical & AV	AV	\$125
Other	G,FS etc.	\$100



**USER ACCEPTANCE OF AGREEMENT**

Company Name: \_\_\_\_\_

By: \_\_\_\_\_

Date: \_\_\_\_\_

Its: \_\_\_\_\_

**REQUESTED FILE FORMAT**

User (Select ONE)	File Format
	Bound Auto CAD Release 2020
	Revit Model 2020

**SCHEDULE OF REQUESTED FILES (To be filled by User)**

SHEET		INTENDED USE	FEE	
No.	Name.			



SECTION 00100  
INVITATION TO BID

You are invited to submit a sealed bid for construction of the following facility:

PROJECT NAME: Azalea City Golf Course – Park Improvements  
PROJECT LOCATION: 1000 Gaillard Drive, Mobile, AL 36608  
PROJECT NUMBER: PR-029-21

1 BID DATE:

- A. Sealed Bids will be received and clocked in until 2:15 PM local time, **Wednesday, the 24th day of May, 2023**. Bidders shall insert sealed Bids into a receptacle, marked “City of Mobile Bids”, located in the elevator lobby outside the office of the City Clerk Office, 9th Floor South Tower, Government Plaza, 205 Government Street, Mobile, Alabama 36602.
- B. All Bids not clocked in at the City Clerk’s Office prior to the time specified, or Bids received after the specified time, will be automatically rejected and returned immediately, unopened.
- C. Bids will be publicly opened and read at 2:30 PM local time, **in the Atrium Lobby of Government Plaza**.

2 SPECIFICATIONS AND DRAWINGS:

- A. Specifications and Drawings are on file and may be examined and obtained from the following location: <https://www.cityofmobile.org/bids/>
- B. Bidders shall use complete sets of Bid Documents in preparing their bid. Neither the Owner nor Architect/Engineer assumes responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bid Documents.
- C. **Addenda will be issued via e-mail to all Pre-Bid Conference attendees.**
- D. **This is a tax exempt project and shall be certified by the requirements of the Alabama Department of Revenue. Bidders shall NOT include sales and use taxes with their bid amounts. Bidders shall complete the Sales Tax Form C-3A and include it as an attachment to their Bid Form (see Section 00400).**
- E. Product Substitutions must be pre-approved before the bid (see Section 01400 for requirements).

3 BID SURETY: Required on Bids \$10,000.00 or more

- A. A Cashier’s Check drawn on a bank registered to do business in the State of Alabama and which is a member of the Federal Deposit Insurance Corporation, or a Bid Bond payable to Owner, City of Mobile, in the amount of 5% of the Base Bid, but in no event more than \$10,000.00 is required to accompany Bid.
- B. Bid Bond must be issued by a Surety licensed to do business in the State of Alabama. Bidder shall require the attorney in fact who executes the required bonds on behalf of the surety to affix to the bond a certified and current copy of the power of attorney.
- C. No Bid may be modified, withdrawn, or canceled for a period of sixty (60) days after the time designated above for receipt of bids.

D. The City of Mobile will have sixty (60) days from the bid opening date to award contract.

4 SURETY QUALIFICATIONS:

- A. A Surety authorized to do business in the State of Alabama must issue Bonds.
- B. If the Base Bid is \$50,000 or more, the Surety must have a minimum rating of A/Class VI as reported by the latest issue of Best Key Rating Guide Property-Casualty published by Alfred M. Best Company, Inc.

5 IRREGULARITIES AND REJECTION:

- A. The City of Mobile reserves the right to waive irregularities in the Bid and in Bidding, and to reject any or all Bids.

6 BIDDER QUALIFICATIONS:

- A. Bids for Work costing \$50,000 or more must be licensed pursuant to current Alabama law and of classifications compliant with the State of Alabama Licensing Board for General Contractors. Note that if the contract amount is \$10,000 or greater, both a Performance Bond and a Labor and Material Payment Bond shall be required. **Before Bidding, Contractor shall verify their license classification of their General Contractors license with the State of Alabama Licensing Board for General Contractors to verify classification is acceptable to perform 51% of the Scope of Work.**
- B. In case of a joint venture of two or more Contractors, the amount for the bid shall be within the maximum bid limitations as set by the State of Alabama Licensing Board for General Contractors of at least one of the partners to the joint venture.

7 NON-RESIDENT CONTRACTORS:

- A. Except for contracts funded in whole or part with funds received from a federal agency, preference shall be given to resident Contractors on the same basis as the nonresident Contractor's state awards contracts to Alabama Contractors bidding in similar circumstances.
- B. Nonresident Bidders shall, prior to submitting a bid, be registered with the Alabama Secretary of State and the Alabama Department of Revenue. Provide the Secretary of State Business "Entity ID Number" on the Bid Form in the space provided.

8 PRE-BID CONFERENCE:

- A. A Pre-Bid Conference shall be held on **April 19, 2023, at Architectural Engineering Department Conference Room, at 205 Government Street, South Tower, 5<sup>th</sup> Floor, Mobile AL, 36608, at 9:00 AM local time.** The conference will include a digital walkthrough of the site location. A representative of the Bidder is encouraged to be present at the meeting. However, if no representative can be present in person, the Bidder shall contact the Project Manager at 251-208-7635, at least 24 hours prior to the meeting, in order to coordinate attendance of the meeting by conference call. Bidders are required to participate in the Pre-Bid Conference, visit the site prior to submitting a Bid and include all costs associated with the project in their Bids.
- B. Minutes of this conference will be made as an Addendum for the project.

**9 BID SUBMITTAL:**

- A. Bids must be submitted on copies of the Bid Forms furnished in the bidding documents.
- B. Bid, with Bid Security, Sales Tax Form C-3A, City of Mobile Subcontracting and Major Supplier Plan and other supporting data specified, shall be contained in a sealed, opaque envelope, approximately 9x12 inches or larger and be marked on the outside with the words "**SEALED BID FOR AZALEA CITY GOLF COURSE – IMPROVEMENTS PHASE 1 - PROJECT NUMBER: PR-029-21**".
- C. The Bid envelope shall be clearly addressed to the Owner as indicated on the Bid Form and include the bid date, the name, address and State License number and classification of the Bidder issued by the State of Alabama Licensing Board for General Contractors.
- D. All Bids of \$50,000 or more must include the bidder's State of Alabama General Contractor's License information written on the outside of the bid envelope. Any bid submitted without such license information may be rejected and returned to the bidder unopened.
- E. In addition, in large letters on both front and back of envelope, write the following: **DO NOT OPEN UNTIL TWO-FIFTEEN PM, MAY 24, 2023.**
- F. For a bid to be valid it shall be delivered at designated location prior to time and date for receipt of Bids indicated in INVITATION TO BID, or prior to any extension thereof issued to Bidders. After that time no Bid will be received or withdrawn.
- G. When sent by mail, preferably special delivery, express service, or registered mail, the sealed Bid, marked as indicated above, shall be enclosed in another envelope for mailing such that the exterior mailing container or envelope may be opened without revealing the contents of the Bid. It is the Contractors responsibility to assure delivery of the bid to the City Clerk's Office prior the time and date established.

**10 EQUAL OPPORTUNITY:**

- A. The City of Mobile, Alabama is an Equal Opportunity Employer and requires that all Contractors comply with the Equal Employment Opportunity laws and the provisions of the Bid Documents in this regard.
- B. The City of Mobile also encourages and supports the utilization of Minority Business Enterprises on these and all other publicly solicited Bids, and shall be in compliance with the City of Mobile's Minority Utilization Plan as adopted by the City Council.
- C. Contractor shall provide an appropriately completed copy of the "City of Mobile Subcontracting and Major Supplier Plan" in the envelope with their Bid Form. Form shall document DBE Subcontractors participating in the project and, should the total % of DBE participation not meet the 15% minimum, all efforts to obtain DBE Subcontractors shall be documented on or attached to the DBE Form when submitted. During construction, contractors are required to submit a "DBE Utilization Report" with every Pay Application.

- D. Contractors should contact the City of Mobile, Supplier Diversity Manager for assistance with DBE Subcontractor information and any questions regarding the DBE Compliance Forms. **Contact Archnique Kidd at 251-208-7967.**
- E. A Directory of DBE Vendors can be found at the following location:  
<https://workwith.cityofmobile.org/>

11 ADDITIONAL BIDDING PROCEDURES:

- A. Refer to the complete information in the Bid Documents prior to submitting a bid. Additional Bidding Procedure information is contained therein, particularly in the specification Section 00200 "Instructions to Bidders - AIA Document A701" and in the specification Section 00300 "Supplementary Instructions to Bidders".

12 STATE OF ALABAMA IMMIGRATION ACT

"The State of Alabama, under the Beason-Hammon Alabama Taxpayer and Citizen Protection Act, Act No. 2011-535, Alabama Code Section 31-13-1, et. Seq., requires:

- A. That the Contractor shall be enrolled in the E-Verify Program, shall participate in that Program during the performance of the contract, and shall verify the immigration status of every employee who is required to be verified, according to the applicable federal rules and regulations; and
- B. That it will attach to the contract the company's documentation of enrollment in E-Verify.
- C. The subcontractor must also enroll in the E-Verify Program prior to performing any work on the contract and shall attach to its sworn affidavit documentation establishing that the subcontractor is enrolled in the E-Verify Program.

13 PUBLIC CONTRACTS WITH ENTITIES ENGAGING IN CERTAIN BOYCOTT ACTIVITIES

- A. By signing this contract, Contractor further represents and agrees that it is not currently engaged in, nor will it engage in, any boycott of a person or entity based in or doing business with a jurisdiction with which the State of Alabama can enjoy open trade.

15 FEDERAL CONDITIONS

- A. This project is covered by the Davis Bacon and Related Acts (DBRA). See Section 00800 Federal Conditions.

END OF SECTION 00100

**SECTION 00200**  
**INSTRUCTIONS TO BIDDERS**

**PART 1 GENERAL**

- A. This section includes the INSTRUCTIONS TO BIDDERS, AIA Document A701 to be utilized with the Owner's most recent modifications and which shall be used in conjunction with the entire Bid Documents and Section 00300 SUPPLEMENTARY INSTRUCTIONS TO BIDDERS for this project.

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# DRAFT AIA® Document A701™ - 2018

## Instructions to Bidders

for the following Project:

*(Name, location, and detailed description)*

«Azalea City Golf Course – Park Improvements Phase 1»  
«1000 Gaillard Drive»  
«Mobile, Alabama 36608»  
«PR-029-21»

### THE OWNER:

*(Name, legal status, address, and other information)*

«City of Mobile »« »  
«PO Box 1827 »  
«Mobile, Alabama 36633-1827 »  
« »

### THE ARCHITECT:

*(Name, legal status, address, and other information)*

«Goodwyn Mills Cawood, LLC »  
«11 North Water Street, Suite 15250»  
«Mobile, Alabama 36602»  
« »

### TABLE OF ARTICLES

- 1 DEFINITIONS
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- 10 USE OF DOMESTIC PRODUCTS
- 11 PREFERENCE TO RESIDENT CONTRACTORS
- 12 PRE-BID REQUIREMENTS
- 13 POST-BID REQUIREMENTS

### ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

FEDERAL, STATE, AND LOCAL LAWS MAY IMPOSE REQUIREMENTS ON PUBLIC PROCUREMENT CONTRACTS. CONSULT LOCAL AUTHORITIES OR AN ATTORNEY TO VERIFY REQUIREMENTS APPLICABLE TO THIS PROCUREMENT BEFORE COMPLETING THIS FORM.

It is intended that AIA Document G612™-2017, Owner's Instructions to the Architect, Parts A and B will be completed prior to using this document.

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## ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the Proposed Contract Documents. The Bidding Requirements consist of the advertisement or invitation to bid, Instructions to Bidders, supplementary instructions to bidders, the bid form, and any other bidding forms. The Proposed Contract Documents consist of the unexecuted form of Agreement between the Owner and Contractor and that Agreement's Exhibits, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, all Addenda, and all other documents enumerated in Article 8 of these Instructions.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, or in other Proposed Contract Documents apply to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect, which, by additions, deletions, clarifications, or corrections, modify or interpret the Bidding Documents.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents, to which Work may be added or deleted by sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from, or that does not change, the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents. A Bidder must be licensed by the State Licensing Board for General Contractors if the amount for the Contract exceeds the amount established by said Board.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment, or labor for a portion of the Work. A Sub-bidder performing Work must be licensed by the State Licensing Board for General Contractors if the Sub-bidders' contract amount exceeds that established by said Board.

1.10 A non-resident Bidder or Sub-bidder is one who  
a. Is neither organized nor existing under the laws of the State of Alabama  
b. nor maintains its principal place of business in the State of Alabama.

A non-resident contractor who has maintained a permanent branch office within the State of Alabama for at least five (5) continuous years shall not thereafter be deemed to be a non-resident contractor so long as such contractor continues to maintain a branch office within Alabama.

## ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 By submitting a Bid, the Bidder represents that:

- .1 the Bidder has read and understands the Bidding Documents;
- .2 the Bidder understands how the Bidding Documents relate to other portions of the Project, if any, being bid concurrently or presently under construction;
- .3 the Bid complies with the Bidding Documents;
- .4 the Bidder has visited the site, become familiar with local conditions under which the Work is to be performed, and has correlated the Bidder's observations with the requirements of the Proposed Contract Documents;
- .5 the Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception; and
- .6 the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor.

§ 2.2 The Bidder is licensed by the State Licensing Board for General Contractors and the amount Bid does not exceed the Bid Limit stipulated in the Bidder's License and by the City of Mobile.



§ 2.3 Each and every Contractor belonging to or comprising a part of any entity that is bidding as a joint venture or association involving two or more contractors is licensed by the State Licensing Board for General Contractors and that the amount Bid does not exceed the Bid limit stipulated in at least one of their licenses.

§ 2.4 Any non-resident Bidder is authorized by the Secretary of State of Alabama and is registered with Alabama Department of Revenue to transact business in Alabama.

§ 2.5 Joint Ventures or Associations of Contractors, whether the same are Bidders or Subcontractors of Bidders, will remain in existence until all insurance and warranty requirements for the Project have been fulfilled.

### **ARTICLE 3 BIDDING DOCUMENTS**

#### **§ 3.1 Distribution**

§ 3.1.1 Bidders shall obtain complete Bidding Documents, as indicated below, from the issuing office designated in the advertisement or invitation to bid, for the deposit sum, if any, stated therein.

§ 3.1.2 Any required deposit shall be refunded to Bidders who submit a bona fide Bid and return the paper Bidding Documents in good condition within ten days after receipt of Bids. The cost to replace missing or damaged paper documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the paper Bidding Documents, and the Bidder's deposit will be refunded.

§ 3.1.3 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the advertisement or invitation to bid, or in supplementary instructions to bidders.

§ 3.1.4 Bidders shall use complete Bidding Documents in preparing Bids. Neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete Bidding Documents.

§ 3.1.5 The Bidding Documents will be available for the sole purpose of obtaining Bids on the Work. No license or grant of use is conferred by distribution of the Bidding Documents.

#### **§ 3.2 Modification or Interpretation of Bidding Documents**

§ 3.2.1 The Bidder shall carefully study the Bidding Documents, shall examine the site and local conditions, and shall notify the Architect of errors, inconsistencies, or ambiguities discovered and request clarification or interpretation pursuant to Section 3.2.2.

§ 3.2.2 Requests for clarification or interpretation of the Bidding Documents shall be submitted by the Bidder in writing and shall be received by the Architect at least five (5) calendar days prior to the date for receipt of Bids.

§ 3.2.3 Modifications and interpretations of the Bidding Documents shall be made by Addendum. Modifications and interpretations of the Bidding Documents made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.2.4 The Contract Drawings and Specifications are intended to cooperate and agree, but should conflicts or difference be found to exist between the requirements within either and clarification has not been obtained in accordance with the above procedure prior to Bidding, then the most costly and/or restrictive interpretation by the decision of the Architectural Engineering Department Director will be final.

#### **§ 3.3 Substitutions**

§ 3.3.1 The materials, products, and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution.

##### **§ 3.3.2 Substitution Process**

§ 3.3.2.1 Written requests for substitutions shall be received by the Architect at least fifteen (15) calendar days prior to the date for receipt of Bids. Requests shall be submitted in the same manner as that established for submitting clarifications and interpretations in Section 3.2.2.

§ 3.3.2.2 Bidders shall submit substitution requests on a Substitution Request Form if one is provided in the Bidding Documents.

§ 3.3.2.3 If a Substitution Request Form is not provided, requests shall include (1) the name of the material or equipment specified in the Bidding Documents; (2) the reason for the requested substitution; (3) a complete description of the proposed substitution including the name of the material or equipment proposed as the substitute, performance and test data, and relevant drawings; and (4) any other information necessary for an evaluation. The request shall include a statement setting forth changes in other materials, equipment, or other portions of the Work, including changes in the work of other contracts or the impact on any Project Certifications (such as LEED), that will result from incorporation of the proposed substitution.

§ 3.3.3 The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.4 If the Architect approves a proposed substitution prior to receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.3.5 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

§ 3.3.6 See Division One Section "Substitution Procedures", if included in Specification.

#### § 3.4 Addenda

§ 3.4.1 Addenda will be transmitted to Bidders known by the issuing office to have received complete Bidding Documents.

§ 3.4.2 Addenda will be available where Bidding Documents are on file.

§ 3.4.3 Addenda will be issued no later than two (2) days prior to the date for receipt of Bids, except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

§ 3.4.4 Prior to submitting a Bid, each Bidder shall ascertain that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

### ARTICLE 4 BIDDING PROCEDURES

#### § 4.1 Preparation of Bids

§ 4.1.1 Bids shall be submitted on the forms included with or identified in the Bidding Documents. No bid will be considered unless made out and submitted on a copy of the Bid Form, Section 00410. Additional Bid Forms will be furnished to prospective Bidders upon request.

§ 4.1.2 All blanks on the bid form shall be legibly executed. Paper bid forms shall be executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in both words and numbers, unless noted otherwise on the bid form. In case of discrepancy, the amount entered in words shall govern.

§ 4.1.4 Edits to entries made on paper bid forms must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change" or as required by the bid form.

Unit Prices: Supply requested Unit Prices where shown on the Bid Form. Such Unit Prices shall be used to adjust the Contract Amount where the quantities shown on the Drawings and/or Specifications do not reflect amounts required for completion of the work. Where Completion of the Work requires quantities in excess of those shown on the drawings and specifications, unit prices shall be used to compute an extra payment to the Contractor. Where completion of work required quantities less than those on the Drawings and/or specifications, unit prices shall be used to compute a credit to the Owner.

Contingency Allowance: As shown on the Bid Form, Contractor shall add the amount of the contingency allowance to the Base Bid to derive the Total Bid. The contingency allowance shall cover cost of material, labor, overhead, profit

and other expenses for complete installation of items of additional work as required for a complete functional project. The contingency allowance shall be used to fund unforeseen conditions not covered in the construction documents and shall be subject to the provisions of change orders. Upon the completion of work any unused portion of the contingency allowance shall be credited to the Owner by change order.

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall neither make additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name and legal status of the Bidder. As part of the documentation submitted with the Bid, the Bidder shall provide evidence of its legal authority to perform the Work in the jurisdiction where the Project is located. Each copy of the Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further name the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached, certifying the agent's authority to bind the Bidder.

§ 4.1.8 A Bidder shall incur all costs associated with the preparation of its Bid.

#### § 4.2 Bid Security

§ 4.2.1 Each Bid shall be accompanied by the following bid security if so required in the Bidding Documents:  
(Insert the form and amount of bid security.)

«The Bidder shall provide a Bid Security in the form of a cashier's check drawn on a bank registered to do business in the State of Alabama and which is a member of the Federal Deposit Insurance Corporation, or a Bid Bond. Bid Security is required for bids exceeding \$10,000.00. Bid Security shall be in the amount of 5% of the TOTAL BID, but in no event more than \$10,000.00.»

§ 4.2.2 The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty.

§ 4.2.3 If a surety bond is required as bid security, it shall be written on AIA Document A310™, Bid Bond, unless otherwise provided in the Bidding Documents. The attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of an acceptable power of attorney. The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 4.2.4 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until (a) the Contract has been executed and bonds, if required, have been furnished; (b) the specified time has elapsed so that Bids may be withdrawn; or (c) all Bids have been rejected.

§ 4.2.5 Bonds must be issued by a Surety authorized to do business in the State of Alabama. A Performance Bond and a Labor and Material Payment Bond are required for projects exceeding \$10,000.00. If the project cost is \$50,000.00 or more, the Surety must have a minimum rating of A/Class VI as reported by the latest issue of Best's Key Rating Guide Property-Casualty published by Alfred M. Best Company, Inc.

#### § 4.3 Submission of Bids

§ 4.3.1 A Bidder shall submit its Bid as indicated below:

(Indicate how, such as by website, host site/platform, paper copy, or other method Bidders shall submit their Bid.)

«Submission of Bid shall be as stated in Section 00100, Invitation to Bid, Paragraph 9, titled "Bid Submittal".»

§ 4.3.3 Bids shall be submitted by the date and time and at the place indicated in the invitation to bid. Bids submitted after the date and time for receipt of Bids, or at an incorrect place, will not be accepted and will be returned unopened.

§ 4.3.4 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

§ 4.3.5 A Bid submitted by any method other than as provided in this Section 4.3 will not be accepted.

#### § 4.4 Modification or Withdrawal of Bid

§ 4.4.1 Prior to the date and time designated for receipt of Bids, a Bidder may submit a new Bid to replace a Bid previously submitted, or withdraw its Bid entirely, by notice to the party designated to receive the Bids. Such notice shall be received and duly recorded by the receiving party on or before the date and time set for receipt of Bids. The receiving party shall verify that replaced or withdrawn Bids are removed from the other submitted Bids and not considered. Notice of submission of a replacement Bid or withdrawal of a Bid shall be worded so as not to reveal the amount of the original Bid.

§ 4.4.2 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids in the same format as that established in Section 4.3, provided they fully conform with these Instructions to Bidders. Bid security, if required, shall be in an amount sufficient for the Bid as resubmitted.

### ARTICLE 5 CONSIDERATION OF BIDS

#### § 5.1 Opening of Bids

If stipulated in an advertisement or invitation to bid, or when otherwise required by law, Bids properly identified and received within the specified time limits will be publicly opened and read aloud. A summary of the Bids may be made available to Bidders.

#### § 5.2 Rejection of Bids

Unless otherwise prohibited by law, the Owner shall have the right to reject any or all Bids.

#### § 5.3 Acceptance of Bid (Award)

§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest responsive and responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. Unless otherwise prohibited by law, the Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's best interests.

§ 5.3.2 The Owner shall accept Alternates in the order listed on the Bid Form to determine the lowest responsive and responsible Bidder on the basis of the sum of the Base Bid and Alternates accepted.

### ARTICLE 6 POST-BID INFORMATION

#### § 6.1 Contractor's Qualification Statement

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request and within the timeframe specified by the Architect, a properly executed AIA Document A305™, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted for this Bid.

#### § 6.3 Submittals

§ 6.3.1 After notification of selection for the award of the Contract, the Bidder shall, within three (3) calendar days or as stipulated in the Bidding Documents, submit in writing to the Owner through the Architect:

- .1 a designation of the Work to be performed with the Bidder's own forces;
- .2 names of the principal products and systems proposed for the Work and the manufacturers and suppliers of each; and
- .3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.
- .4 The name of the Project Superintendent and Project Manager together with the resume of qualifications of each;
- .5 Nonresident Contractor shall submit a letter from an attorney as required by Subparagraph 11.1.2 below and;
- .6 Engineering Firm or Testing Laboratory for testing as specified.

§ 6.3.2 The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

§ 6.3.3 Prior to the execution of the Contract, the Architect will notify the Bidder if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, withdraw the Bid or submit an acceptable substitute person or entity. The Bidder may also submit any required adjustment in the Base Bid or Alternate Bid to account for the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

§ 6.3.4 Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

§ 6.3.5 The Contractor shall, within ten (10) calendar days of receiving Contract Forms for signature, furnish to the Owner the following items, along with the signed contract, or the Bid Security will be forfeited automatically without further delay:

- .1 A Signed Construction Contract;
- .2 Performance Bond and Labor and Material Payment Bond (originals) on all Bids over \$10,000.00;
- .3 Certificate of Insurance and copy of Builder's Risk Policy (original), as identified in the specifications;
- .4 Schedule of Values; and
- .5 Federal Immigration Law Compliance: E-Verify enrollment documentation.

§ 6.3.6 The Bid Check or Bond of the three (3) lowest Bidders will not be returned until after the Construction Contract is executed.

## **ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND**

### **§ 7.1 Bond Requirements**

§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder.

§ 7.1.2 If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

§ 7.1.3 The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 7.1.4 Unless otherwise indicated below, the Penal Sum of the Payment and Performance Bonds shall be the amount of the Contract Sum.

§ 7.1.4 A Surety authorized to do business in the State of Alabama shall issue Performance Bond and Labor and Material Payment Bond, as required by the Contract Documents. If the project cost is \$50,000.00 or more, the Surety must have a minimum rating of A/Class VI as reported by the latest issue of Best's Key Rating Guide Property-Casualty, published by Alfred M. Best Company, Inc.

### **§ 7.2 Time of Delivery and Form of Bonds**

§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than ten (10) calendar days from receiving the Construction Contract forms for signature.

§ 7.2.2 The bonds shall be written on City's Performance Bond and Labor and Material Payment Bond forms.

§ 7.2.3 The bonds shall be dated on or after the date of the Contract.

§ 7.2.4 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix to the bond a certified and current copy of the power of attorney.

## **ARTICLE 8 FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR**

Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on AIA Document A101, Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment Is a Stipulated Sum.

§ 8.1.1 AIA Document A101, Standard Form of Agreement Between Owner and Contractor where the Basis of Payment is a stipulated sum will be edited electronically and include the standard signatures as required by the City of Mobile.

## **ARTICLE 9 NONDISCRIMINATION**

§9.1.1 Contractor shall comply with all Federal, State and local laws concerning nondiscrimination, including but not limited to City of Mobile Ordinance No. 14-034 which requires, *inter alia*, that all contractors performing work for the City of Mobile not discriminate on the basis of race, creed, color, national origin or disability, require that all subcontractors they engage do the same, and make every reasonable effort to assure that fifteen percent of the work performed under contract be awarded to socially and economically disadvantaged individuals and business entities. Contractor shall provide a completed copy of the City of Mobile Subcontracting and Major Supplier Plan with the Bid Form, for bids of \$250,000.00 or greater.

## **ARTICLE 10 USE OF DOMESTIC PRODUCTS**

§ 10.1.1 Section 39-3-1 Code of Alabama provides that the Contractor agrees, in the execution of this contract, to use material supplies and products manufactured, mined, processed or otherwise produced in the United States or its territories, if available at reasonable prices, and that breach of this agreement by the Contractor shall result in the assessment of liquidated damages in an amount not less than \$500 nor more than 20 percent of the gross amount of the contract price.

§ 10.1.2 Section 39-3-4, Code of Alabama provides that the Contractor for a municipal construction project, financed by the State of Alabama or any political subdivision thereof, is required to use steel produced within the United States. If the Contractor violates the requirement to use domestic steel, this contract will automatically be revoked and the contractor shall not be entitled to any set-off or recoupment for labor or materials used up to the time of revocation.

## **ARTICLE 11 PREFERENCE TO RESIDENT CONTRACTORS**

§ 11.1.1 Except for contracts funded in whole or in part with funds received from a federal agency, preference shall be given to Alabama resident contractors, and a nonresident bidder domiciled in a state having laws granting preference to local contractors shall be awarded the contracts only on the same basis as a the nonresident bidder's state awards contracts to Alabama contractors bidding under similar circumstances. In the letting of public contracts in which any state, county or municipal funds are utilized, resident contractors in Alabama, be they corporations, individuals or partnerships, are to be granted preference over nonresidents in awarding of contracts in the same manner and to the same extent as provided by the laws of the state of domicile of the nonresident.

§ 11.1.2 A successful nonresident bidder shall include in his post bid submittals a written opinion of an attorney at law licensed to practice law in such nonresident bidders' state of domicile, as to the preferences, if any or none, granted by the law of that state to its own business entities whose principal places of business are in that state in the letting of any or all public contracts.

## **ARTICLE 12 PRE-BID REQUIREMENTS**

### **§ 12.1 STATE OF ALABAMA CONTRACTORS LICENSE**

§ 12.1.1 If the Project total bid amount is \$50,000 or more, a license issued by the State of Alabama Licensing Board for General Contractors is required prior to submitting a bid and the licensed classification and bid limits must cover the type of work in this project. See Invitation to Bid, Section 6 "Bidder Qualifications".

### **§ 12.2 A NONRESIDENT BIDDER**

§ 12.2.1 Every bidder shall be registered with the Department of Revenue and with the Alabama Secretary of the State prior to bidding. The Secretary of State's "Business Entity ID" registration number shall be included on the bid form.

## **ARTICLE 13 POST-BID REQUIREMENTS**

### **§ 13.1 CITY CONTRACTOR'S LICENSE**

13.1.1 A City of Mobile Contractors License is required and must be current before the Contractor signs the Contract. Contractor must qualify and post \$10,000.00 Surety Bond with the Land Use/Code Administration Department before a Contractors License will be issued by the Revenue Department. Information on the City Contractors License may be obtained by writing or calling:

Land Use/Code Administration  
P. O. Box 1827  
Mobile, Alabama 36633-1827  
Phone: 251.208.7421

Revenue Department  
P. O. Box 1827  
Mobile, Alabama 36633-1827  
251.208.7461

**13.2 E-VERIFY DOCUMENTATION**

§ 13.2.1 The Contractor agrees that it shall comply with all of the requirements of the State of Alabama Immigration Law (Act. No. 2011-535 as amended by Act. No. 2012-491, Alabama Code (1975) Section 31-13-1, et. Seq., See Section 31-13-9), and the provisions of said Law, including all penalties for violation thereof, are incorporated therein.

**13.3 PUBLIC CONTRACTS WITH ENTITIES ENGAGING IN CERTAIN BOYCOTT ACTIVITIES**

§ 13.3 The Contractor represents and agrees that it is not currently engaged in, nor will engage in, any boycott of a person or entity based in or doing business with a jurisdiction with which the State of Alabama can enjoy open trade.



SECTION 00300  
SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

**THE ATTENTION OF ALL BIDDERS IS CALLED TO THE FOLLOWING  
INSTRUCTIONS AND CONDITIONS:**

I. BIDDING DOCUMENTS:

- A. Bidders may obtain complete sets of Bid Documents and Specifications (Project Manual) from the Department of Architectural Engineering as listed in the Invitation to Bid.
- B. Bidders shall use the complete set of documents in preparing their bid. The City of Mobile assumes no responsibility for errors or misinterpretations resulting from use of an incomplete set of documents.  
Bidders shall use the complete set of documents in preparing their bid. Neither the City of Mobile nor the Engineer (Architect) Goodwyn, Mills, and Cawood assume responsibility for errors or misinterpretations resulting from use of an incomplete set of documents.

ii. INTERPRETATION OF BID DOCUMENTS:

- A. Bidders shall carefully study and compare the Bidding Documents and compare various components of the Bidding Documents with each other, shall examine the site and local conditions and shall at once report to the Project Manager any errors, inconsistencies or ambiguities discovered.
- B. Bidders requiring clarification or interpretation of the Bidding Documents shall make a written request to the Project Manager by 3:00 PM at least five (5) calendar days prior to the date for receipt of Bids. E-mail requests are required and should be addressed to [shannon.mcintyre@cityofmobile.org](mailto:shannon.mcintyre@cityofmobile.org).
- C. Interpretations, corrections and changes to the Bidding Documents will be made by a formal, written Addendum. Interpretations, corrections and changes to the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely on them.
- D. Any discrepancy not resolved prior to Bidding shall be bid by the Contractor to provide for the most costly and/or restrictive interpretation of the documents.

iii. BIDDING PROCEDURES:

- A. No Bid will be considered unless made out and submitted on a copy of the Bid Form as set forth by the Bid Documents.
- B. All blanks on the Bid Form shall be legibly executed in a non-erasable medium.
- C. Sums shall be expressed in both words and figures. In case of discrepancy, the amount written in words shall govern.



- D. Interlineations, alterations and erasures must be initialed by the signer of the Bid.
- E. All requested Alternates, Unit Prices and Allowances shall be bid as indicated on the Bid Form and the Bid Documents.
- F. Addenda shall be considered as a part of the Bid Documents and those issued prior to the opening of Bids shall be acknowledged on the Bid Form and any adjustment in cost shall be included in the Contract Sum.

#### 4. BID SECURITY:

- A. A Cashier's Check drawn on a bank registered to do business in the State of Alabama and which is a member of the Federal Deposit Insurance Corporation, or Bid Bond payable to Owner, City of Mobile, in the amount of 5% of the Base Bid, but in no event more than \$10,000.00, must accompany bid. By submitting a Bid Security, the Bidder pledges to enter into a Contract with the City of Mobile on the terms stated in the Bid, and will, if required, furnish bonds covering faithful performance of the Contract and required insurance certificate. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds or insurance or any other required document, the amount of the Bid security shall be forfeited to the Owner as liquidated damages, not as a penalty.
- B. Bid Bond shall be valid for a minimum of sixty (60) days from the date of the Bid. The Owner reserves the right to retain the security of all Bidders until the successful Bidder enters into the Contract or until (60) days after Bid opening, whichever is sooner.
- C. Bonds must be issued by a Surety licensed to do business in the State of Alabama. If the project cost is more than \$50,000.00 the Surety must have a minimum rating of A/Class VI as reported by the latest issue of Best's Key Rating Guide Property-Casualty published by Alfred M. Best Company, Inc.
- D. Power of Attorney is required for all Bonds.
- E. The Surety company shall be required to execute AIA Document G-707, "Consent of Surety to Final Payment" prior to Final Payment of retainage being made to the Contractor.

#### 5. EXAMINATION OF DOCUMENTS AND SITE WORK:

- A. Before submitting a Bid, Bidders should carefully examine the Bid Documents, visit the site of the Work, including attendance at the MANDATORY Pre-Bid conference, fully inform themselves as to existing conditions and limitations, and include in the Bid a sum to cover the cost of all items included in the Contract and necessary to perform the Work. The submission of a Bid will be considered as conclusive evidence that the Bidder has made such examination.

**6. SUBMISSION OF BIDS:**

- A. Bid, with Bid Security, Sales Tax Form C-3A, City of Mobile Subcontracting & Major Supplier Plan and other supporting data specified, shall be contained in a sealed, opaque envelope, approximately 9x12 inches or larger and be marked on the outside with the words "SEALED BID FOR AZALEA CITY GOLF COURSE PROJECT NUMBER: PR-029-21", the Bid Date, and Contractor's name, address, and City of Mobile Business License number. And, if bidding in an amount \$50,000 or greater, the State of Alabama General Contractor's License number and classification of the Bidder issued by the State of Alabama Licensing Board for General Contractors shall be written on the envelope.
- B. Bids shall be deposited at the designated location prior to the time and date for receipt of Bids. Bids received after the time and date specified in the Invitation to Bid, or as modified by Addendum, will not be considered. Late Bids will be returned to the Bidder unopened.
- C. The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.
- D. Oral, telephonic, facsimile or other electronically transmitted bids will not be considered.

**7. MODIFICATION OR WITHDRAWAL OF BIDS:**

- A. A Bid may not be modified, withdrawn, or canceled by the Bidder for a period of sixty (60) days following the time and date designated for receipt of bids, and each Bidder so agrees in submitting a Bid.

**8. CONSIDERATION AND AWARD OF BIDS:**

- A. At the discretion of the City, the properly identified Bids received on time will be publicly opened and will be read aloud.
- B. The City shall have the right to reject any and all Bids. A Bid not accompanied by a required Bid security or a Bid which is in any way incomplete or irregular is subject to rejection.
- C. It is the intent of the City to award a Contract to the lowest qualified Bidder provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The City shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the City's judgment, is in the City's best interest.
- D. The award shall be based on the lowest Total Bid for the Base Bid and any allowances, plus any alternates and/or options that may be accepted, as listed on the Bid Form.

**9. PROOF OF COMPETENCY OF BIDDER:**

- A. Bidders may be required to furnish evidence satisfactory to the City of Mobile that they have sufficient means and experience in the types of work called for to assure the completion of the Contract in a satisfactory manner.

**10. SIGNING OF CONTRACT:**

- A. The Standard Agreement between the City of Mobile and the Contractor, included herein, shall serve as the Agreement between the City and the Contractor.
- B. The Bidder to whom the Contract is awarded shall, within ten (10) calendar days of receiving the Contract Forms, properly execute and deliver to the Owner, the following items with the signed Agreement:
  - (1). Performance Bond and Labor and Material Payment Bond (originals);
  - (2). Certificate of Insurance (original) with endorsements to City of Mobile;
  - (3). Evidence of enrollment in the E-Verify program.
  - (4). Other documentation as required by the Contract Documents.
- C. Failure or refusal to sign the Agreement or to provide Certificates of Insurance in a form satisfactory to the City of Mobile, E-Verify verification, or other required documentation, shall subject the Bidder to immediate forfeiture of Bid Security.
- D. On all documents: City of Mobile Business License, the Alabama Secretary of State Business Identity, the Alabama Secretary of State Certificate of Authority (out of state contractors), E-verify documentation, and ACORD Insurance Form, the Contractor's name shall be EXACTLY the same.

**11. NONDISCRIMINATION:**

- A. Contractor shall comply with all Federal, State and local laws concerning nondiscrimination, including but not limited to City of Mobile Ordinance No. 14-034 which requires, inter alia, that all contractors performing work for the City of Mobile not discriminate on the basis of race, creed, color, national origin or disability, require that all subcontractors they engage do the same, and make every reasonable effort to assure that fifteen percent of the work performed under contract be awarded to socially and economically disadvantaged individuals and business entities.

**12. AMERICANS WITH DISABILITIES ACT (ADA):**

- A. Bidders shall comply with the provisions of the Americans with Disabilities Act (ADA) of 1990 which prohibits discrimination against individuals with disabilities.

**13. USE OF DOMESTIC PRODUCTS:**

- A. Section 39-3-1, Alabama Code, 1975, provides that the Contractor agree, in the execution of this Contract, to use materials, supplies and products manufactured, mined, processed or otherwise produced in the United States or its territories, if available at reasonable prices, and that breach of this Agreement by the Contractor shall result in the assessment of liquidated damages in an amount not less than \$500.00 nor more than twenty (20) percent of gross amount of the Contract Price.

14. NON-RESIDENT (OUT OF STATE) CONTRACTORS:

- A. Preference to Resident Contractors: Section 39-3-5, Code of Alabama, 1975, provides that a non-resident (out of State) bidder domiciled in a state which grants a preference to local Contractors is to be awarded a public contract on the same basis as the non-resident bidder's state awards contracts to Alabama bidders. Alabama bidders are given a preference to the same extent that a non-resident bidder receives a preference in his home state. A non-resident bidder must include with any written bid documents a written opinion of an attorney licensed to practice in the non-resident bidder's state declaring what preferences, if any, exists in the non-resident's state.
- B. Certificate of Authority: All non-resident (out of State) bidders shall be registered with the Alabama Secretary of State and the Alabama Department of Revenue prior to submitting a Bid. Provide the Secretary of State Business "Entity ID Number" on the Bid Form in the space provided.

15. ALABAMA IMMIGRATION ACT:

- A. The State of Alabama Immigration Law (Act No. 2011-535 as amended by Act No. 2012-491), requires that Contractors not violate federal immigration law or knowingly employ, hire for employment, or continue to employ an unauthorized alien within the State of Alabama. In addition, Contractors are required to enroll in the federal E-Verify program and submit verification of enrollment to the City of Mobile within ten (10) days of receiving the contract forms (see Section 00600).

16. CITY OF MOBILE BUSINESS LICENSE:

- A. A City of Mobile Business License is required and must be current at time of contract award and throughout contract period.

17. CITY OF MOBILE CONTRACTOR'S BUSINESS LICENSE:

- A. A City of Mobile Contractor's Business License is required and must be current when contractor signs the contract and throughout contract period.
- B. Contractor must qualify and post a \$10,000 surety bond with the Land Use/Code Administration Department before a Contractor's Business License will be issued by the Revenue Department. Information on the City Contractor's License may be obtained by writing or calling:

Land Use/Code Administration  
 P.O. Box 1827  
 Mobile, Alabama 36633-1827  
 Phone: 251-208-7421

Revenue Department  
 P.O. Box 1827  
 Mobile, Alabama 36633-1827  
 Phone: 251-208-7461

## 18. CITY OF MOBILE BUILDING PERMIT:

- A. A City of Mobile Building Permit/Electrical Permit/Plumbing Permit/HVAC Permit/Whatever Permit is required and shall be obtained from the Land Use/Code Administration Department, but at no cost to the Contractor.
- B. Contractor is responsible for ensuring that all inspections are successfully performed in accordance with City of Mobile regulations.

## 19. CONSTRUCTION SCHEDULE AND ACCESS:

- A. The project shall be completed within one hundred and twenty-five (125) calendar days for base bid and within two hundred and fifteen (215) calendar days with alternates too from the date indicated by the Notice to Proceed.
- B. The Azalea City of Golf Course will remain in use throughout the Construction period and the Contractor is directed to coordinate all areas of work and scheduling of work with the Owner. Within five days of the bid opening, the Apparent Low Bidder Contractor shall meet with the Owner to discuss Owner scheduling and priorities. Apparent Low Bidder shall then provide a proposed schedule within 5 calendar days of the initial meeting for Owner review and approval.
- C. Contractor shall have access to the Azalea City of Golf Course as approved by the Owner, but typically **Monday through Friday from 8:00 A.M. to 5:00 P.M.** Contractor is directed to coordinate all areas of work and scheduling with the Owner. After hours and weekend work will require prior approval of the City of Mobile Architectural Engineering Department and may require hiring of a guard at the contractor's expense.
- D. The Contractor may be allowed additional construction days due to inclement conditions ("rain days") only as such are appropriately documented and are in excess of the NOAA/National Weather Service average (previous 5 years) for the given month. A "rain day" is defined as more than a "trace" (0.10") of rain falling within a given 24 hour period. The Contractor shall provide documentation and formally request any "rain days" they feel are legitimately due. Documentation shall be submitted to the Project Manager, in writing, within ten (10) calendar days of the rain event. Claim shall include documentation of trades adversely impacted and the impacted activities of each trade.

## 20. SITE CONSIDERATIONS:

- A. It is the Contractor's responsibility to carefully remove and store any items not permanently installed within the work areas. It is recommended that the Contractor photograph, videotape or in some manner document any features to be removed and their condition, prior to removal.
- B. Noise and strong smells shall be isolated or kept to a minimum when adjacent portions of the site are occupied.

- C. Contractor shall be responsible to leave the work area and adjacent site clear of equipment and debris, etc. at the end of each work day. All final cleaning is the responsibility of the Contractor and shall be executed prior to acceptance for reuse of any portion of the site.
- D. A dumpster and lay down area for Contractor materials and staging may be located at the site and located per the direction of the Owner. The Contractor is responsible for the removal of the dumpster, any storage containers and any security fencing, temporary erosion control (BMPs), etc. as soon as practical after their use by the Contractor or the work is complete.
21. SALES AND USE TAX EXEMPTION:
- A. As per the State of Alabama ACT 2013-205, the Alabama Department of Revenue (ADOR) has been granted the authority to issue a "Certificate of Exemption from Sales and Use Tax for Governmental Entities" on construction projects. Therefore, this project shall qualify for State of Alabama Sales and Use Tax Exemptions under this ACT. It is the responsibility of the Bidder to confirm the potential tax exempt status of their bid with the ADOR and include any such savings in their bid, as well as accounting for same on their bid form attachment Sales Tax Form C-3A.
- B. The full text of ACT 2013-205 is available on the State of Alabama Building Commission web-site at [www.bc.alabama.gov](http://www.bc.alabama.gov).
22. SUBMISSION OF LIEN WAIVERS AND DBE COMPLIANCE, UTILIZATION REPORTS:
- A. At each monthly Application for Payment submitted to the owner, the Contractor shall provide completed "City of Mobile DBE Compliance, Utilization Reports" and lien waivers, including those from Subcontractors and material suppliers.
23. NOTICE OF COMPLETION:
- A. For Contracts \$50,000 or greater:  
Contractor shall provide proof of publication of Advertisement of Completion for four consecutive weeks in a local newspaper, as required in the Title 39, Section 39-1-1, Subsection (f), of the Code of Alabama. This Advertisement shall not begin until the Project has been accepted by the City of Mobile.
- B. Notice of Completion advertisement shall read as follows:
- STATE OF ALABAMA
- COUNTY OF MOBILE
- NOTICE OF COMPLETION
- In accordance with Chapter 1, Title 39, Code of Alabama, 1975, NOTICE IS HEREBY given that (COMPANY NAME) has completed the contract for City of Mobile, Alabama Azalea City of Golf Course - PR-029-21, Mobile, Alabama 36608. All persons having any claims for labor, material or otherwise in

connection with this project should immediately notify the Architectural Engineering Department, City of Mobile, P.O. Box 1827, Mobile, Alabama 36633-1827.

- C. Advertisement shall not begin until the Project has been accepted by the City of Mobile as Substantially Complete.

#### 24. CONTRACTOR WARRANTY AND CERTIFICATION:

- A. Upon completion of the contract, the Contractor shall certify under oath that all bills have been paid in full.
- B. Contractor shall provide a one year Labor and Materials Warranty on company letterhead in addition to other warranties required by the Bid Documents.

#### 25. LIQUIDATED DAMAGES

- A. A time charge equal to Two Hundred Fifty Dollars (\$250.00) per calendar day will be made against the Contractor for the entire period that any part of the Work remains uncompleted, or any required closeout documents are not acceptably submitted, for more than thirty (30) calendar days after the time specified for the Substantial Completion for the Work, the amount of which shall be deducted by the owner, and shall be retained by the Owner out of monies otherwise due the Contractor in the final payment, not as a penalty, but as liquidated damages sustained.

**END OF SECTION**

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MOBILE, ALABAMA

## SECTION 00400

## BID FORM – AZALEA CITY GOLF COURSE

Copies of the following Bid Forms shall be used. Bids submitted on alternate forms may be rejected. Fill in all blank spaces with an appropriate entry. Bid Form must be signed by an officer of the company and notarized.

**TO: City of Mobile, 205 Government St., P.O. Box 1827, Mobile, AL, 36633**

**REF: PROJECT NO.: PR-029-21**  
**PROJECT NAME: Azalea City Golf Course – Range Building, Clubhouse Restroom & Equipment Building**  
**PROJECT LOCATION: 1000 Gaillard Drive**  
**Mobile, Alabama, 36608**

In compliance with the Bid Documents and having carefully and thoroughly examined said documents for the subject Work prepared by the City of Mobile, Architectural Engineering Department and Goodwyn Mills and Cawood, dated April 12, 2023; and all Addendum (a) Number(s) \_\_\_\_\_, dated \_\_\_\_\_, 2023 (CAUTION: before submitting any bid it is the Bidder's responsibility to check with the Architectural Engineering Department for all Addenda or special instructions that may impact the Bid) thereto, receipt of which is hereby acknowledged, the premises and all conditions affecting the Work prior to making this Proposal, the Undersigned Bidder, hereby

**COMPANY NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_ **PHONE:** \_\_\_\_\_

**ALABAMA GENERAL CONTRACTOR LICENSE NO.** \_\_\_\_\_

**CITY OF MOBILE BUSINESS LICENSE NO.** \_\_\_\_\_

**SECRETARY OF STATE OF ALABAMA BUSINESS IDENTITY NO.** \_\_\_\_\_

**SECRETARY OF STATE OF ALABAMA ACCOUNT NO.** \_\_\_\_\_

(Note: Secretary of State Account Number shall be filled in only by non-resident bidders)

(Check one)  A Corporation  A Partnership  An Individual Doing Business

hereby proposes to furnish all labor, materials, tools, equipment, and supplies and to sustain all the expenses incurred in performing the Work on the above captioned Project in accordance with the terms of the Contract Documents, and all applicable laws and regulations for the sum listed below. The initial term of the Contract shall extend for one hundred twenty (120) calendar days for base bid, and additional sixty (60) calendar days for Add. Alt. #1 and and additional sixty (60) calendar days for Add. Alt. #2 from the date of the Notice to Proceed.

MOBILE, ALABAMA

<b><u>Base Bid:</u></b>	<b>\$ _____ .00</b>
<b><u>Contingency Allowance:</u></b>	<b>+ \$ _____ 15,000.00</b>
<b><u>Total Base Bid:</u></b>	<b>\$ _____ .00</b>

(Fill in here and in Total Bid below)

_____ Dollars, (\$ _____ .00)	_____ (Amount in Figures)
(Amount in Words)	

**Additive Alternate #1:** Range Building

_____ Dollars & No Cents \$ _____ .00	_____ Amount in #'s
(Amount in Words)	

**Additive Alternate #2:** Equipment Building

_____ Dollars & No Cents \$ _____ .00	_____ Amount in #'s
(Amount in Words)	

(Note: Show amount in both words and figures. In case of discrepancy, the amount in words shall govern). **Bids shall be provided in whole dollar amount with no cents.**

**CONTINGENCY ALLOWANCE:** \$15,000.00 lump sum Contingency Allowance shall be included in the Total Bid for work related to unforeseen conditions as approved by the Owner.

**BID SECURITY:** The undersigned Bidder agrees that the attached Bid Security, as a Cashier's Check drawn on a bank registered to do business in the State of Alabama and which is a member of the Federal Deposit Insurance Corporation, or a Bid Bond, made payable to the City of Mobile, in the amount of 5% of the bid amount, but in no event more than \$10,000, as the proper measure of liquidated damages which the City will sustain by the failure of the undersigned to execute the Contract. Said Bid Security shall become the property of the City of Mobile as liquidated damages as specified in the Contract Documents.

**AMERICANS WITH DISABILITIES ACT (ADA):** The undersigned Bidder agrees to fully comply with all requirements of the Americans with Disabilities Act of 1990 and the Amendment Act.

**NONDISCRIMINATION:** Contractor shall comply with all Federal, State and local laws concerning nondiscrimination, including but not limited to City of Mobile

MOBILE, ALABAMA

Ordinance No. 14-034 which requires, *inter alia*, that all contractors performing work for the City of Mobile not discriminate on the basis of race, creed, color, national origin or disability, require that all subcontractors they engage do the same, and make every reasonable effort to assure that fifteen percent of the work performed under contract be awarded to socially and economically disadvantaged individuals and business entities.

**SIGNATURE:** If the undersigned Bidder is incorporated, the entire legal title of the company followed by "a corporation" should be used. If Bidder is an individual, then that individual's full legal name followed by doing business as (d/b/a) and name of firm, if any, should be used. If Bidder is a partnership, then full name of each partner should be listed followed by "d/b/a" and name of firm, if any.

Ensure that name and exact arrangement thereof is the same on all forms submitted with this Bid. If a word is abbreviated in the official company name, such as "Co.", then use that abbreviation. If not abbreviated in the official name, spell out.

Bidder agrees not to revoke or withdraw this Bid until sixty (60) calendar days following the time and date for receipt of bids. If notified in writing of the acceptance of this Bid within this time period, Bidder agrees to execute a Contract based on this Bid on the proscribed form within ten (10) calendar days of said notification and to furnish Performance Bond and Materials and Payment Bond as specified.

**COMPANY NAME:** \_\_\_\_\_  
(Printed or Typed)

**BY:** \_\_\_\_\_  
(Signature of Company Officer)

**COMPANY OFFICER:** \_\_\_\_\_  
(Printed or Typed)

**TITLE** \_\_\_\_\_ **DATE** \_\_\_\_\_, 2023  
(Printed or Typed)

Sworn to and subscribed before me this \_\_\_\_\_ day of \_\_\_\_\_ 2023

\_\_\_\_\_  
Notary Public

- Attachments: 1. Bid Security, with Power of Attorney
- 2. Secretary of State Authorization (Out of state bidders only)
- 3. Sales Tax Form C-3A
- 4. Section 00007: Attachment A
- 5. Supplier Diversity Subcontracting & Major Supplier Plan

END OF BID FORM

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**ACCOUNTING OF SALES TAX - A  
ATTACHMENT TO BID FORM SECTION 00400  
SALES TAX FORM C-3A**

To: City of Mobile

Date: \_\_\_\_\_

Name of Project: AZALEA CITY GOLF COURSE – RANGE BUILDING, CLUBHOUSE  
RESTROOM & EQUIPMENT BUILDING

Project Number: PR-029-21

**SALES TAX ACCOUNTING**

Pursuant to Act 2013-205, Section 1(g) the Contractor accounts for the sales tax NOT included in the bid proposal form as follows:

ESTIMATED SALES TAX AMOUNT

**BASE BID:** \$ \_\_\_\_\_

**ADD ALT. #1:** \$ \_\_\_\_\_

**ADD ALT. #2:** \$ \_\_\_\_\_

**Failure to provide an accounting of sales tax shall render the bid non-responsive. Other than determining responsiveness, sales tax accounting shall not affect the bid pricing nor be considered in the determination of the lowest responsible and responsive bidder.**

**Legal Name of Bidder** \_\_\_\_\_

Mailing Address \_\_\_\_\_

**\*By (Legal Signature)** \_\_\_\_\_

\*Name (type or print) \_\_\_\_\_ (Seal)

\*Title \_\_\_\_\_

Telephone Number \_\_\_\_\_

**ATTACHMENT A**

**TO BID FORM**

**1.1 UNIT PRICES:**

A. The following items of work are anticipated during the performance of this contract; however the exact quantity of each work item may not be determinable prior to bidding. These Allowance Unit Prices include all charges for labor and materials, shoring, fee, layout, supervision (field and home office), general expenses, taxes, insurance, overhead and profit, but not limited to, for the accomplishment of the Allowance item(s).

Clarification Note: The Unit Prices quoted by the Contractor shall apply to increases (additive change orders) and to decreases (deductive change orders). This requirement shall supplement the requirements of the General Conditions and Instruction to Bidders. Changes in the Contract amount that are computed using the Stated Allowances and Unit Prices shall be figured at the same unit price whether additive or deductive.

B. Refer to Section 010260 - "Unit Prices", and to the respective sections of the Specifications for the complete Unit Price Item description.

C. Submit the following Unit Prices with the Proposal Form on Bid Date.

<u>ITEM</u>	<u>UNIT QTY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>
1. Civil – Mass Earth Excavation	1	CY	\$
2. Civil – Trench Earth Excavation	1	CY	
3. Civil – Hand Earth Excavation	1	CY	
4a. Civil – Additional Soil- Top Soil	1	CY	
4b. Civil – Additional Soil- General or Open Site Areas	1	CY	
4c. Civil – Additional Soil- Trench Backfill	1	CY	
4d. Civil – Additional Soil- Select Fill	1	CY	
5. Civil – Sod	1	SY	
6. Civil – Fine Grading	1	SY	
7. Civil – Grading – Cut and Export	1	CY	
8. Civil – Excavation and Disposal of Unsuitable Soils	1	CY	

9. Civil – Seeding and Mulching	1	SY	
10. Civil – Silt Fencing	1	LF	
11. Civil – New Asphalt Pavement (6” Granular – 4” Binder- 1.5” Wearing)	1	SY	
12. Civil – New Concrete Sidewalk (6” Thick)	1	SY	
13. Civil – Temporary Construction Fencing	1	LF	
14. Civil – New 4” DI Gravity Sewer	1	LF	
15. New 8” DI Gravity Sewer	1	LF	
16. Miscellaneous DI Fittings	1	LBS	
17. 4” DI Water Line	1	LF	
18. 4” Gate Valve	1	EA	
19. Drywall	1	SF	
20. Moisture Resistant Board	1	SF	
21. Tile Backer Board	1	SF	
22. Sound Batt Insulation	1	SF	
23. Drywall Finishing	1	SF	
24. Standard Acoustical Ceiling	1	SF	
25. Standard Vinyl Ceiling	1	SF	
26. Un-faced Sound Batt Insulation Above Suspended Ceiling	1	SF	
27. Caulking and (2 Coats) Painting of Finished Gypsum Board Walls or Ceilings	1	SF	
28. Painting of Door Frames	1	EA	
29. 4-1/2” Rubber Cove Base	1	LF	
30. Linear Feet of Cold Water and Hot Water Domestic Pipe	1	LF	
31. Electrical – Data and Phone Outlet in Wall	1	CY	
32. Electrical – Junction Box Above Ceiling	1	EA	\$
33. Electrical – Duplex Power Outlet in Wall (120V)	1	EA	\$

34. Electrical – Power Outlet in Wall (240V)	1	EA	\$
35. Electrical – Floor Outlet for Power and Data	1	EA	\$
36. Electrical – Junction Box in Wall	1	EA	\$
37. Electrical – Duplex Power Outlet in Wall (120V)	1	EA	\$
38. Electrical – Power Outlet in Wall (240V)	1	EA	\$
39. Electrical – Exit Light	1	EA	\$
40. Fire Extinguisher and Cabinet	1	EA	\$
41. Floor Patch/ Leveling Compound	1	EA	\$
42. Steel Framing	1	EA	\$
43. Miscellaneous Steel Framing	1	EA	\$
<b>UNIT PRICE TOTAL:</b>			\$

(\*) Legend to “Unit” quantity abbreviations:

CY	Cubic Yards
SY	Square Yards
LF	Linear Foot
LBS	Pounds
EA	Each

Note: Failure to complete and submit this attachment with proposal shall be grounds for rejections of bid.

**END OF ATTACHMENT A TO PROPOSAL FORM**



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OFFICE OF SUPPLIER DIVERSITY  
**CITY OF MOBILE**  
Subcontracting and Major Supplier Plan

Contact Office of Supplier Diversity for  
questions on completing this form.  
Via email: [Archnique.kidd@cityofmobile.org](mailto:Archnique.kidd@cityofmobile.org)  
251.208.7967  
205 Government Street, 5<sup>th</sup> Floor

**Bidders and Proposers – Please complete and submit these forms as required by your City of Mobile Bid or Proposal Specification.**

If you are submitting a proposal in response to a Request for Qualifications, Request for Proposal, or other solicitation (“Solicitations”) issued by the City of Mobile, the bid specification may require you to utilize disadvantaged business enterprise (“DBE”) subcontractors and suppliers. If DBE participation is required, you must complete and submit these forms with your proposal. If required, failure to submit this form will render your bid non-responsive. NOTE: To satisfy participation requirements for a federally funded project, you must utilize DBEs certified through the Alabama Unified Certification Program.

If DBE participation is required, and you fail to satisfy the participation requirement, you must show that you made a good faith effort to include such participation; you will be required to submit DBE Compliance Form 2 and include additional information if needed. When so required, failure to address adequately the good faith effort factors on Form 2 will render your bid or proposal non-responsive. The “good faith effort” factors on Form 2 are not intended to be a mandatory, exhaustive, or exclusive.

You are encouraged to work with the City of Mobile Supplier Diversity Manager when preparing this form. Please consult with the City Supplier Diversity Manager for a list of eligible DBEs. The “good faith effort” factors on **Form 2** are not intended to be mandatory, exhaustive, or exclusive; they are a tool to help you, and the City of Mobile, determine whether you made efforts which, by their scope, intensity, and appropriateness to the objective, would reasonably be expected to fulfill the participation requirement.

About “**DBEs**”: Disadvantaged business enterprise or DBE means a for-profit small business concern (1) That is at least 51 percent owned by one or more individuals who are both socially and economically disadvantaged or, in the case of a corporation, in which 51 percent of the stock is owned by one or more such individuals; and (2) whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.

About “**Good Faith**” **Effort**: Good faith efforts means efforts to achieve a DBE goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement. The City of Mobile expects contractors holding large contracts to recruit and engage DBEs to be a part of their team.

**Failure to submit this form, when so required by the bid or proposal specification, will render your bid non-responsive.**



OFFICE OF SUPPLIER DIVERSITY  
**CITY OF MOBILE**  
 Subcontracting and Major Supplier Plan

Contact Office of Supplier Diversity for questions on completing this form.  
 Via email: Archnique.kidd@cityofmobile.org  
 251.208.7967  
 205 Government Street, 5<sup>th</sup> Floor

**FORM 1: Background and Plan**

**Section I. Information about your company**

Company	
Address	
Telephone	
E-Mail	

RFP/RFQ Solicitation Number	
Project Description	
Is your company a DBE company?	Yes <input type="checkbox"/> No <input type="checkbox"/>
Work force demographics	Male _____ Female _____ Minority _____ Non-minority _____ SDVO _____
	Total #of Employees _____

**Subcontractor/Major Supplier Plan submitted by:**

Printed Name: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Title: \_\_\_\_\_

The following employee will be designated as the **DBE Liaison** for all communication regarding DBE participation including documentation for DBE participation and maintenance of records of Good Faith Efforts for this contract award:

Name: \_\_\_\_\_ Title: \_\_\_\_\_

Email: \_\_\_\_\_ Phone: \_\_\_\_\_



OFFICE OF SUPPLIER DIVERSITY  
**CITY OF MOBILE**  
 Subcontracting and Major Supplier Plan

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 251.208.7967  
 205 Government Street, 5<sup>th</sup> Floor

**FORM 1: Background and Plan (Cont'd)**

**Section II. Subcontractors/Major Vendors Supplier Plan submitted by:**

Please Print Company \_\_\_\_\_ Your Bid/Proposal Amount \$ \_\_\_\_\_ Date: \_\_\_\_\_  
 \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ Description \_\_\_\_\_  
 Name of Bidder/Proposer: \_\_\_\_\_

**I intend to use the following subcontractors: (Attach additional pages if necessary)**

Subcontractor or Major Supplier	Phone	Scope of Work to be performed	\$\$ Value to be Performed	% Of Your Bid Amount	DBE?	Official Verification Only



OFFICE OF SUPPLIER DIVERSITY  
**CITY OF MOBILE**  
Subcontracting and Major Supplier Plan

**Form 2: Good Faith Effort Documentation**

Name of Bidder: \_\_\_\_\_

Contact Person: \_\_\_\_\_ Phone \_\_\_\_\_ Email \_\_\_\_\_

Please complete this form if you are unable to identify DBE subcontractors or suppliers to reach 15% of the value of your bid.

YES ( )	NO ( )	<b>Did you do these suggested areas for DBE recruitment and engagement</b>
		<b>PRE-BID MEETING(S):</b> The bidder attended all pre-bid meetings scheduled by the City to inform DBEs of contracting and subcontracting opportunities.
		<b>CMDBE/ALDOT DBE LIST(S):</b> The bidder utilized the Office of Supplier Diversity's list or lists of certified through the Alabama Department of Transportation UCP DBE Listing
		<b>SMALL CONTRACT(S):</b> The bidder selected specific portions of the work to be performed by DBEs in order to increase the likelihood of meeting the DBE goals (including breaking down contracts into smaller units to facilitate DBE participation). Consider support services, including insurance, accounting, temporary labor, and transportation, landscaping, and janitorial as potential areas for DBE use.
		<b>FOLLOW-UP:</b> The bidder followed-up initial indications of interest by DBEs by contacting those DBEs to determine with certainty if they remained interested in bidding.
		<b>GOOD FAITH NEGOTIATIONS:</b> The bidder negotiated in good faith with interested DBEs and did not reject DBEs as unqualified without sound business reasons based on a thorough investigation of their capabilities. Bidders are not expected to engage unqualified subcontractors or subcontractors whose pricing, after negotiation, remains excessive or unreasonable. (Please document qualification deficiencies or unreasonable pricing if it prevented your engagement of specific DBE subcontractors.)
		<b>ADVERTISEMENT:</b> The bidder advertised in general circulation and/or trade association publications concerning subcontracting opportunities and allowed DBEs reasonable time to respond.
		<b>INTERNET ADVERTISING:</b> The bidder advertised DBE and/or subcontracting opportunities in the newspaper or other internet portals that are accessible to DBEs and/or potential subcontractors.



OFFICE OF SUPPLIER DIVERSITY  
**CITY OF MOBILE**  
 Subcontracting and Major Supplier Plan

		<b>INFORMATION:</b> The bidder provided interested DBEs with adequate information about the plans, specifications and requirements of the subcontract.
		<b>WRITTEN NOTICE(S):</b> The bidder/proposer took the necessary steps to provide written notice in a manner reasonably calculated to inform DBEs of subcontracting opportunities and allowed sufficient time for them to participate effectively.
		<b>COMMUNITY RESOURCES:</b> The bidder/proposer used the services of available community organizations, small and/or disadvantaged business assistance offices and other organizations that provided assistance in the recruitment and placement of DBE firms.

**CONTRACT RECORDS:**

The bidder/proposer has maintained the following records for each DBE that has bid on the subcontracting opportunity:

1. Name, address, email address and telephone number
2. A description of information provided by the bidder/proposer or subcontractor; and
3. A statement of whether an agreement was reached, and if not, why not, including any reasons for concluding that the DBE was unqualified to perform the job.

**Section 2(B)**

\_\_\_\_\_ There are not ways to break out 15% of the value of this contract for subcontractors / suppliers. Provide further detail in Section 2(c) if the inability to break-out 15% of the value of the contract was the reason, or a reason, you could not meet the participation requirements.

\_\_\_\_\_ Could not find sufficient DBEs to provide subcontracting or supplier services.

\_\_\_\_\_ DBEs were available but did not have sufficient qualifications or experience to meet the needs of this contract.

Please indicate additional efforts you have taken to recruit and engage DBEs. \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

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- (1) *Do not staple this form and/or attachments; use clips. Print single-sided; do not submit double-side printed documents.*

<b>DCM (BC) Project No.</b>
-----------------------------

## CONSTRUCTION CONTRACT

- (2) This Construction Contract is entered into this            day of            in the year of
- (3) between the **OWNER**,  
Entity Name:  
Address:  
Email & Phone #:
- (4) and the **CONTRACTOR**,  
Company Name:  
Address:  
Email & Phone #:
- (5) for the **WORK** of the Project, identified as:
- (6) The **CONTRACT DOCUMENTS** are dated            and have been amended by
- (7) **ADDENDA**
- (8) The **ARCHITECT** is  
Firm Name:  
Address:  
Email & Phone #:
- (9) The **CONTRACT SUM** is  
Dollars (\$)            ) and is the sum of the Contractor's Base Bid for the Work and the following
- (10) **BID ALTERNATE PRICES:**
- (11) The **CONTRACT TIME** is            (            ) calendar days.

**THE OWNER AND THE CONTRACTOR AGREE AS FOLLOWS:** The Contract Documents, as defined in the General Conditions of the Contract (DCM Form C-8), are incorporated herein by reference. The Contractor shall perform the Work in accordance with the Contract Documents. The Owner will pay and the Contractor will accept as full compensation for such performance of the Work, the Contract Sum subject to additions and deductions (including liquidated damages) as provided in the Contract Documents. The Work shall commence on a date to be specified in a Notice to Proceed issued by the Owner or the Director, Alabama Division of Construction Management, and shall then be substantially completed within the Contract Time.

- (12) **LIQUIDATED DAMAGES** for which the Contractor and its Surety (if any) shall be liable and may be required to pay the Owner in accordance with the Contract Documents shall be equal to six percent interest per annum on the total Contract Sum unless a dollar amount is stipulated in the following space, in which case liquidated damages shall be determined at \_\_\_\_\_ dollars (\$ \_\_\_\_\_) per calendar day.



Numbers in margin correspond to "Checklist", DCM Form B-7

(13) **SPECIAL PROVISIONS** *(Special Provisions may be inserted here, such as acceptance or rejection of unit prices. If Special Provisions are continued in an attachment, identify the attachment below:)*

(14) **STATE GENERAL CONTRACTOR'S LICENSE:** The Contractor does hereby certify that Contractor is currently licensed by the Alabama State Licensing Board for General Contractors and that the certificate for such license bears the following:

License No.:

Classification(s):

Bid Limit:

The Owner and Contractor have entered into this Construction Contract as of the date first written above and have executed this Construction Contract in sufficient counterparts to enable each contracting party to have an originally executed Construction Contract each of which shall, without proof or accounting for the other counterparts, be deemed an original thereof.

The Owner does hereby certify that this Construction Contract was let in accordance with the provisions of Title 39, Code of Alabama 1975, as amended, and all other applicable provisions of law, and that the terms and commitments of this Construction Contract do not constitute a debt of the State of Alabama in violation of Article 11, Section 213 of the Constitution of Alabama, 1901, as amended by Amendment Number 26.

(15) **APPROVALS**

By _____ Date: _____ Governor (all State Agency projects except ABRFA)
By _____ Secretary of State (Conservation projects only)
By _____ Add'l Agency, Title:
<b>ALABAMA DEPARTMENT OF FINANCE, REAL PROPERTY MANAGEMENT (RPM), DIVISION OF CONSTRUCTION MANAGEMENT (DCM)</b>
By _____ Finance Director (Finance, sub-Finance & ABRFA projects only)
By _____ RPM Director (Finance, sub-Finance & ABRFA projects only)
By _____ DCM Director (all State Agency projects)
Reviewed By _____ DCM Contract Administrator (all State Agency projects)

**CONTRACTING PARTIES**

Contractor Company
By _____ Signature
Name & Title _____
Owner Entity
By _____ Signature
Name & Title _____
Additional Owner Entity signature space if needed:
Owner Entity
By _____ Signature
Name & Title _____

*The Awarding Authority/Owner certifies that funds are available in the amount required for the Owner-Architect Agreement.*

Review/Signature flow: Architect/Engineer (prepare documents) > Contractor (review and sign) > Architect/Engineer (review) > Owner (review and sign) > RPM/DCM (review and sign) > Finance-Legal > (> Finance, Finance sub-Agencies & Alabama Building Renovation Finance Authority [ABRFA] projects then go to Finance Director [review and sign]) > Governor (review and sign) (> Conservation projects then go to Secretary of State [review and sign]) > DCM (distribute fully executed Contract to all parties along with a Notice to Proceed). Note: Transportation inserts an additional signature sheet.

SECTION 00600

BONDS, CERTIFICATES AND AFFIDAVITS

**PART 1 GENERAL**

This section includes the Bond Forms and Certificates that are to be used on this Project. No other forms will be accepted. Forms may be obtained from the Architectural Engineering Department, City of Mobile, telephone number 251-208-7454.

1.1 FORMS

- A. PERFORMANCE BOND. Owner's modified Performance Bond form.
- B. LABOR AND MATERIAL PAYMENT BOND. Owner's modified Payment Bond form.
- C. E-Verify Documentation (Sample)
- D. APPLICATION AND CERTIFICATION FOR PAYMENT - AIA Document G702 and AIA Document G703 and DBE Utilization Report
- E. CERTIFICATE of SUBSTANTIAL COMPLETION – AIA Document G704-2017
- F. CONTRACTOR'S AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS - AIA Document G706
- G. CONTRACTOR'S AFFIDAVIT OF RELEASE OF LIENS - AIA Document G706A.
- H. CONSENT OF SURETY TO FINAL PAYMENT - AIA Document G707
- I. Request for Taxpayer Identification Number and Certification, W-9 Form, and City of Mobile Vendor Information Form

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**PERFORMANCE BOND**

Any singular reference to Contractor, Surety, Owner or other Party shall be considered plural where applicable.

**KNOW ALL MEN BY THESE PRESENTS:** That the Contractor, \_\_\_\_\_, \_\_\_\_\_, hereinafter called the Principal, and \_\_\_\_\_, hereinafter called the Surety, are held and firmly bound unto the **City of Mobile, P. O. Box 1827, Mobile, AL 36633**, hereinafter called the Owner, in the penal sum of \_\_\_\_\_ and xx/100 Dollars (\$\_\_\_\_\_.00) for payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns for the faithful performance of a certain written Contract dated the \_\_\_\_ day of \_\_\_\_\_, 2023 entered into between the Principal and the City of Mobile for furnishing all labor, material, equipment and insurance and performing all Work required to properly complete PR-29-21 Azalea City Golf Course – Range Building, Clubhouse Restroom & Equipment Building, Mobile, Alabama a copy of which said Contract is incorporated herein by reference and is made a part hereof as if fully copied herein.

**NOW, THEREFORE**, the condition of this obligation is such that if the Principal shall faithfully perform the terms and conditions of the Contract in all respects on its part and shall fully pay all obligations incurred in connection with the performance of such Contract on account of labor and materials used in connection therewith, and all such other obligations of every form, nature and character, and shall save harmless the Owner from all and any liability of every nature, kind and character which may be incurred in connection with the performance or fulfillment of such Contract or other such and liability resulting from negligence or otherwise on the part of such Principal and further save harmless the Owner from all cost and damage which may be suffered by reason of the failure to fully and completely perform said contract and shall fully reimburse and repay the Owner for all expenditures of every kind, character, and description which may be incurred by the Owner in making good any and every default which may exist on the part of the Principal in connection with the performance of said Contract; and further that the Principal shall pay all lawful claims of all persons, firms, partnerships, or corporations for all labor performed and material furnished in connection with the performance of the Contract, and that the failure to do so with such persons, firms, partnerships or corporations shall give them a direct obligation; and provided, however, that no suit, action, or proceedings by reason of any default whatever shall be brought on this bond after two years from the date on which the final payment on the Contract falls due, and provided, further, that if any alterations or additions which may be made under the Contract, or in the work to be done under it, or the giving by the Owner of any extensions of time for the performance of the Contract or any other forbearance being expressly waived. This obligation shall remain in full force and effect until the performance of all covenants, terms and conditions herein stipulated and after such performance, it shall become null and void.

In addition to any other legal mode of service, service of summons, and other process in civil actions brought in Mobile County may be had on the Contractor or the Surety on the bond by leaving a copy of the summons and complaint or other pleading or process with the Mayor of the City of Mobile which shall bind the principal Contractor and Surety to the mode of service above described and that the service shall be the same as personal service on the contractor or surety. This Bond is given pursuant to the terms of Alabama Code, Title 39-1-1, et. al., As Amended.

**EXECUTED IN FOUR (4) COUNTERPARTS.**

SIGNED, SEALED AND DELIVERED this \_\_\_\_ day of \_\_\_\_\_, 2023.

**CONTRACTOR AS PRINCIPAL**  
Company: \_\_\_\_\_  
(Corporate Seal)

**SURETY**  
Company: \_\_\_\_\_  
(Corporate Seal)

By: \_\_\_\_\_  
(Signature)

By: \_\_\_\_\_  
(Signature)

Name and Title: \_\_\_\_\_

Name and Title: \_\_\_\_\_

Resident Agent: \_\_\_\_\_  
(Signature)

Name and Title: \_\_\_\_\_  
Company Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone and Fax: \_\_\_\_\_

Owner's Representative: Cassie Boatwright  
REAM Director  
PO Box 1827  
Mobile, AL 36633  
251-208-7454

# LABOR AND MATERIAL PAYMENT BOND

Any singular reference to Contractor, Surety, Owner or other Party shall be considered plural where applicable.

**KNOW ALL MEN BY THESE PRESENTS:** That the Contractor, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, as Principal, and \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, as Surety, are held and firmly bound unto the **City of Mobile, P. O. Box 1827, Mobile, AL 36633** (hereinafter called the "Obligee") in the penal sum of \_\_\_\_\_ and xx/100 (\$ \_\_\_\_\_ .00) lawful money of the United States, for the payment of which sum well and truly to be made we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally, firmly by these presents.

**WHEREAS**, said Principal has entered into a certain Contract with said Oblige, dated the \_\_\_\_ day of \_\_\_\_\_, 2023 (hereinafter called the "Contract") for furnishing all labor, material, equipment and insurance and perform all work required to properly complete PR-29-21 Azalea City Golf Course – Range Building, Clubhouse Restroom & Equipment Building, Mobile, Alabama which, **THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH** that if said Principal and all subcontractors to whom any portion of work provided for in said Contract is sublet and all assignees of said Principal and of such subcontractors shall promptly make payments to all persons supplying him or them with labor, materials or supplies for or in the prosecution of the work provided for in such Contract, or in any amendment or extension of or additions to said Contract, and for the payment of reasonable attorney's fees, incurred by the claimant or claimants in suits on each bond, then the above obligations shall be void; otherwise to remain in full force and effect. **PROVIDED**, however, that this bond is subject to the following conditions and limitations.

- (a) Any person, firm or corporation that has furnished labor, materials or supplies for or in the prosecution of the work provided for in said contract shall have a direct right of action against the Principal and Surety on this bond, which right of action shall be asserted in a proceeding instituted in the County in which the work provided for in said Contract is to be performed or in any county in which said Principal and Surety does business. Such right of action shall be asserted in a proceeding instituted in the name of the claimant or claimants for his or their use and benefit against said Principal and Surety or either of them (but not later than one year after the final settlement of said Contract) in which action such claim or claims shall be adjudicated and judgment rendered thereon.
- (b) The Principal and Surety hereby designate and appoint \_\_\_\_\_ **Attorney-In-Fact**, as the agent of each of them to receive and accept service of process or other pleading issued or filed in any proceeding instituted on this bond and hereby consent that such service shall be the same as personal service on the Principal and/or Surety. In addition to any other legal mode of service, service of summons, and other process in civil actions brought in Mobile County may be had on the Contractor or the Surety on the bond by leaving a copy of the summons and complaint or other pleading or process with the Mayor of the City of Mobile which shall bind the principal Contractor and Surety to the mode of service above described and that the service shall be the same as personal service on the contractor or surety.
- (c) The Surety shall not be liable hereunder for damage or compensation recoverable under any Workmen's Compensation or Employer's Liability Statute.
- (d) In no event shall the Surety be liable for a greater sum than the penalty of this bond, or subject to any suit, action or proceeding thereon that is instituted later than two years after the final settlement of said Contract.
- (e) This bond is given pursuant to the terms of Alabama Code, Title 39-1-1, et. al., As Amended.

**EXECUTED IN FOUR (4) COUNTERPARTS.**

SIGNED, SEALED AND DELIVERED this \_\_\_\_ day of \_\_\_\_\_, 2023

**CONTRACTOR AS PRINCIPAL**  
Company: \_\_\_\_\_  
(Corporate Seal)

**SURETY**  
Company: \_\_\_\_\_  
(Corporate Seal)

By: \_\_\_\_\_  
(Signature)

By: \_\_\_\_\_  
(Signature)

Name and Title: \_\_\_\_\_  
\_\_\_\_\_

Name and Title: \_\_\_\_\_  
\_\_\_\_\_

Resident Agent: \_\_\_\_\_  
(Signature)

Owner's Representative: Cassie Boatwright  
REAM Director  
PO Box 1827  
Mobile, AL 36633  
251-208-7454

Name and Title: \_\_\_\_\_  
Company Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Phone and Fax: \_\_\_\_\_

TO OWNER City of Mobile
P. O. Box 1827
Mobile, AL 36633-1827

PROJECT: Azalea City Golf Course
1000 Gaillard Drive
Mobile, Alabama 36608

APPLICATION NO:

Distribution to:

Form with checkboxes for OWNER, ARCHITECT, CONTRACTOR

PERIOD TO:

FROM CONTRACTOR:

VIA ARCHITECT: Goodwyn Mills Cawood, Inc.
11 North Water Street
Suite 15250
Mobile, Alabama 36602

PROJECT NO: PR-029-21

CONTRACT FOR:

CONTRACT DATE:

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract. Continuation Sheet, AIA Document G703, is attached.

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

- 1. ORIGINAL CONTRACT SUM \$
2. Net change by Change Orders \$
3. CONTRACT SUM TO DATE (Line 1 ± 2) \$
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703) \$
5. RETAINAGE:
a. % of Completed Work \$
b. % of Stored Material \$
Total Retainage (Lines 5a + 5b or Total in Column I of G703) \$
6. TOTAL EARNED LESS RETAINAGE \$
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate) \$
8. CURRENT PAYMENT DUE \$
9. BALANCE TO FINISH, INCLUDING RETAINAGE \$

CONTRACTOR:

By: Date:

State of: County of:
Subscribed and sworn to before me this day of
Notary Public:
My Commission expires:

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising the application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED \$

(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

ARCHITECT:

By: Date:

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

Table with columns: CHANGE ORDER SUMMARY, ADDITIONS, DEDUCTIONS. Rows include Total changes approved in previous months by Owner, Total approved this Month, TOTALS, NET CHANGES by Change Order.

# CONTINUATION SHEET

AIA DOCUMENT G703

PAGE OF PAGES

AIA Document G702, APPLICATION AND CERTIFICATION FOR PAYMENT, containing Contractor's signed certification is attached.

APPLICATION NO:  
APPLICATION DATE:

In tabulations below, amounts are stated to the nearest dollar.

PERIOD TO:

Use Column I on Contracts where variable retainage for line items may apply.

ARCHITECT'S PROJECT NO:

A ITEM NO.	B DESCRIPTION OF WORK	C SCHEDULED VALUE	D WORK COMPLETED		F MATERIALS PRESENTLY STORED (NOT IN D OR E)	G		H BALANCE TO FINISH (C - G)	I RETAINAGE (IF VARIABLE RATE)
			FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD		TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G ÷ C)		
<b>GRAND TOTALS</b>									

Users may obtain validation of this document by requesting of the license a completed AIA Document D401 - Certification of Document's Authenticity

OFFICE OF SUPPLIER DIVERSITY

CITY OF MOBILE

DBE Compliance  
DBE UTILIZATION REPORT

Return to Office of Supplier Diversity  
Via email: [archnique.kidd@cityofmobile.org](mailto:archnique.kidd@cityofmobile.org)  
or  
P.O. Box 1948  
Mobile, AL 36633

CONTRACTOR:	Certified DBE: YES NO	Contract Start Date:
-------------	-----------------------	----------------------

DESCRIPTION:	Estimated Completion Date:
--------------	----------------------------

This report is for the month of: (CHECK ONE):

JAN	APR	JULY	OCT	FINAL _____
FEB	MAY	AUG	NOV	
MARCH	JUNE	SEPT	DEC	

Original Contract Amount	Total Amount of Contract Changes (change orders or amendments)	Final Contract Amount (include contract changes)	Payments to Date from City of Mobile	OFFICE USE ONLY (Verification)
\$	\$	\$	\$	

**Instructions:** List all DBEs utilized on the contract, whether or not the firms were originally listed for DBE goal credit. List actual amount paid to each DBE firm. If the established Percentage is not being met, please include a narrative description of the progress being made in DBE participation.

DBE SUBCONTRACTOR	DBE DESCRIPTION OF WORK	DBE SUBCONTRACT AMOUNT	DBE PAYMENTS THIS REPORT	PAYMENTS TO DATE	OFFICE USE ONLY (Verification)
		\$	\$	\$	
		\$	\$	\$	
		\$	\$	\$	
		\$	\$	\$	
<b>TOTALS</b>		\$	\$	\$	

I HEREBY CERTIFY THAT THE INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT. SUPPORTING DOCUMENTATION IS ON FILE AND IS AVAILABLE FOR INSPECTION BY CITY OF MOBILE OFFICE OF SUPPLIER DIVERSITY PERSONNEL AT ANY TIME.

PRINT NAME: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ (Title)      \_\_\_\_/\_\_\_\_/\_\_\_\_ (Date)



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# )) (AIA Document 6706' - 1994

## Contractor's Affidavit of Payment of Debts and Claims

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PROJECT: <i>mine m tce a t r l i e s s</i> )	ARCHITECT'S PROJECT NUMBER:	OWNER: [ ]
		ARCHITECT: @
	CONTRACT FOR: General Construction	CONTRACTOR: @
TO OWNER: <i>Name and address</i> )	CONTRACT DATED:	SURETY: @
		OTHER: @

---

STATE OF:  
COUNTY OF:

The undersigned hereby certifies that except as listed below, payment has been made in full and all obligations have otherwise been satisfied for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner or Owner's property might in any way be held responsible or encumbered.

EXCEPTIONS :

**SUPPORTING DOCUMENTS ATTACHED HERETO:**

- Consent of Surety to Final Payment. Whenever Surety is involved, Consent of Surety is required. AIA Document G707, Consent of Surety, may be used for this purpose

Indicate Attachment      Q            Yes      QQ No

CONTRACTOR:      n/ue cnr2 a t d i e d s)

*The following supporting documents should be attached hereto if required by the Rtrier:-*

BY: \_\_\_\_\_  
*(Signature of authorized representative)*

\_\_\_\_\_  
*(Printed name and title)*

- Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
- Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.
- Contractor's Affidavit of Release of Liens (AIA Document G706A).

Subscribed and sworn to before me on this date:

Notary Public:  
My Commission Expires:



# AIA® Document G706A' – 1994

## Contractor's Affidavit of Release of Liens

PROJECT _____	ADDRESS _____	PROJECT NUMBER _____	OWNER _____
		CONTRACT FOR: General Construction	ARCHITECT Q _____
<b>TO OWNER:</b> <i>(Name and address)</i>		CONTRACT DATED: _____	CONTRACTOR: Q _____
			SURETY: @ _____
			OTHER: @ _____

STATE OF: \_\_\_\_\_  
COUNTY OF: \_\_\_\_\_

The undersigned hereby certifies that to the best of the undersigned's knowledge, information and belief, except as listed below, the Releases or Waivers of Lien attached hereto include the Contractor, all Subcontractors, all suppliers of materials and equipment, and all performers of Work, labor or services who have or may have liens or encumbrances or the right to assert liens or encumbrances against any property of the Owner arising in any manner out of the performance of the Contract referenced above.

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

- Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
- Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.

CONTRACTOR: #nmcshuV1re\$

BY :

\_\_\_\_\_  
*(Signature of Representative)*

\_\_\_\_\_  
*(Printed name and title)*

Subscribed and sworn to before me on this date:

Notary Public:  
My Commission Expires:

# -)))(A|>)r Document G707'- 1994

## Consent Of Surety to Final Payment

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PROJECT: /<><< mid addr<><<ss)	ARCHITECT'S PROJECT NUMBER:	OWNER: L_)
	CONTRACT FOR: General Construction	ARCHITECT: @
TO OWNER: (Nniye mid oclclress)	CONTRACT DATED:	CONTRACTOR: @
		SURETY: @
		OTHER: @

---

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the  
(Insert name and address of Surety)

, SURFTY,

(Insert name and address of Contractor)

, CONTRACTOR,

hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the  
Surety of any of its obligations to  
(Insert name and address of Owner)

as set forth in said Surety's bond.

IN WITNESS WHEREOF, the Surety has hereunto set its hand on this date:  
(Insert in writing the month and day followed by the entire date.)

\_\_\_\_\_  
(Surety)

\_\_\_\_\_  
(Signature of authorized representative)

Attest:

\_\_\_\_\_

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**CITY OF MOBILE, AL  
VENDOR INFORMATION FORM**

*Company Information:*

1. City Vendor Number:

2. Name of Company:

3. Company D.B.A. Name, if any:

4. Mailing Address:

5. Remittance Address:

6. Telephone:

7. Fax

8. Main Email:

*Primary Contact:*

9. Contact Name and Title:

10. Contact Phone:

11. Contact Fax:

12. Contact Email:

*Alternate Contact (if applicable):*

13. Alt. Contact Name and Title:

14. Alt. Contact Phone:

15. Alt. Contact Fax:

16. Alt. Contact Email:

*City of Mobile Business License Information:*

17. City of Mobile Business License No. (if required):

*Please attach additional sheets if necessary.*

## Request for Taxpayer Identification Number and Certification

**Give Form to the  
 requester. Do not  
 send to the IRS.**

Print or type See Specific Instructions on page 2.	Name (as shown on your income tax return)	
	Business name/disregarded entity name, if different from above	
	Check appropriate box for federal tax classification: <input type="checkbox"/> Individual/sole proprietor <input type="checkbox"/> C Corporation <input type="checkbox"/> S Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Trust/estate  <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ _____  <input type="checkbox"/> Other (see instructions) ▶ _____	
	<input type="checkbox"/> Exempt payee	
	Address (number, street, and apt. or suite no.)	Requester's name and address (optional)
City, state, and ZIP code		
List account number(s) here (optional)		

### Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on the "Name" line to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Social security number									

**Note.** If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Employer identification number									

### Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. citizen or other U.S. person (defined below).

**Certification instructions.** You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 4.

<b>Sign Here</b>	Signature of U.S. person ▶	Date ▶
------------------	----------------------------	--------

### General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

#### Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

**Note.** If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

**Definition of a U.S. person.** For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

**Special rules for partnerships.** Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax on any foreign partners' share of income from such business. Further, in certain cases where a Form W-9 has not been received, a partnership is required to presume that a partner is a foreign person, and pay the withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid withholding on your share of partnership income.

# GENERAL CONDITIONS of the CONTRACT

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1. Definitions
2. Intent and Interpretation of the Contract Documents
3. Contractor's Representation
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6. Supervision, Superintendent, & Employees
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51. Sign

## ARTICLE 1 DEFINITIONS

Whenever the following terms, or pronouns in place of them, are used in the Contract Documents, the intent and meaning shall be interpreted as follows:

- A. **ALABAMA DIVISION OF CONSTRUCTION MANAGEMENT:** The Technical Staff of the Alabama Division of Construction Management.
- B. **ARCHITECT:** The Architect is the person or entity lawfully licensed to practice architecture in the State of Alabama, who is under contract with the Owner as the primary design professional for the Project and identified as the Architect in the Construction Contract. The term "Architect" means the Architect or the Architect's authorized representative. If the employment of the Architect is terminated, the Owner shall employ a new Architect whose status under the Contract Documents shall be that of the former Architect. If the primary design professional for the Project is a Professional Engineer, the term "Engineer" shall be substituted for the term "Architect" wherever it appears in this document.



- C. COMMISSION:** The former Alabama Building Commission, for which the Alabama Division of Construction Management has been designated by the Legislature as its successor.
- D. CONTRACT:** The Contract is the embodiment of the Contract Documents. The Contract represents the entire and integrated agreement between the Owner and Contractor and supersedes any prior written or oral negotiations, representations or agreements that are not incorporated into the Contract Documents. The Contract may be amended only by a Contract Change Order or a Modification to the Construction Contract. The contractual relationship which the Contract creates between the Owner and the Contractor extends to no other persons or entities. The Contract consists of the following Contract Documents, including all additions, deletions, and modifications incorporated therein before the execution of the Construction Contract:
- (1) Construction Contract
  - (2) Performance and Payment Bonds
  - (3) Conditions of the Contract (General, Supplemental, and other Conditions)
  - (4) Specifications
  - (5) Drawings
  - (6) Contract Change Orders
  - (7) Modifications to the Construction Contract (applicable to PSCA Projects)
- E. CONTRACT SUM:** The Contract Sum is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents. The term “Contract Sum” means the Contract Sum stated in the Construction Contract as may have been increased or decreased by Change Order(s) in accordance with the Contract Documents.
- F. CONTRACT TIME:** The Contract Time is the period of time in which the Contractor must achieve Substantial Completion of the Work. The date on which the Contract Time begins is specified in the written Notice To Proceed issued to the Contractor by the Owner or Director. The Date of Substantial Completion is the date established in accordance with Article 32. The term “Contract Time” means the Contract Time stated in the Construction Contract as may have been extended by Change Order(s) in accordance with the Contract Documents. The term “day” as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.
- G. CONTRACTOR:** The Contractor is the person or persons, firm, partnership, joint venture, association, corporation, cooperative, limited liability company, or other legal entity, identified as such in the Construction Contract. The term “Contractor” means the Contractor or the Contractor’s authorized representative.
- H. DCM:** The Alabama Division of Construction Management.
- I. DCM PROJECT INSPECTOR:** The member of the Technical Staff of the Alabama Division of Construction Management to whom the Project is assigned relative to executing the respective inspections and authorities described in Article 16, Inspection of the Work.
- J. DEFECTIVE WORK:** The term “Defective Work” shall apply to: (1) any product, material, system, equipment, or service, or its installation or performance, which does not conform to the requirements of the Contract Documents, (2) in-progress or completed Work the workmanship of which does not conform to the quality specified or, if not specified, to the quality produced by skilled workers performing work of a similar nature on similar projects in the state, (3) substitutions and deviations not properly submitted and approved or otherwise authorized, (4) temporary

supports, structures, or construction which will not produce the results required by the Contract Documents, and (5) materials or equipment rendered unsuitable for incorporation into the Work due to improper storage or protection.

- K. DIRECTOR:** The Director of the Alabama Division of Construction Management.
- L. DRAWINGS:** The Drawings are the portions of the Contract Documents showing graphically the design, location, layout, and dimensions of the Work, in the form of plans, elevations, sections, details, schedules, and diagrams.
- M. NOTICE TO PROCEED:** A proceed order issued by the Owner or Director, as applicable, fixing the date on which the Contractor shall begin the prosecution of the Work, which is also the date on which the Contract Time shall begin.
- N. OWNER:** The Owner is the entity or entities identified as such in the Construction Contract and is referred to throughout the Contract Documents as if singular in number. The term “Owner” means the Owner or the Owner’s authorized representative. The term “Owner” as used herein shall be synonymous with the term “Awarding Authority” as defined and used in Title 39 - Public Works, Code of Alabama, 1975, as amended.
- O. THE PROJECT:** The Project is the total construction of which the Work required by these Contract Documents may be the entirety or only a part with other portions to be constructed by the Owner or separate contractors.
- P. PROJECT MANUAL:** The Project Manual is the volume usually assembled for the Work which may include the Advertisement for Bids, Instructions to Bidders, sample forms, General Conditions of the Contract, Supplementary Conditions, and Specifications of the Work.
- Q. SPECIFICATIONS:** The Specifications are that portion of the Contract Documents which set forth in writing the standards of quality and performance of products, equipment, materials, systems, and services and workmanship required for acceptable performance of the Work.
- R. SUBCONTRACTOR:** A Subcontractor is a person or entity who is undertaking the performance of any part of the Work by virtue of a contract with the Contractor. The term “Subcontractor” means a Subcontractor or its authorized representatives.
- S. THE WORK:** The Work is the construction and services required by the Contract Documents and includes all labor, materials, supplies, equipment, and other items and services as are necessary to produce the required construction and to fulfill the Contractor’s obligations under the Contract. The Work may constitute the entire Project or only a portion of it.

## **ARTICLE 2**

### **INTENT and INTERPRETATION of the CONTRACT DOCUMENTS**

#### **A. INTENT**

It is the intent of the Contract Documents that the Contractor shall properly execute and complete the Work described by the Contract Documents, and unless otherwise provided in the Contract, the

Contractor shall provide all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work, in full accordance with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

**B. COMPLEMENTARY DOCUMENTS**

The Contract Documents are complementary. If Work is required by one Contract Document, the Contractor shall perform the Work as if it were required by all of the Contract Documents. However, the Contractor shall be required to perform Work only to the extent that is consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

**C. ORDER of PRECEDENCE**

Should any discrepancy arise between the various elements of the Contract Documents, precedence shall be given to them in the following order unless to do so would contravene the apparent Intent of the Contract Documents stated in preceding Paragraph A:

- (1) The Construction Contract.
- (2) Addenda, with those of later date having precedence over those of earlier date.
- (3) Supplementary Conditions (or other Conditions which modify the General Conditions of the Contract).
- (4) General Conditions of the Contract.
- (5) The Specifications.
- (6) Details appearing on the Drawings; large scale details shall take precedence over smaller scale details.
- (7) The Drawings; large scale drawings shall take precedence over smaller scale drawings.

**D. ORGANIZATION**

Except as may be specifically stated within the technical specifications, neither the organization of the Specifications into divisions, sections, or otherwise, nor any arrangement of the Drawings shall control how the Contractor subcontracts portions of the Work or assigns Work to any trade.

**E. INTERPRETATION**

(1) The Contract Documents shall be interpreted collectively, each part complementing the others and consistent with the Intent of the Contract Documents stated in preceding Paragraph A. Unless an item shown or described in the Contract Documents is specifically identified to be furnished or installed by the Owner or others or is identified as “Not In Contract” (“N.I.C.”), the Contractor’s obligation relative to that item shall be interpreted to include furnishing, assembling, installing, finishing, and/or connecting the item at the Contractor’s expense to produce a product or system that is complete, appropriately tested, and in operative condition ready for use or subsequent construction or operation of the Owner or separate contractors. The omission of words or phrases for brevity of the Contract Documents, the inadvertent omission of words or phrases, or obvious typographical or written errors shall not defeat such interpretation as long as it is reasonably inferable from the Contract Documents as a whole.

(2) Words or phrases used in the Contract Documents which have well-known technical or

construction industry meanings are to be interpreted consistent with such recognized meanings unless otherwise indicated.

(3) Except as noted otherwise, references to standard specifications or publications of associations, bureaus, or organizations shall mean the latest edition of the referenced standard specification or publication as of the date of the Advertisement for Bids.

(4) In the case of inconsistency between Drawings and Specifications or within either document not clarified by addendum, the better quality or greater quantity of Work shall be provided in accordance with the Architect's interpretation.

(5) Any portions of the Contract Documents written in longhand must be initialed by all parties..

(6) Any doubt as to the meaning of the Contract Documents or any obscurity as to the wording of them, shall be promptly submitted in writing to the Architect for written interpretation, explanation, or clarification.

**F. SEVERABILITY.**

The partial or complete invalidity of any one or more provision of this Contract shall not affect the validity or continuing force and effect of any other provision.

**ARTICLE 3**  
**CONTRACTOR'S REPRESENTATIONS**

By executing the Construction Contract the Contractor represents to the Owner:

- A. The Contractor has visited the site of the Work to become familiar with local conditions under which the Work is to be performed and to evaluate reasonably observable conditions as compared with requirements of the Contract Documents.
- B. The Contractor shall use its best skill and attention to perform the Work in an expeditious manner consistent with the Contract Documents.
- C. The Contractor is an independent contractor and in performance of the Contract remains and shall act as an independent contractor having no authority to represent or obligate the Owner in any manner unless authorized by the Owner in writing.

**ARTICLE 4**  
**DOCUMENTS FURNISHED to CONTRACTOR**

Unless otherwise provided in the Contract Documents, twenty sets of Drawings and Project Manuals will be furnished to the Contractor by the Architect without charge. Other copies requested will be furnished at reproduction cost.

**ARTICLE 5**  
**OWNERSHIP of DRAWINGS**

All original or duplicated Drawings, Specifications, and other documents prepared by the Architect, and furnished to the Contractor are the property of the Architect and are to be used solely for this Project and not to be used in any manner for other work. Upon completion of the Work, all copies of Drawings and Specifications, with the exception of the Contractor's record set, shall be returned or accounted for by the Contractor to the Architect, on request.

**ARTICLE 6**  
**SUPERVISION, SUPERINTENDENT, and EMPLOYEES**

**A. SUPERVISION and CONSTRUCTION METHODS**

(1) The term "Construction Methods" means the construction means, methods, techniques, sequences, and procedures utilized by the Contractor in performing the Work. The Contractor is solely responsible for supervising and coordinating the performance of the Work, including the selection of Construction Methods, unless the Contract Documents give other specific instructions concerning these matters.

(2) The Contractor is solely and completely responsible for job site safety, including the protection of persons and property in accordance with Article 14.

(3) The Contractor shall be responsible to the Owner for acts and omissions of not only the Contractor and its agents and employees, but all persons and entities, and their agents and employees, who are performing portions of the Work for or on behalf of the Contractor or any of its Subcontractors.

(4) The Contractor shall be responsible to inspect the in-progress and completed Work to verify its compliance with the Contract Documents and to insure that any element or portion of the Work upon which subsequent Work is to be applied or performed is in proper condition to receive the subsequent Work.

**B. SUPERINTENDENT**

(1) The Contractor shall employ and maintain a competent level of supervision for the performance of the Work at the Project site, including a superintendent who shall:

(a) have full authority to receive instructions from the Architect or Owner and to act on those instructions and (b) be present at the Project site at all times during which Work is being performed.

(2) Before beginning performance of the Work, the Contractor shall notify the Architect in writing of the name and qualifications of its proposed superintendent so that the Owner may review the individual's qualifications. If, for reasonable cause, the Owner refuses to approve the individual, or withdraws its approval after once giving it, the Contractor shall name a different superintendent for the Owner's review and approval. Any disapproved superintendent will not perform in that capacity thereafter at the Project site.

**C. EMPLOYEES**

The Contractor shall permit only fit and skilled persons to perform the Work. The Contractor shall enforce safety procedures, strict discipline, and good order among persons performing the Work. The Contractor will remove from its employment on the Project any person who deliberately or persistently produces non-conforming Work or who fails or refuses to conform to reasonable rules of personal conduct contained in the Contract Documents or implemented by the Owner and delivered to the Contractor in writing during the course of the Work.

**ARTICLE 7**

**REVIEW of CONTRACT DOCUMENTS and FIELD CONDITIONS by CONTRACTOR**

- A. In order to facilitate assembly and installation of the Work in accordance with the Contract Documents, before starting each portion of the Work, the Contractor shall examine and compare the relevant Contract Documents, and compare them to relevant field measurements made by the Contractor and any conditions at the site affecting that portion of the Work.
- B. If the Contractor discovers any errors, omissions, or inconsistencies in the Contract Documents, the Contractor shall promptly report them to the Architect as a written request for information that includes a detailed statement identifying the specific Drawings or Specifications that are in need of clarification and the error, omission, or inconsistency discovered in them.
- (1) The Contractor shall not be expected to act as a licensed design professional and ascertain whether the Contract Documents comply with applicable laws, statutes, ordinances, building codes, and rules and regulations, but the Contractor shall be obligated to promptly notify the Architect of any such noncompliance discovered by or made known to the Contractor. If the Contractor performs Work without fulfilling this notification obligation, the Contractor shall pay the resulting costs and damages that would have been avoided by such notification.
- (2) The Contractor shall not be liable to the Owner for errors, omissions, or inconsistencies that may exist in the Contract Documents, or between the Contract Documents and conditions at the site, unless the Contractor knowingly fails to report a discovered error, omission, or inconsistency to the Architect, in which case the Contractor shall pay the resulting costs and damages that would have been avoided by such notification.
- C. If the Contractor considers the Architect's response to a request for information to constitute a change to the Contract Documents involving additional costs and/or time, the Contractor shall follow the procedures of Article 20, Claims for Extra Cost or Extra Work.
- D. If, with undue frequency, the Contractor requests information that is obtainable through reasonable examination and comparison of the Contract Documents, site conditions, and previous correspondence, interpretations, or clarifications, the Contractor shall be liable to the Owner for reasonable charges from the Architect for the additional services required to review, research, and respond to such requests for information.

**ARTICLE 8**  
**SURVEYS by CONTRACTOR**

- A. The Contractor shall provide competent engineering services to assure accurate execution of the Work in accordance with the Contract Documents. The Contractor shall verify the figures given for the contours, approaches and locations shown on the Drawings before starting any Work and be responsible for the accuracy of the finished Work. Without extra cost to the Owner, the Contractor shall engage a licensed surveyor if necessary to verify boundary lines, keep within property lines, and shall be responsible for encroachments on rights or property of public or surrounding property owners.
  
- B. The Contractor shall establish all base lines for the location of the principal components of the Work and make all detail surveys necessary for construction, including grade stakes, batter boards and other working points, lines and elevations. If the Work involves alteration of or addition to existing structures or improvements, the Contractor shall locate and measure elements of the existing conditions as is necessary to facilitate accurate fabrication, assembly, and installation of new Work in the relationship, alignment, and/or connection to the existing structure or improvement as is shown in the Contract Documents.

**ARTICLE 9**  
**SUBMITTALS**

- A. Where required by the Contract Documents, the Contractor shall submit shop drawings, product data, samples and other information (hereinafter referred to as Submittals) to the Architect for the purpose of demonstrating the way by which the Contractor proposes to conform to the requirements of the Contract Documents. Submittals which are not required by the Contract Documents may be returned by the Architect without action.
  
- B. The Contractor shall be responsible to the Owner for the accuracy of its Submittals and the conformity of its submitted information to the requirements of the Contract Documents. Each Submittal shall bear the Contractor's approval, evidencing that the Contractor has reviewed and found the information to be in compliance with the requirements of the Contract Documents. Submittals which are not marked as reviewed and approved by the Contractor may be returned by the Architect without action.
  
- C. The Contractor shall prepare and deliver its submittals to the Architect sufficiently in advance of construction requirements and in a sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. In coordinating the Submittal process with its construction schedule, the Contractor shall allow sufficient time to permit adequate review by the Architect.
  
- D. By approving a Submittal the Contractor represents not only that the element of Work presented in the Submittal complies with the requirements of the Contract Documents, but also that the Contractor has:
  - (1) found the layout and/or dimensions in the Submittal to be comparable with those in the Contract Documents and other relevant Submittals and has made field measurements as necessary to verify their accuracy, and
  - (2) determined that products, materials, systems, equipment and/or procedures presented in the Submittal are compatible with those presented, or being presented, in other relevant Submittals and

with the Contractor's intended Construction Methods.

- E. The Contractor shall not fabricate or perform any portion of the Work for which the Contract Documents require Submittals until the respective Submittals have been approved by the Architect.
- F. In the case of a resubmission, the Contractor shall direct specific attention to all revisions in a Submittal. The Architect's approval of a resubmission shall not apply to any revisions that were not brought to the Architect's attention.
- G. If the Contract Documents specify that a Submittal is to be prepared and sealed by a registered architect or licensed engineer retained by the Contractor, all drawings, calculations, specifications, and certifications of the Submittal shall bear the Alabama seal of registration and signature of the registered/licensed design professional who prepared them or under whose supervision they were prepared. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of such a Submittal, provided that all performance and design criteria that such Submittal must satisfy are sufficiently specified in the Contract Documents. The Architect will review, approve or take other appropriate action on such a Submittal only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance or design criteria specified in the Contract Documents.

#### **H. DEVIATIONS**

(1) The Architect is authorized by the Owner to approve "minor" deviations from the requirements of the Contract Documents. "Minor" deviations are defined as those which are in the interest of the Owner, do not materially alter the quality or performance of the finished Work, and do not affect the cost or time of performance of the Work. Deviations which are not "minor" may be authorized only by the Owner through the Change Order procedures of Article 19.

(2) Any deviation from the requirements of the Contract Documents contained in a Submittal shall be clearly identified as a "Deviation from Contract Requirements" (or by similar language) within the Submittal and, in a letter transmitting the Submittal to the Architect, the Contractor shall direct the Architect's attention to, and request specific approval of, the deviation. Otherwise, the Architect's approval of a Submittal does not constitute approval of deviations from the requirements of the Contract Documents contained in the Submittal.

(3) The Contractor shall bear all costs and expenses of any changes to the Work, changes to work performed by the Owner or separate contractors, or additional services by the Architect required to accommodate an approved deviation unless the Contractor has specifically informed the Architect in writing of the required changes and a Change Order has been issued authorizing the deviation and accounting for such resulting changes and costs.

#### **I. ARCHITECT'S REVIEW and APPROVAL**

(1) The Architect will review the Contractor's Submittals for conformance with requirements of, and the design concept expressed in, the Contract Documents and will approve or take other appropriate action upon them. This review is not intended to verify the accuracy and completeness of details such as dimensions and quantities nor to substantiate installation instructions or performance of equipment or systems, all of which remain the responsibility of the Contractor. However, the Architect shall advise the Contractor of any errors or omissions which the Architect



may detect during this review. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

(2) The Architect will review and respond to all Submittals with reasonable promptness to avoid delay in the Work or in the activities of the Owner, Contractor or separate contractors, while allowing sufficient time to permit adequate review.

(3) No corrections or changes to Submittals indicated by the Architect will be considered as authorizations to perform Extra Work. If the Contractor considers such correction or change of a Submittal to require Work which differs from the requirements of the Contract Documents, the Contractor shall promptly notify the Architect in writing in accordance with Article 20, Claims for Extra Cost or Extra Work.

**J. CONFORMANCE with SUBMITTALS**

The Work shall be constructed in accordance with approved Submittals.

**ARTICLE 10  
DOCUMENTS and SAMPLES at the SITE**

**A. "AS ISSUED" SET**

The Contractor shall maintain at the Project site, in good order, at least one copy of all Addenda, Change Orders, supplemental drawings, written directives and clarifications, and approved Submittals intact as issued, and an updated construction schedule.

**B. "POSTED" SET**

The Contractor shall maintain at the Project site, in good order, at least one set of the Drawings and Project Manual into which the Contractor has "posted"(incorporated) all Addenda, Change Orders, supplemental drawings, clarifications, and other information pertinent to the proper performance of the Work. The Contractor shall assure that all sets of the Drawings and Project Manuals being used by the Contractor, Subcontractors, and suppliers are "posted" with the current information to insure that updated Contract Documents are used for performance of the Work.

**C. RECORD SET**

One set of the Drawings and Project Manual described in Paragraph B shall be the Contractor's record set in which the Contractor shall record all field changes, corrections, selections, final locations, and other information as will be duplicated on the "As-built" documents required under Article 11. The Contractor shall record such "as-built" information in its record set as it becomes available through progress of the Work. The Contractor's performance of this requirement shall be subject to confirmation by the Architect at any time as a prerequisite to approval of Progress Payments.

**D.** The documents and samples required by this Article to be maintained at the Project site shall be readily available to the Architect, Owner, DCM Project Inspector, and their representatives.

**ARTICLE 11**  
**“AS-BUILT” DOCUMENTS**

- A. Unless otherwise provided in the Contract Documents, the Contractor shall deliver two (2) sets of “As-built” documents, as described herein, to the Architect for submission to the Owner upon completion of the Work. Each set of “As-built” documents shall consist of a copy of the Drawings and Project Manual, in like-new condition, into which the Contractor has neatly incorporated all Addenda, Change Orders, supplemental drawings, clarifications, field changes, corrections, selections, actual locations of underground utilities, and other information as required herein or specified elsewhere in the Contract Documents.
- B. The Contractor shall use the following methods for incorporating information into the “As-built” documents:
- (1) **Drawings**
- (a) To the greatest extent practicable, information shall be carefully drawn and lettered, in ink, on the Drawings in the form of sketches, details, plans, notes, and dimensions as required to provide a fully dimensioned record of the Work. When required for clarity, sketches, details, or partial plans shall be drawn on supplemental sheets and bound into the Drawings and referenced on the drawing being revised.
- (b) Where a revised drawing has been furnished by the Architect, the drawing of latest date shall be bound into the Drawings in the place of the superseded drawing.
- (c) Where a supplemental drawing has been furnished by the Architect, the supplemental drawing shall be bound into the Drawings in an appropriate location and referred to by notes added to the drawing being supplemented.
- (d) Where the Architect has furnished details, partial plans, or lengthy notes of which it would be impractical for the Contractor to redraw or letter on a drawing, such information may be affixed to the appropriate drawing with transparent tape if space is available on the drawing.
- (e) Any entry of information made in the Drawings that is the result of an Addendum or Change Order, shall identify the Addendum or Change Order from which it originated.
- (2) **Project Manual**
- (a) A copy of all Addenda and Change Orders, excluding drawings thereof, shall be bound in the front of the Project Manual.
- (b) Where a document, form, or entire specification section is revised, the latest issue shall be bound into the Project Manual in the place of the superseded issue.
- (c) Where information within a specification section is revised, the deleted or revised information shall be drawn through in ink and an adjacent note added identifying the Addendum or Change Order containing the revised information.
- C. Within ten days after the Date of Substantial Completion of the Work, or the last completed portion of the Work, the Contractor shall submit the “As-built” documents to the Architect for approval. If the Architect requires that any corrections be made, the documents will be returned in a reasonable time for correction and resubmission.

**ARTICLE 12**  
**PROGRESS SCHEDULE**

(Not applicable if the Contract Time is 60 days or less.)

- A. The Contractor shall within fifteen days after the date of commencement stated in the Notice to Proceed, or such other time as may be provided in the Contract Documents, prepare and submit to the Architect for review and approval a practicable construction schedule informing the Architect and Owner of the order in which the Contractor plans to carry on the Work within the Contract Time. The Architect's review and approval of the Contractor's construction schedule shall be only for compliance with the specified format, Contract Time, and suitability for monitoring progress of the Work and shall not be construed as a representation that the Architect has analyzed the schedule to form opinions of sequences or durations of time represented in the schedule.
- B. If a schedule format is not specified elsewhere in the Contract Documents, the construction schedule shall be prepared using DCM Form C-11, "Sample Progress Schedule and Report", (contained in the Project Manual) or similar format of suitable scale and detail to indicate the percentage of Work scheduled to be completed at the end of each month. At the end of each month the Contractor shall enter the actual percentage of completion on the construction schedule submit two copies to the Architect, and attach one copy to each copy of the monthly Application for Payment. The construction schedule shall be revised to reflect any agreed extensions of the Contract Time or as required by conditions of the Work.
- C. If a more comprehensive schedule format is specified elsewhere in the Contract Documents or voluntarily employed by the Contractor, it may be used in lieu of DCM Form C-11.
- D. The Contractor's construction schedule shall be used by the Contractor, Architect, and Owner to determine the adequacy of the Contractor's progress. The Contractor shall be responsible for maintaining progress in accordance with the currently approved construction schedule and shall increase the number of shifts, and/or overtime operations, days of work, and/or the amount of construction plant and equipment as may be necessary to do so. If the Contractor's progress falls materially behind the currently approved construction schedule and, in the opinion of the Architect or Owner, the Contractor is not taking sufficient steps to regain schedule, the Architect may, with the Owner's concurrence, issue the Contractor a Notice to Cure pursuant to Article 27. In such a Notice to Cure the Architect may require the Contractor to submit such supplementary or revised construction schedules as may be deemed necessary to demonstrate the manner in which schedule will be regained.

**ARTICLE 13**  
**EQUIPMENT, MATERIALS, and SUBSTITUTIONS**

- A. Every part of the Work shall be executed in a workmanlike manner in accordance with the Contract Documents and approved Submittals. All materials used in the Work shall be furnished in sufficient quantities to facilitate the proper and expeditious execution of the Work and shall be new except such materials as may be expressly provided or allowed in the Contract Documents to be otherwise.
- B. Whenever a product, material, system, item of equipment, or service is identified in the Contract Documents by reference to a trade name, manufacturer's name, model number, etc.(hereinafter

referred to as “source”), and only one or two sources are listed, or three or more sources are listed and followed by “or approved equal” or similar wording, it is intended to establish a required standard of performance, design, and quality, and the Contractor may submit, for the Architect’s approval, products, materials, systems, equipment, or services of other sources which the Contractor can prove to the Architect’s satisfaction are equal to, or exceed, the standard of performance, design and quality specified, unless the provisions of Paragraph D below apply. Such proposed substitutions are not to be purchased or installed without the Architect’s written approval of the substitution.

- C. If the Contract Documents identify three or more sources for a product, material, system, item of equipment or service to be used and the list of sources is not followed by “or approved equal” or similar wording, the Contractor may make substitution only after evaluation by the Architect and execution of an appropriate Contract Change Order.
- D. If the Contract Documents identify only one source and expressly provide that it is an approved sole source for the product, material, system, item of equipment, or service, the Contractor must furnish the identified sole source.

**ARTICLE 14**  
**SAFETY and PROTECTION of PERSONS and PROPERTY**

- A. The Contractor shall be solely and completely responsible for conditions at the Project site, including safety of all persons (including employees) and property. The Contractor shall create, maintain, and supervise conditions and programs to facilitate and promote safe execution of the Work, and shall supervise the Work with the attention and skill required to assure its safe performance. Safety provisions shall conform to OSHA requirements and all other federal, state, county, and local laws, ordinances, codes, and regulations. Where any of these are in conflict, the more stringent requirement shall be followed. Nothing contained in this Contract shall be construed to mean that the Owner has employed the Architect nor has the Architect employed its consultants to administer, supervise, inspect, or take action regarding safety programs or conditions at the Project site.
- B. The Contractor shall employ Construction Methods, safety precautions, and protective measures that will reasonably prevent damage, injury or loss to:
  - (1) workers and other persons on the Project site and in adjacent and other areas that may be affected by the Contractor’s operations;
  - (2) the Work and materials and equipment to be incorporated into the Work and stored by the Contractor on or off the Project site; and
  - (3) other property on, or adjacent to, the Project site, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and other improvements not designated in the Contract Documents to be removed, relocated, or replaced.
- C. The Contractor shall be responsible for the prompt remedy of damage and loss to property, including the filing of appropriate insurance claims, caused in whole or in part by the fault or negligence of the Contractor, a Subcontractor, or anyone for whose acts they may be liable.

- D. The Contractor shall comply with and give notices required by applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on safety and protection of persons or property, including without limitation notices to adjoining property owners of excavation or other construction activities that potentially could cause damage or injury to adjoining property or persons thereon.
- E. The Contractor shall erect and maintain barriers, danger signs, and any other reasonable safeguards and warnings against hazards as may be required for safety and protection during performance of the Contract and shall notify owners and users of adjacent sites and utilities of conditions that may exist or arise which may jeopardize their safety.
- F. If use or storage of explosives or other hazardous materials or equipment or unusual Construction Methods are necessary for execution of the Work, the Contractor shall exercise commensurate care and employ supervisors and workers properly qualified to perform such activity.
- G. The Contractor shall furnish a qualified safety representative at the Project site whose duties shall include the prevention of accidents. The safety representative shall be the Contractor's superintendent, unless the Contractor assigns this duty to another responsible member of its on-site staff and notifies the Owner and Architect in writing of such assignment.
- H. The Contractor shall not permit a load to be applied, or forces introduced, to any part of the construction or site that may cause damage to the construction or site or endanger safety of the construction, site, or persons on or near the site.
- I. The Contractor shall have the right to act as it deems appropriate in emergency situations jeopardizing life or property. The Contractor shall be entitled to equitable adjustment of the Contract Sum or Contract Time for its efforts expended for the sole benefit of the Owner in an emergency. Such adjustment shall be determined as provided in Articles 19 and 20.
- J. The duty of the Architect and the Architect's consultants to visit the Project site to conduct periodic inspections of the Work or for other purposes shall not give rise to a duty to review or approve the adequacy of the Contractor's safety program, safety supervisor, or any safety measure which Contractor takes or fails to take in, on, or near the Project site.

**ARTICLE 15**  
**HAZARDOUS MATERIALS**

- A. A Hazardous Material is any substance or material identified as hazardous under any federal, state, or local law or regulation, or any other substance or material which may be considered hazardous or otherwise subject to statutory or regulatory requirements governing its handling, disposal, and/or clean-up. Existing Hazardous Materials are Hazardous Materials discovered at the Project site and not introduced to the Project site by the Contractor, a Subcontractor, or anyone for whose acts they may be liable.
- B. If, during the performance of the Work, the Contractor encounters a suspected Existing Hazardous Material, the Contractor shall immediately stop work in the affected area, take measures appropriate to the condition to keep people away from the suspected Existing Hazardous Material, and

immediately notify the Architect and Owner of the condition in writing.

- C. The Owner shall obtain the services of an independent laboratory or professional consultant, appropriately licensed and qualified, to determine whether the suspected material is a Hazardous Material requiring abatement and, if so, to certify after its abatement that it has been rendered harmless. Any abatement of Existing Hazardous Materials will be the responsibility of the Owner. The Owner will advise the Contractor in writing of the persons or entities who will determine the nature of the suspected material and those who will, if necessary, perform the abatement. The Owner will not employ persons or entities to perform these services to whom the Contractor or Architect has reasonable objection.
- D. After certification by the Owner's independent laboratory or professional consultant that the material is harmless or has been rendered harmless, work in the affected area shall resume upon written agreement between the Owner and Contractor. If the material is found to be an Existing Hazardous Material and the Contractor incurs additional cost or delay due to the presence and abatement of the material, the Contract Sum and/or Contract Time shall be appropriately adjusted by a Contract Change Order pursuant to Article 19.
- E. The Owner shall not be responsible for Hazardous Materials introduced to the Project site by the Contractor, a Subcontractor, or anyone for whose acts they may be liable unless such Hazardous Materials were required by the Contract Documents.

## **ARTICLE 16**

### **INSPECTION of the WORK**

#### **A. GENERAL**

(1) The Contractor is solely responsible for the Work's compliance with the Contract Documents; therefore, the Contractor shall be responsible to inspect in-progress and completed Work, and shall verify its compliance with the Contract Documents and that any element or portion of the Work upon which subsequent Work is to be applied or performed is in proper condition to receive the subsequent Work. Neither the presence nor absence of inspections by the Architect, Owner, Director, DCM Project Inspector, any public authority having jurisdiction, or their representatives shall relieve the Contractor of responsibility to inspect the Work, for responsibility for Construction Methods and safety precautions and programs in connection with the Work, or from any other requirement of the Contract Documents.

(2) The Architect, Owner, Director, DCM Project Inspector, any public authority having jurisdiction, and their representatives shall have access at all times to the Work for inspection whenever it is in preparation or progress, and the Contractor shall provide proper facilities for such access and inspection. All materials, workmanship, processes of manufacture, and methods of construction, if not otherwise stipulated in the Contract Documents, shall be subject to inspection, examination, and test at any and all places where such manufacture and/or construction are being carried on. Such inspections will not unreasonably interfere with the Contractor's operations.

(3) The Architect will inspect the Work as a representative of the Owner. The Architect's inspections may be supplemented by inspections by the DCM Project Inspector as a representative of the Alabama Division of Construction Management.

(4) The Contractor may be charged by the Owner for any extra cost of inspection incurred by the Owner or Architect on account of material and workmanship not being ready at the time of inspection set by the Contractor.

## **B. TYPES of INSPECTIONS**

(1) **SCHEDULED INSPECTIONS and CONFERENCES.** Scheduled Inspections and Conferences are conducted by the Architect, scheduled by the Architect in coordination with the Contractor and DCM Project Inspector, and are attended by the Contractor and applicable Subcontractors, suppliers and manufacturers, and the DCM Project Inspector. Scheduled Inspections and Conferences of this Contract include:

(a) **Pre-construction Conference.**

(b) **Pre-roofing Conference** (not applicable if the Contract involves no roofing work)

(c) **Above Ceiling Inspection(s):** An above ceiling inspection of all spaces in the building is required before the ceiling material is installed. Above ceiling inspections are to be conducted at a time when all above ceiling systems are complete and tested to the greatest extent reasonable pending installation of the ceiling material. System identifications and markings are to be complete. All fire-rated construction including fire-stopping of penetrations and specified identification above the ceiling shall be complete. Ceiling framing and suspension systems shall be complete with lights, grilles and diffusers, access panels, fire protection drops for sprinkler heads, etc., installed in their final locations to the greatest extent reasonable. Above ceiling framing to support ceiling mounted equipment shall be complete. The above ceiling construction shall be complete to the extent that after the inspection the ceiling material can be installed without disturbance.

(d) **Final Inspection(s):** A Final Inspection shall establish that the Work, or a designated portion of the Work, is Substantially Complete in accordance with Article 32 and is accepted by the Architect, Owner, and DCM Project Inspector as being ready for the Owner's occupancy or use. At the conclusion of this inspection, items requiring correction or completion ("punch list" items) shall be minimal and require only a short period of time for accomplishment to establish Final Acceptance of the Work. If the Work, or designated portion of the Work, includes the installation, or modification, of a fire alarm system or other life safety systems essential to occupancy, such systems shall have been tested and appropriately certified before the Final Inspection.

(e) **Year-end Inspection(s):** An inspection of the Work, or each separately completed portion thereof, is required near the end of the Contractor's one year warranty period(s). The subsequent delivery of the Architect's report of this inspection will serve as confirmation that the Contractor was notified of Defective Work found within the warranty period in accordance with Article 35.

(2) **PERIODIC INSPECTIONS.** Periodic Inspections are conducted throughout the course of the Work by the Architect, the Architect's consultants, their representatives, and the DCM Project Inspector, jointly or independently, with or without advance notice to the Contractor.

(3) **SPECIFIED INSPECTIONS and TESTS.** Specified Inspections and Tests include inspections, tests, demonstrations, and approvals that are either specified in the Contract Documents or required by laws, ordinances, rules, regulations, or orders of public authorities having jurisdiction, to be performed by the Contractor, one of its Subcontractors, or an independent testing laboratory or firm (whether paid for by the Contractor or Owner).

## **C. INSPECTIONS by the ARCHITECT**

- (1) The Architect is not authorized to revoke, alter, relax, or waive any requirements of the Contract Documents (other than “minor” deviations as defined in Article 9 and “minor” changes as defined in Article 19), to finally approve or accept any portion of the Work or to issue instructions contrary to the Contract Documents without concurrence of the Owner.
- (2) The Architect will visit the site at intervals appropriate to the stage of the Contractor’s operations and as otherwise necessary to:
  - (a) become generally familiar with the in-progress and completed Work and the quality of the Work,
  - (b) determine whether the Work is progressing in general accordance with the Contractor’s schedule and is likely to be completed within the Contract Time,
  - (c) visually compare readily accessible elements of the Work to the requirements of the Contract Documents to determine, in general, if the Contractor’s performance of the Work indicates that the Work will conform to the requirements of the Contract Documents when completed,
  - (d) endeavor to guard the Owner against Defective Work,
  - (e) review and address with the Contractor any problems in implementing the requirements of the Contract Documents that the Contractor may have encountered, and
  - (f) keep the Owner fully informed about the Project.
- (3) The Architect shall have the authority to reject Defective Work or require its correction, but shall not be required to make exhaustive investigations or examinations of the in-progress or completed portions of the Work to expose the presence of Defective Work. However, it shall be an obligation of the Architect to report in writing, to the Owner, Contractor, and DCM Project Inspector, any Defective Work recognized by the Architect.
- (4) The Architect shall have the authority to require the Contractor to stop work only when, in the Architect’s reasonable opinion, such stoppage is necessary to avoid Defective Work. The Architect shall not be liable to the Contractor or Owner for the consequences of any decisions made by the Architect in good faith either to exercise or not to exercise this authority.
- (5) “Inspections by the Architect” includes appropriate inspections by the Architect’s consultants as dictated by their respective disciplines of design and the stage of the Contractor’s operations.

**D. INSPECTIONS by the DCM PROJECT INSPECTOR**

- (1) The DCM Project Inspector will:
  - (a) participate in scheduled inspections and conferences as practicable,
  - (b) perform periodic inspections of in-progress and completed Work to ensure code compliance of the Project and general conformance of the Work with the Contract Documents, and
  - (c) monitor the Contractor's progress and performance of the Work.
- (2) The DCM Project Inspector shall have the authority to:
  - (a) reject Work that is not in compliance with the State Building Code adopted by the DCM, unless the Work is in accordance with the Contract Documents in which case the DCM Project Inspector will advise the Architect to initiate appropriate corrective action, and
  - (b) notify the Architect, Owner, and Contractor of Defective Work recognized by the DCM Project Inspector.



(3) The DCM Project Inspector's periodic inspections will usually be scheduled around key stages of construction based upon information reported by the Architect. As the Architect or Owner deems appropriate, the DCM Project Inspector, as well as other members of the Technical Staff, can be requested to schedule special inspections or meetings to address specific matters. The written findings of DCM Project Inspector will be transmitted to the Owner, Contractor, and Architect.

(4) The DCM Project Inspector is not authorized to revoke, alter, relax, or waive any requirements of the Contract Documents, to finally approve or accept any portion of the Work or to issue instructions contrary to the Contract Documents without concurrence of the Owner. The Contractor shall not proceed with Work as a result of instructions or findings of the DCM Project Inspector which the Contractor considers to be a change to the requirements of the Contract Documents without written authorization of the Owner through the Architect.

#### **E. UNCOVERING WORK**

(1) If the Contractor covers a portion of the Work before it is examined by the Architect and this is contrary to the Architect's request or specific requirements in the Contract Documents, then, upon written request of the Architect, the Work must be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

(2) Without a prior request or specific requirement that Work be examined by the Architect before it is covered, the Architect may request that Work be uncovered for examination and the Contractor shall uncover it. If the Work is in accordance with the Contract Documents, the Contract Sum shall be equitably adjusted under Article 19 to compensate the Contractor for the costs of uncovering and replacement. If the Work is not in accordance with the Contract Documents, uncovering, correction, and replacement shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

#### **F. SPECIFIED INSPECTIONS and TESTS**

(1) The Contractor shall schedule and coordinate Specified Inspections and Tests to be made at appropriate times so as not to delay the progress of the Work or the work of the Owner or separate contractors. If the Contract Documents require that a Specified Inspection or Test be witnessed or attended by the Architect or Architect's consultant, the Contractor shall give the Architect timely notice of the time and place of the Specified Inspection or Test. If a Specified Inspection or Test reveals that Work is not in compliance with requirements of the Contract Documents, the Contractor shall bear the costs of correction, repeating the Specified Inspection or Test, and any related costs incurred by the Owner, including reasonable charges, if any, by the Architect for additional services. Through appropriate Contract Change Order the Owner shall bear costs of tests, inspections or approvals which become Contract requirements subsequent to the receipt of bids.

(2) If the Architect, Owner, or public authority having jurisdiction determines that inspections, tests, demonstrations, or approvals in addition to Specified Inspections and Tests are required, the Contractor shall, upon written instruction from the Architect, arrange for their performance by an entity acceptable to the Owner, giving timely notice to the architect of the time and place of their performance. Related costs shall be borne by the Owner unless the procedures reveal that Work is

not in compliance with requirements of the Contract Documents, in which case the Contractor shall bear the costs of correction, repeating the procedures, and any related costs incurred by the Owner, including reasonable charges, if any, by the Architect for additional services.

(3) Unless otherwise required by the Contract Documents, required certificates of Specified Inspections and Tests shall be secured by the Contractor and promptly delivered to the Architect.

(4) Failure of any materials to pass Specified Inspections and Tests will be sufficient cause for refusal to consider any further samples of the same brand or make of that material for use in the Work.

## **ARTICLE 17** **CORRECTION of DEFECTIVE WORK**

- A. The Contractor shall, at the Contractor's expense, promptly correct Defective Work rejected by the Architect or which otherwise becomes known to the Contractor, removing the rejected or nonconforming materials and construction from the project site.
- B. Correction of Defective Work shall be performed in such a timely manner as will avoid delay of completion, use, or occupancy of the Work and the work of the Owner and separate contractors.
- C. The Contractor shall bear all expenses related to the correction of Defective Work, including but not limited to: (1) additional testing and inspections, including repeating Specified Inspections and Tests, (2) reasonable services and expenses of the Architect, and (3) the expense of making good all work of the Contractor, Owner, or separate contractors destroyed or damaged by the correction of Defective Work.

## **ARTICLE 18** **DEDUCTIONS for UNCORRECTED WORK**

If the Owner deems it advisable and in the Owner's interest to accept Defective Work, the Owner may allow part or all of such Work to remain in place, provided an equitable deduction from the Contract Sum, acceptable to the Owner, is offered by the Contractor.

## **ARTICLE 19** **CHANGES in the WORK**

### **A. GENERAL**

(1) The Owner may at any time direct the Contractor to make changes in the Work which are within the general scope of the Contract, including changes in the Drawings, Specifications, or other portions of the Contract Documents to add, delete, or otherwise revise portions of the Work. The Architect is authorized by the Owner to direct "minor" changes in the Work by written order to the Contractor. "Minor" changes in the Work are defined as those which are in the interest of the Owner, do not materially alter the quality or performance of the finished Work, and do not affect the cost or time of performance of the Work. Changes in the Work which are not "minor" may be

authorized only by the Owner.

(2) If the Owner directs a change in the Work, the change shall be incorporated into the Contract by a Contract Change Order prepared by the Architect and signed by the Contractor, Owner, and other signatories to the Construction Contract, stating their agreement upon the change or changes in the Work and the adjustments, if any, in the Contract Sum and the Contract Time.

(3) Subject to compliance with Alabama's Public Works Law, the Owner may, upon agreement by the Contractor, incorporate previously unawarded bid alternates into the Contract.

(4) In the event of a claim or dispute as to the appropriate adjustment to the Contract Sum or Contract Time due to a directive to make changes in the Work, the Work shall proceed as provided in this article subject to subsequent agreement of the parties or final resolution of the dispute pursuant to Article 24.

(5) Consent of surety will be obtained for all Contract Change Orders involving an increase in the Contract Sum.

(6) Changes in the Work shall be performed under applicable provisions of the Contract Documents and the Contractor shall proceed promptly to perform changes in the Work, unless otherwise directed by the Owner through the Architect.

(7) All change orders require DCM Form C-12: Contract Change Order and DCM Form B-11: Change Order Justification. Only Change Orders 10% or greater of the current contract amount require the Owner's legal advisor's signature on DCM Form B-11: Change Order Justification.

## **B. DETERMINATION of ADJUSTMENT of the CONTRACT SUM**

The adjustment of the Contract Sum resulting from a change in the Work shall be determined by one of the following methods, or a combination thereof, as selected by the Owner:

(1) **Lump Sum.** By mutual agreement to a lump sum based on or negotiated from an itemized cost proposal from the Contractor. Additions to the Contract Sum shall include the Contractor's direct costs plus a maximum 15% markup for overhead and profit. Where subcontract work is involved the total mark-up for the Contractor and a Subcontractor shall not exceed 25%. **Changes which involve a net credit to the Owner shall include fair and reasonable credits for overhead and profit on the deducted work, in no case less than 5%.** For the purposes of this method of determining an adjustment of the Contract Sum, "overhead" shall cover the Contractor's indirect costs of the change, such as the cost of bonds, superintendent and other job office personnel, watchman, job office, job office supplies and expenses, temporary facilities and utilities, and home office expenses.

(2) **Unit Price.** By application of Unit Prices included in the Contract or subsequently agreed to by the parties. However, if the character or quantity originally contemplated is materially changed so that application of such unit price to quantities of Work proposed will cause substantial inequity to either party, the applicable unit price shall be equitably adjusted.

(3) **Force Account.** By directing the Contractor to proceed with the change in the Work on a "force account" basis under which the Contractor shall be reimbursed for reasonable expenditures incurred by the Contractor and its Subcontractors in performing added Work and the Owner shall

receive reasonable credit for any deleted Work. The Contractor shall keep and present, in such form as the Owner may prescribe, an itemized accounting of the cost of the change together with sufficient supporting data. Unless otherwise stated in the directive, the adjustment of the Contract Sum shall be limited to the following:

- (a) costs of labor and supervision, including employee benefits, social security, retirement, unemployment and workers' compensation insurance required by law, agreement, or under Contractor's or Subcontractor's standard personnel policy;
- (b) cost of materials, supplies and equipment, including cost of delivery, whether incorporated or consumed;
- (c) rental cost of machinery and equipment, not to exceed prevailing local rates if contractor-owned;
- (d) costs of premiums for insurance required by the Contract Documents, permit fees, and sales, use or similar taxes related to the change in the Work;
- (e) reasonable credits to the Owner for the value of deleted Work, without Contractor or Subcontractor mark-ups; and
- (f) for additions to the Contract Sum, mark-up of the Contractor's direct costs for overhead and profit not exceeding 15% on Contractor's work nor exceeding 25% for Contractor and Subcontractor on a Subcontractor's work. **Changes which involve a net credit to the Owner shall include fair and reasonable credits for overhead and profit on the deducted work, in no case less than 5%.** For the purposes of this method of determining an adjustment of the Contract Sum, "overhead" shall cover the Contractor's indirect costs of the change, such as the cost of insurance other than mentioned above, bonds, superintendent and other job office personnel, watchman, use and rental of small tools, job office, job office supplies and expenses, temporary facilities and utilities, and home office expenses.

**C. ADJUSTMENT of the CONTRACT TIME due to CHANGES**

(1) Unless otherwise provided in the Contract Documents, the Contract Time shall be equitably adjusted for the performance of a change provided that the Contractor notifies the Architect in writing that the change will increase the time required to complete the Work. Such notice shall be provided no later than:

- (a) with the Contractor's cost proposal stating the number of days of extension requested, or
- (b) within ten days after the Contractor receives a directive to proceed with a change in advance of submitting a cost proposal, in which case the notice should provide an estimated number of days of extension to be requested, which may be subject to adjustment in the cost proposal.

(2) The Contract Time shall be extended only to the extent that the change affects the time required to complete the entire Work of the Contract, taking into account the concurrent performance of the changed and unchanged Work.

**D. CHANGE ORDER PROCEDURES**

(1) If the Owner proposes to make a change in the Work, the Architect will request that the Contractor provide a cost proposal for making the change to the Work. The request shall be in writing and shall adequately describe the proposed change using drawings, specifications, narrative, or a combination thereof. Within 21 days after receiving such a request, or such other time as may be stated in the request, the Contractor shall prepare and submit to the Architect a written proposal, properly itemized and supported by sufficient substantiating data to facilitate evaluation. The stated

time within which the Contractor must submit a proposal may be extended if, within that time, the Contractor makes a written request with reasonable justification thereof.

(2) The Contractor may voluntarily offer a change proposal which, in the Contractor's opinion, will reduce the cost of construction, maintenance, or operation or will improve the cost-effective performance of an element of the Project, in which case the Owner, through the Architect, will accept, reject, or respond otherwise within 21 days after receipt of the proposal, or such other reasonable time as the Contractor may state in the proposal.

(3) If the Contractor's proposal is acceptable to the Owner, or is negotiated to the mutual agreement of the Contractor and Owner, the Architect will prepare an appropriate Contract Change Order for execution. Upon receipt of the fully executed Contract Change Order, the Contractor shall proceed with the change.

(4) In advance of delivery of a fully executed Contract Change Order, the Architect may furnish to the Contractor a written authorization to proceed with an agreed change. However, such an authorization shall be effective only if it:

- (a) identifies the Contractor's accepted or negotiated proposal for the change,
- (b) states the agreed adjustments, if any, in Contract Sum and Contract Time,
- (c) states that funds are available to pay for the change, and
- (d) is signed by the Owner.

(5) If the Contractor and Owner cannot agree on the amount of the adjustment in the Contract Sum for a change, the Owner, through the Architect, may order the Contractor to proceed with the change on a Force Account basis, but the net cost to the Owner shall not exceed the amount quoted in the Contractor's proposal. Such order shall state that funds are available to pay for the change.

(6) If the Contractor does not promptly respond to a request for a proposal, or the Owner determines that the change is essential to the final product of the Work and that the change must be effected immediately to avoid delay of the Project, the Owner may:

- (a) determine with the Contractor a sufficient maximum amount to be authorized for the change and
- (b) direct the Contractor to proceed with the change on a Force Account basis pending delivery of the Contractor's proposal, stating the maximum increase in the Contract Sum that is authorized for the change.

(7) Pending agreement of the parties or final resolution of any dispute of the total amount due the Contractor for a change in the Work, amounts not in dispute for such changes in the Work may be included in Applications for Payment accompanied by an interim Change Order indicating the parties' agreement with part of all of such costs or time extension. Once a dispute is resolved, it shall be implemented by preparation and execution of an appropriate Change Order.

## **ARTICLE 20**

### **CLAIMS for EXTRA COST or EXTRA WORK**

- A. If the Contractor considers any instructions by the Architect, Owner, DCM Project Inspector, or public authority having jurisdiction to be contrary to the requirements of the Contract Documents and will involve extra work and/or cost under the Contract, the Contractor shall give the Architect

written notice thereof within ten days after receipt of such instructions, and in any event before proceeding to execute such work. As used in this Article, “instructions” shall include written or oral clarifications, directions, instructions, interpretations, or determinations.

- B. The Contractor’s notification pursuant to Paragraph 20.A shall state: (1) the date, circumstances, and source of the instructions, (2) that the Contractor considers the instructions to constitute a change to the Contract Documents and why, and (3) an estimate of extra cost and time that may be involved to the extent an estimate may be reasonably made at that time.
- C. Except for claims relating to an emergency endangering life or property, no claim for extra cost or extra work shall be considered in the absence of prior notice required under Paragraph 20.A.
- D. Within ten days of receipt of a notice pursuant to Paragraph 20.A, the Architect will respond in writing to the Contractor, stating one of the following:
  - (1) The cited instruction is rescinded.
  - (2) The cited instruction is a change in the Work and in which manner the Contractor is to proceed with procedures of Article 19, Changes in the Work.
  - (3) The cited instruction is reconfirmed, is not considered by the Architect to be a change in the Contract Documents, and the Contractor is to proceed with Work as instructed.
- E. If the Architect’s response to the Contractor is as in Paragraph 20.D(3), the Contractor shall proceed with the Work as instructed. If the Contractor continues to consider the instructions to constitute a change in the Contract Documents, the Contractor shall, within ten days after receiving the Architect’s response, notify the Architect in writing that the Contractor intends to submit a claim pursuant to Article 24, Resolution of Claims and Disputes

## **ARTICLE 21**

### **DIFFERING SITE CONDITIONS**

#### **A. DEFINITION**

**“Differing Site Conditions” are:**

- (1) subsurface or otherwise concealed physical conditions at the Project site which differ materially from those indicated in the Contract Documents, or
- (2) unknown physical conditions at the Project site which are of an unusual nature, differing materially from conditions ordinarily encountered and generally recognized as inherent in construction activities of the character required by the Contract Documents.

#### **B. PROCEDURES**

If Differing Site Conditions are encountered, then the party discovering the condition shall promptly notify the other party before the condition is disturbed and in no event later than ten days after discovering the condition. Upon such notice and verification that a Differing Site Condition exists, the Architect will, with reasonable promptness and with the Owner’s concurrence, make changes in the Drawings and/or Specifications as are deemed necessary to conform to the Differing

Site Condition. Any increase or decrease in the Contract Sum or Contract Time that is warranted by the changes will be made as provided under Article 19, Changes in the Work. If the Architect determines a Differing Site Condition has not been encountered, the Architect shall notify the Owner and Contractor in writing, stating the reason for that determination.

## **ARTICLE 22** **CLAIMS for DAMAGES**

If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time after the discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

## **ARTICLE 23** **DELAYS**

- A. A delay beyond the Contractor's control at any time in the commencement or progress of Work by an act or omission of the Owner, Architect, or any separate contractor or by labor disputes, unusual delay in deliveries, unavoidable casualties, fires, abnormal floods, tornadoes, or other cataclysmic events of nature, may entitle the Contractor to an extension of the Contract Time provided, however, that the Contractor shall, within ten days after the delay first occurs, give written notice to the Architect of the cause of the delay and its probable effect on progress of the entire Work.
- B. Adverse weather conditions that are more severe than anticipated for the locality of the Work during any given month may entitle the Contractor to an extension of Contract Time provided, however;
  - (1) the weather conditions had an adverse effect on construction scheduled to be performed during the period in which the adverse weather occurred, which in reasonable sequence would have an effect on completion of the entire Work,
  - (2) the Contractor shall, within twenty-one days after the end of the month in which the delay occurs, give the Architect written notice of the delay that occurred during that month and its probable effect on progress of the Work, and
  - (3) within a reasonable time after giving notice of the delay, the Contractor provides the Architect with sufficient data to document that the weather conditions experienced were unusually severe for the locality of the Work during the month in question. Unless otherwise provided in the Contract Documents, data documenting unusually severe weather conditions shall compare actual weather conditions to the average weather conditions for the month in question during the previous five years as recorded by the National Oceanic and Atmospheric Administration (NOAA) or similar record-keeping entities.
- C. Adjustments, if any, of the Contract Time pursuant to this Article shall be incorporated into the Contract by a Contract Change Order prepared by the Architect and signed by the Contractor, Owner, and other signatories to the Construction Contract or, at closeout of the Contract, by mutual

written agreement between the Contractor and Owner. The adjustment of the Contract Time shall not exceed the extent to which the delay extends the time required to complete the entire Work of the Contract.

- D. The Contractor shall not be entitled to any adjustment of the Contract Sum for damage due to delays claimed pursuant to this Article unless the delay was caused by the Owner or Architect and was either:
- (1) the result of bad faith or active interference or
  - (2) beyond the contemplation of the parties and not remedied within a reasonable time after notification by the Contractor of its presence.

## **ARTICLE 24**

### **RESOLUTION of CLAIMS and DISPUTES**

#### **A. APPLICABILITY of ARTICLE**

(1) As used in this Article, “Claims and Disputes” include claims or disputes asserted by the Contractor, its Surety, or Owner arising out of or related to the Contract, or its breach, including without limitation claims seeking, under the provisions of the Contract, equitable adjustment of the Contract Sum or Contract Time and claims and disputes arising between the Contractor (or its Surety) and Owner regarding interpretation of the Contract Documents, performance of the Work, or breach of or compliance with the terms of the Contract.

(2) “Resolution” addressed in this Article applies only to Claims and Disputes arising between the Contractor (or its Surety) and Owner and asserted after execution of the Construction Contract and prior to the date upon which final payment is made. Upon making application for final payment the Contractor may reserve the right to subsequent Resolution of existing Claims by including a list of all Claims, in stated amounts, which remain to be resolved and specifically excluding them from any release of claims executed by the Contractor, and in that event Resolution may occur after final payment is made.

#### **B. CONTINUANCE of PERFORMANCE**

An unresolved Claim or Dispute shall not be just cause for the Contractor to fail or refuse to proceed diligently with performance of the Contract or for the Owner to fail or refuse to continue to make payments in accordance with the Contract Documents.

#### **C. GOOD FAITH EFFORT to SETTLE**

The Contractor and Owner agree that, upon the assertion of a Claim by the other, they will make a good faith effort, with the Architect’s assistance and advice, to achieve mutual resolution of the Claim. If mutually agreed, the Contractor and Owner may endeavor to resolve a Claim through mediation. If efforts to settle are not successful, the Claim shall be resolved in accordance with paragraph D or E below, whichever applies.

#### **D. FINAL RESOLUTION for STATE-FUNDED CONTRACTS**

(1) If the Contract is funded in whole or in part with state funds, the final Resolution of Claims



and Disputes which cannot be resolved by the Contractor (or its Surety) and Owner shall be by the Director, whose decision shall be final, binding, and conclusive upon the Contractor, its Surety, and the Owner.

(2) When it becomes apparent to the party asserting a Claim (the Claimant) that an impasse to mutual resolution has been reached, the Claimant may request in writing to the Director that the Claim be resolved by decision of the Director. Such request by the Contractor (or its Surety) shall be submitted through the Owner. Should the Owner fail or refuse to submit the Contractor's request within ten days of receipt of same, the Contractor may forward such request directly to the Director. Upon receipt of a request to resolve a Claim, the Director will instruct the parties as to procedures to be initiated and followed.

(3) If the respondent to a Claim fails or refuses to participate or cooperate in the Resolution procedures to the extent that the Claimant is compelled to initiate legal proceedings to induce the Respondent to participate or cooperate, the Claimant will be entitled to recover, and may amend its Claim to include, the expense of reasonable attorney's fees so incurred.

**E. FINAL RESOLUTION for LOCALLY-FUNDED CONTRACTS**

If the Contract is funded in whole with funds provided by a city or county board of education or other local governmental authority and the Contract Documents do not stipulate a binding alternative dispute resolution method, the final resolution of Claims and Disputes which cannot be resolved by the Contractor (or its Surety) and Owner may be by any legal remedy available to the parties. Alternatively, upon the written agreement of the Contractor (or its Surety) and the Owner, final Resolution of Claims and Disputes may be by submission to binding arbitration before a neutral arbitrator or panel or by submission to the Director in accordance with preceding Paragraph D.

**ARTICLE 25**

**OWNER'S RIGHT to CORRECT DEFECTIVE WORK**

If the Contractor fails or refuses to correct Defective Work in a timely manner that will avoid delay of completion, use, or occupancy of the Work or work by the Owner or separate contractors, the Architect may give the Contractor written Notice to Cure the Defective Work within a reasonable, stated time. If within ten days after receipt of the Notice to Cure the Contractor has not proceeded and satisfactorily continued to cure the Defective Work or provided the Architect with written verification that satisfactory positive action is in process to cure the Defective Work, the Owner may, without prejudice to any other remedy available to the Owner, correct the Defective Work and deduct the actual cost of the correction from payment then or thereafter due to the Contractor.

**ARTICLE 26**

**OWNER'S RIGHT to STOP or SUSPEND the WORK**

**A. STOPPING the WORK for CAUSE**

If the Contractor fails to correct Defective Work or persistently fails to carry out Work in accordance with the Contract Documents, the Owner may direct the Contractor in writing to stop the Work, or any part of the Work, until the cause for the Owner's directive has been eliminated;

however, the Owner's right to stop the Work shall not be construed as a duty of the Owner to be exercised for the benefit of the Contractor or any other person or entity.

**B. SUSPENSION by the OWNER for CONVENIENCE**

- (1) The Owner may, at any time and without cause, direct the Contractor in writing to suspend, delay or interrupt the Work, or any part of the Work, for a period of time as the Owner may determine.
- (2) The Contract Sum and Contract Time shall be adjusted, pursuant to Article 19, for reasonable increases in the cost and time caused by an Owner-directed suspension, delay or interruption of Work for the Owner's convenience. However, no adjustment to the Contract Sum shall be made to the extent that the same or concurrent Work is, was or would have been likewise suspended, delayed or interrupted for other reasons not caused by the Owner.

**ARTICLE 27**  
**OWNER'S RIGHT to TERMINATE CONTRACT**

**A. TERMINATION by the OWNER for CAUSE**

- (1) **Causes:** The Owner may terminate the Contractor's right to complete the Work, or any designated portion of the Work, if the Contractor:
  - (a) should be adjudged bankrupt, or should make a general assignment for the benefit of the Contractor's creditors, or if a receiver should be appointed on account of the Contractor's insolvency to the extent termination for these reasons is permissible under applicable law;
  - (b) refuses or fails to prosecute the Work, or any part of the Work, with the diligence that will insure its completion within the Contract Time, including any extensions, or fails to complete the Work within the Contract Time;
  - (c) refuses or fails to perform the Work, including prompt correction of Defective Work, in a manner that will insure that the Work, when fully completed, will be in accordance with the Contract Documents;
  - (d) fails to pay for labor or materials supplied for the Work or to pay Subcontractors in accordance with the respective Subcontract;
  - (e) persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction, or the instructions of the Architect or Owner; or
  - (f) is otherwise guilty of a substantial breach of the Contract.
- (2) **Procedure for Unbonded Construction Contracts (Generally, contracts less than \$50,000):**
  - (a) **Notice to Cure:** In the presence of any of the above conditions the Architect may give the Contractor written notice to cure the condition within a reasonable, stated time, but not less than ten days after the Contractor receives the notice.
  - (b) **Notice of Termination:** If, at the expiration of the time stated in the Notice to Cure, the Contractor has not proceeded and satisfactorily continued to cure the condition or provided the Architect with written verification that satisfactory positive action is in process to cure the condition, the Owner may, without prejudice to any other rights or remedies of the Owner, give the Contractor written notice that the Contractor's right to complete the Work, or a designated portion of the Work, shall terminate seven days after the Contractor's receipt of the

written Notice of Termination.

(c) If the Contractor satisfies a Notice to Cure, but the condition for which the notice was first given reoccurs, the Owner may give the Contractor a seven day Notice of Termination without giving the Contractor another Notice to Cure.

(d) At the expiration of the seven days of the termination notice, the Owner may:

.1 take possession of the site, of all materials and equipment stored on and off site, and of all Contractor-owned tools, construction equipment and machinery, and facilities located at the site, and

.2 finish the Work by whatever reasonable method the Owner may deem expedient.

(e) The Contractor shall not be entitled to receive further payment under the Contract until the Work is completed.

(f) If the Owner's cost of completing the Work, including correction of Defective Work, compensation for additional architectural, engineering, managerial, and administrative services, and reasonable attorneys' fees due to the default and termination, is less than the unpaid balance of the Contract Sum, the excess balance less liquidated damages for delay shall be paid to the Contractor. If such cost to the Owner including attorney's fees, plus liquidated damages, exceeds the unpaid balance of the Contract Sum, the Contractor shall pay the difference to the Owner. Final Resolution of any claim or Dispute involving the termination or any amount due any party as a result of the termination shall be pursuant to Article 24.

(g) Upon the Contractor's request, the Owner shall furnish to the Contractor a detailed accounting of the Owner's cost of completing the Work.

**(3) Procedure for Bonded Construction Contracts (Generally, contracts over \$50,000):**

(a) **Notice to Cure:** In the presence of any of the above conditions the Architect may give the Contractor and its Surety written Notice to Cure the condition within a reasonable, stated time, but not less than ten days after the Contractor receives the notice.

(b) **Notice of Termination:** If, at the expiration of the time stated in the Notice to Cure, the Contractor has not proceeded and satisfactorily continued to cure the condition or provided the Architect with written verification that satisfactory positive action is in process to cure the condition, the Owner may, without prejudice to any other rights or remedies of the Owner, give the Contractor and its Surety written notice declaring the Contractor to be in default under the Contract and stating that the Contractor's right to complete the Work, or a designated portion of the Work, shall terminate seven days after the Contractor's receipt of the written Notice of Termination.

(c) If the Contractor satisfies a Notice to Cure, but the condition for which the notice was first given reoccurs, the Owner may give the Contractor a Notice of Termination without giving the Contractor another Notice to Cure.

(d) **Demand on the Performance Bond:** With the Notice of Termination the Owner shall give the Surety a written demand that, upon the effective date of the Notice of Termination, the Surety promptly fulfill its obligation to take charge of and complete the Work in accordance with the terms of the Performance Bond.

(e) **Surety Claims:** Upon receiving the Owner's demand on the Performance Bond, the Surety shall assume all rights and obligations of the Contractor under the Contract. However, the Surety shall also have the right to assert "Surety Claims" to the Owner, which are defined as claims relating to acts or omissions of the Owner or Architect prior to termination of the Contractor which may have prejudiced its rights as Surety or its interest in the unpaid balance of the Contract Sum. If the Surety wishes to assert a Surety Claim, it shall give the Owner, through the Architect, written notice within twenty-one days after first recognizing the

condition giving rise to the Surety Claim. The Surety Claim shall then be submitted to the Owner, through the Architect, no later than sixty days after giving notice thereof, but no such Surety Claims shall be considered if submitted after the date upon which final payment becomes due. Final resolution of Surety Claims shall be pursuant to Article 24, Resolution of Claims and Disputes. The presence or possibility of a Surety Claim shall not be just cause for the Surety to fail or refuse to take charge of and complete the Work or for the Owner to fail or refuse to continue to make payments in accordance with the Contract Documents.

**(f) Payments to Surety:** The Surety shall be paid for completing the Work in accordance with the Contract Documents as if the Surety were the Contractor. The Owner shall have the right to deduct from payments to the Surety any reasonable costs incurred by the Owner, including compensation for additional architectural, engineering, managerial, and administrative services, and attorneys' fees as necessitated by termination of the Contractor and completion of the Work by the Surety. No further payments shall be made to the Contractor by the Owner. The Surety shall be solely responsible for any accounting to the Contractor for the portion of the Contract Sum paid to Surety by Owner or for the costs and expenses of completing the Work.

**(4) Wrongful Termination:** If any notice of termination by the Owner for cause, made in good faith, is determined to have been wrongly given, such termination shall be effective and compensation therefore determined as if it had been a termination for convenience pursuant to Paragraph B below.

**B. TERMINATION by the OWNER for CONVENIENCE**

**(1)** The Owner may, without cause and at any time, terminate the performance of Work under the Contract in whole, or in part, upon determination by the Owner that such termination is in the Owner's best interest. Such termination is referred to herein as Termination for Convenience.

**(2)** Upon receipt of a written notice of Termination for Convenience from the Owner, the Contractor shall:

- (a)** stop Work as specified in the notice;
- (b)** enter into no further subcontracts or purchase orders for materials, services, or facilities, except as may be necessary for Work directed to be performed prior to the effective date of the termination or to complete Work that is not terminated;
- (c)** terminate all existing subcontracts and purchase orders to the extent they relate to the terminated Work;
- (d)** take such actions as are necessary, or directed by the Architect or Owner, to protect, preserve, and make safe the terminated Work; and
- (e)** complete performance of the Work that is not terminated.

**(3)** In the event of Termination for Convenience, the Contractor shall be entitled to receive payment for the Work performed prior to its termination, including materials and equipment purchased and delivered for incorporation into the terminated Work, and any reasonable costs incurred because of the termination. Such payment shall include reasonable mark-up of costs for overhead and profit, not to exceed the limits stated in Article 19, Changes in the Work. The Contractor shall be entitled to receive payment for reasonable anticipated overhead ("home office") and shall not be entitled to receive payment for any profits anticipated to have been gained from the terminated Work. A proposal for decreasing the Contract Sum shall be submitted to the Architect by the Contractor in such time and detail, and with such supporting documentation, as is reasonably

directed by the Owner. Final modification of the Contract shall be by Contract Change Order pursuant to Article 19. Any Claim or Dispute involving the termination or any amount due a party as a result shall be resolved pursuant to Article 24.

**ARTICLE 28**  
**CONTRACTOR'S RIGHT to SUSPEND or TERMINATE the CONTRACT**

**A. SUSPENSION by the OWNER**

If all of the Work is suspended or delayed for the Owner's convenience or under an order of any court, or other public authority, for a period of sixty days, through no act or fault of the Contractor or a Subcontractor, or anyone for whose acts they may be liable, then the Contractor may give the Owner a written Notice of Termination which allows the Owner fourteen days after receiving the Notice in which to give the Contractor appropriate written authorization to resume the Work. Absent the Contractor's receipt of such authorization to resume the Work, the Contract shall terminate upon expiration of this fourteen day period and the Contractor will be compensated by the Owner as if the termination had been for the Owner's convenience pursuant to Article 27.B.

**B. NONPAYMENT**

The Owner's failure to pay the undisputed amount of an Application for Payment within sixty days after receiving it from the Architect (Certified pursuant to Article 30) shall be just cause for the Contractor to give the Owner fourteen days' written notice that the Work will be suspended pending receipt of payment but that the Contract shall terminate if payment is not received within fourteen days (or a longer period stated by the Contractor) of the expiration of the fourteen day notice period.

(1) If the Work is then suspended for nonpayment, but resumed upon receipt of payment, the Contractor will be entitled to compensation as if the suspension had been by the Owner pursuant to Article 26, Paragraph B.

(2) If the Contract is then terminated for nonpayment, the Contractor will be entitled to compensation as if the termination had been by the Owner pursuant to Article 27, Paragraph B.

**ARTICLE 29**  
**PROGRESS PAYMENTS**

**A. FREQUENCY of PROGRESS PAYMENTS**

Unless otherwise provided in the Contract Documents, the Owner will make payments to the Contractor as the Work progresses based on monthly estimates prepared and certified by the Contractor, approved and certified by the Architect, and approved by the Owner and other authorities whose approval is required.

**B. SCHEDULE of VALUES**

Within ten days after receiving the Notice to Proceed the Contractor shall submit to the Architect a

DCM Form C-10SOV, Schedule of Values, which is a breakdown of the Contract Sum showing the value of the various parts of the Work for billing purposes. The Schedule of Values shall be printable on 8.5" × 11" for DCM's scanning purposes and shall divide the Contract Sum into as many parts ("line items") as the Architect and Owner determine necessary to permit evaluation and to show amounts attributable to Subcontractors. The Contractor's overhead and profit are to be proportionately distributed throughout the line items of the Schedule of Values. Upon approval, the Schedule of Values shall be used as a basis for monthly Applications for Payment, unless it is later found to be in error. Approved change order amounts shall be added to or incorporated into the Schedule of Values as mutually agreed by the Contractor and Architect.

**C. APPLICATIONS for PAYMENTS**

(1) Based on the approved Schedule of Values, each DCM Form C-10, Application and Certificate for Payment shall show the Contractor's estimate of the value of Work performed in each line item as of the end of the billing period. The Contractor's cost of materials and equipment not yet incorporated into the Work, but delivered and suitably stored on the site, may be considered in monthly Applications for Payment. One payment application per month may be submitted. Each DCM Form C-10, Application and Certificate for Payment shall match to the penny and be accompanied by an attached DCM Form C-10SOV, Schedule of Values.

(2) The Contractor's estimate of the value of Work performed and stored materials must represent such reasonableness as to warrant certification by the Architect to the Owner in accordance with Article 30. Each monthly Application for Payment shall be supported by such data as will substantiate the Contractor's right to payment, including without limitation copies of requisitions from subcontractors and material suppliers.

(3) If no other date is stated in the Contract Documents or agreed upon by the parties, each Application for Payment shall be submitted to the Architect on or about the first day of each month and payment shall be issued to the Contractor within thirty days after an Application for Payment is Certified pursuant to Article 30 and delivered to the Owner.

(4) Two copies of DCM Form C-10, Application and Certificate for Payment containing original signatures, with each copy of DCM Form C-10 to include all attachments, shall be submitted to DCM for review following the Contractor's, Notary's (for paper submittals), Architect's and Owner's signatures.

**D. MATERIALS STORED OFF SITE**

Unless otherwise provided in the Contract Documents, the Contractor's cost of materials and equipment to be incorporated into the Work, which are stored off the site, may also be considered in monthly Applications for Payment under the following conditions:

- (1) the contractor has received written approval from the Architect and Owner to store the materials or equipment off site in advance of delivering the materials to the off site location;
- (2) a Certificate of Insurance is furnished to the Architect evidencing that a special insurance policy, or rider to an existing policy, has been obtained by the Contractor providing all-risk property insurance coverage, specifically naming the materials or equipment stored, and naming the Owner as an additionally insured party;
- (3) the Architect is provided with a detailed inventory of the stored materials or equipment and the materials or equipment are clearly marked in correlation to the inventory to facilitate

inspection and verification of the presence of the materials or equipment by the Architect or Owner;

- (4) the materials or equipment are properly and safely stored in a bonded warehouse, or a facility otherwise approved in advance by the Architect and Owner; and
- (5) compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest.

**E. RETAINAGE**

(1) "Retainage" is defined as the money earned and, therefore, belonging to the Contractor (subject to final settlement of the Contract) which has been retained by the Owner conditioned on final completion and acceptance of all Work required by the Contract Documents. Retainage shall not be relied upon by Contractor (or Surety) to cover or off-set unearned monies attributable to uncompleted or uncorrected Work.

(2) In making progress payments the Owner shall retain five percent of the estimated value of Work performed and the value of the materials stored for the Work; but after retainage has been held upon fifty percent of the Contract Sum, no additional retainage will be withheld.

**F. CONTRACTOR'S CERTIFICATION**

(1) Each Application for Payment shall bear the Contractor's notarized certification that, to the best of the Contractor's knowledge, information, and belief, the Work covered by the Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payments were issued and payments received from the Owner and that the current payment shown in the Application for Payment has not yet been received.

(2) By making this certification the Contractor represents to the Architect and Owner that, upon receipt of previous progress payments from the Owner, the Contractor has promptly paid each Subcontractor, in accordance with the terms of its agreement with the Subcontractor, the amount due the Subcontractor from the amount included in the progress payment on account of the Subcontractor's Work and stored materials. The Architect and Owner may advise Subcontractors and suppliers regarding percentages of completion or amounts requested and/or approved in an Application for Payment on account of the Subcontractor's Work and stored materials.

**G. PAYMENT ESTABLISHES OWNERSHIP**

All material and Work covered by progress payments shall become the sole property of the Owner, but the Contractor shall not be relieved from the sole responsibility for the care and protection of material and Work upon which payments have been made and for the restoration of any damaged material and Work.

**ARTICLE 30**  
**CERTIFICATION and APPROVALS for PAYMENT**

- A. The Architect's review, approval, and certification of Applications for Payment shall be based on the Architect's general knowledge of the Work obtained through site visits and the information

provided by the Contractor with the Application. The Architect shall not be required to perform exhaustive examinations, evaluations, or estimates of the cost of completed or uncompleted Work or stored materials to verify the accuracy of amounts requested by the Contractor, but the Architect shall have the authority to adjust the Contractor's estimate when, in the Architect's reasonable opinion, such estimates are overstated or understated.

- B.** Within seven days after receiving the Contractor's monthly Application for Payment, or such other time as may be stated in the Contract Documents, the Architect will take one of the following actions:
- (1)** The Architect will approve and certify the Application as submitted and forward it to the Owner as a Certification for Payment for approval by the Owner (and other approving authorities, if any) and payment.
  - (2)** If the Architect takes exception to any amounts claimed by the Contractor and the Contractor and Architect cannot agree on revised amounts, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to certify to the Owner, transmitting a copy of same to the Contractor.
  - (3)** To the extent the Architect determines may be necessary to protect the Owner from loss on account of any of the causes stated in Article 31, the Architect may subtract from the Contractor's estimates and will issue a Certificate for Payment to the Owner, with a copy to the Contractor, for such amount as the Architect determines is properly due and notify the Contractor and Owner in writing of the Architect's reasons for withholding payment in whole or in part.
- C.** Neither the Architect's issuance of a Certificate for Payment nor the Owner's resulting progress payment shall be a representation to the Contractor that the Work in progress or completed at that time is accepted or deemed to be in conformance with the Contract Documents.
- D.** The Architect shall not be required to determine that the Contractor has promptly or fully paid Subcontractors and suppliers or how or for what purpose the Contractor has used monies paid under the Construction Contract. However, the Architect may, upon request and if practical, inform any Subcontractor or supplier of the amount, or percentage of completion, approved or paid to the Contractor on account of the materials supplied or the Work performed by the Subcontractor.

### **ARTICLE 31** **PAYMENTS WITHHELD**

- A.** The Architect may nullify or revise a previously issued Certificate for Payment prior to Owner's payment thereunder to the extent as may be necessary in the Architect's opinion to protect the Owner from loss on account of any of the following causes not discovered or fully accounted for at the time of the certification or approval of the Application for Payment:
- (1)** Defective Work;
  - (2)** filed, or reasonable evidence indicating probable filing of, claims arising out of the Contract by other parties against the Contractor;
  - (3)** the Contractor's failure to pay for labor, materials or equipment or to pay Subcontractors;
  - (4)** reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;



- (5) damage suffered by the Owner or another contractor caused by the Contractor, a Subcontractor, or anyone for whose acts they may be liable;
  - (6) reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance is insufficient to cover applicable liquidated damages; or
  - (7) the Contractor's persistent failure to conform to the requirements of the Contract Documents.
- B.** If the Owner deems it necessary to withhold payment pursuant to preceding Paragraph A, the Owner will notify the Contractor and Architect in writing of the amount to be withheld and the reason for same.
- C.** The Architect shall not be required to withhold payment for completed or partially completed Work for which compliance with the Contract Documents remains to be determined by Specified Inspections or Final Inspections to be performed in their proper sequence. However, if Work for which payment has been approved, certified, or made under an Application for Payment is subsequently determined to be Defective Work, the Architect shall determine an appropriate amount that will protect the Owner's interest against the Defective Work.
- (1) If payment has not been made against the Application for Payment first including the Defective Work, the Architect will notify the Owner and Contractor of the amount to be withheld from the payment until the Defective Work is brought into compliance with the Contract Documents.
  - (2) If payment has been made against the Application for Payment first including the Defective Work, the Architect will withhold the appropriate amount from the next Application for Payment submitted after the determination of noncompliance, such amount to then be withheld until the Defective Work is brought into compliance with the Contract Documents.
- D.** The amount withheld will be paid with the next Application for Payment certified and approved after the condition for which the Owner has withheld payment is removed or otherwise resolved to the Owner's satisfaction.
- E.** The Owner shall have the right to withhold from payments due the Contractor under this Contract an amount equal to any amount which the Contractor owes the Owner under another contract.

## **ARTICLE 32**

### **SUBSTANTIAL COMPLETION**

- A.** Substantial Completion is the stage in the progress of the Work when the Work or designated portion of the Work is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use without disruption or interference by the Contractor in completing or correcting any remaining unfinished Work ("punch list" items). Substantial Completion of the Work, or a designated portion of the Work, is not achieved until so agreed in a Certificate of Substantial Completion signed by the Contractor, Architect, Owner, and Technical Staff of the Alabama Division of Construction Management.
- B.** The Contractor shall notify the Architect in writing when it considers the Work, or a portion of the Work which the Owner has agreed to accept separately, to be substantially complete and ready for a Final Inspection pursuant to Article 16. In this notification the Contractor shall identify any items

remaining to be completed or corrected for Final Acceptance prior to final payment.

- C. Substantial Completion is achieved and a Final Inspection is appropriate only when a minimal number of punch list items exists and only a short period of time will be required to correct or complete them. Upon receipt of the Contractor's notice for a Final Inspection, the Architect will advise the Contractor in writing of any conditions of the Work which the Architect or Owner is aware do not constitute Substantial Completion, otherwise, a Final Inspection will proceed within a reasonable time after the Contractor's notice is given. However, the Architect will not be required to prepare lengthy listings of punch list items; therefore, if the Final Inspection discloses that Substantial Completion has not been achieved, the Architect may discontinue or suspend the inspection until the Contractor does achieve Substantial Completion.

**D. CERTIFICATE of SUBSTANTIAL COMPLETION**

(1) When the Work or a designated portion of the Work is substantially complete, the Architect will prepare and sign a Certificate of Substantial Completion to be signed in order by the Contractor, Owner, and Alabama Division of Construction Management.

(2) When signed by all parties, the Certificate of Substantial Completion shall establish the Date of Substantial Completion which is the date upon which:

- (a) the Work, or designated portion of the Work, is accepted by the Architect, Owner, and Alabama Division of Construction Management as being ready for occupancy,
- (b) the Contractor's one-year and special warranties for the Work covered by the Certificate commence, unless stated otherwise in the Certificate (the one-year warranty for punch list items completed or corrected after the period allowed in the Certificate shall commence on the date of their Final Acceptance), and
- (c) Owner becomes responsible for building security, maintenance, utility services, and insurance, unless stated otherwise in the Certificate.

(3) The Certificate of Substantial Completion shall set the time within which the Contractor shall finish all items on the "punch list" accompanying the Certificate. The completion of punch list items shall be a condition precedent to Final Payment.

(4) If the Work or designated portion covered by a Certificate of Substantial Completion includes roofing work, the General Contractor's (5-year) Roofing Guarantee, DCM Form C-9, must be executed by the Contractor and attached to the Certificate of Substantial Completion. If the Contract Documents specify any other roofing warranties to be provided by the roofing manufacturer, Subcontractor, or Contractor, they must also be attached to the Certificate of Substantial Completion. The Alabama Division of Construction Management will not sign the Certificate of Substantial Completion in the absence of the roofing guarantees.

- E. The Date of Substantial Completion of the Work, as set in the Certificate of Substantial Completion of the Work or of the last completed portion of the Work, establishes the extent to which the Contractor is liable for Liquidated Damages, if any; however, should the Contractor fail to complete all punch list items within thirty days, or such other time as may be stated in the respective Certificate of Substantial Completion, the Contractor shall bear any expenses, including additional Architectural services and expenses, incurred by the Owner as a result of such failure to complete punch list items in a timely manner.

**ARTICLE 33**  
**OCCUPANCY or USE PRIOR to COMPLETION**

**A. UPON SUBSTANTIAL COMPLETION**

Prior to completion of the entire Work, the Owner may occupy or begin utilizing any designated portion of the Work on the agreed Date of Substantial Completion of that portion of the Work.

**B. BEFORE SUBSTANTIAL COMPLETION**

(1) The Owner shall not occupy or utilize any portion of the Work before Substantial Completion of that portion has been achieved.

(2) The Owner may deliver furniture and equipment and store, or install it in place ready for occupancy and use, in any designated portion of the Work before it is substantially completed under the following conditions:

(a) The Owner's storage or installation of furniture and equipment will not unreasonably disrupt or interfere with the Contractor's completion of the designated portion of the Work.

(b) The Contractor consents to the Owner's planned action (such consent shall not be unreasonably withheld).

(c) The Owner shall be responsible for insurance coverage of the Owner's furniture and equipment, and the Contractor's liability shall not be increased.

(d) The Contractor, Architect, and Owner will jointly inspect and record the condition of the Work in the area before the Owner delivers and stores or installs furniture and equipment; the Owner will equitably compensate the Contractor for making any repairs to the Work that may subsequently be required due to the Owner's delivery and storage or installation of furniture and equipment.

(e) The Owner's delivery and storage or installation of furniture and equipment shall not be deemed an acceptance of any Work not completed in accordance with the requirements of the Contract Documents.

**ARTICLE 34**  
**FINAL PAYMENT**

**A. PREREQUISITES to FINAL PAYMENT**

The following conditions are prerequisites to Final Payment becoming due the Contractor:

(1) Full execution of a Certificate of Substantial Completion for the Work, or each designated portion of the Work.

(2) Final Acceptance of the Work.

(3) The Contractor's completion, to the satisfaction of the Architect and Owner, of all documentary requirements of the Contract Documents; such as delivery of "as-built" documents, operating and maintenance manuals, warranties, etc.

(4) Delivery to the Owner of a final Application for Payment, prepared by the Contractor and approved and certified by the Architect. Architect prepares DCM Form B-13: Final Payment Checklist and forwards it to the Owner along with the final Application for Payment.

(5) Completion of an Advertisement for Completion pursuant to Paragraph C below.

(6) Delivery by the Contractor to the Owner through the Architect of DCM Form C-18:

Contractor's Affidavit of Payment of Debts and Claims, and a Release of Claims, if any, and such other documents as may be required by Owner, satisfactory in form to the Owner pursuant to Paragraph D below.

- (7) Consent of Surety to Final Payment, if any, to Contractor. This Consent of Surety is required for projects which have Payment and Performance Bonds.
- (8) Delivery by the Contractor to the Architect and Owner of other documents, if any, required by the Contract Documents as prerequisites to Final Payment.
- (9) See Manual of Procedures Chapter 7, Section L.7 concerning reconciliation of contract time, if any.

**B. FINAL ACCEPTANCE of the WORK**

"Final Acceptance of the Work" shall be achieved when all "punch list" items recorded with the Certificate(s) of Substantial Completion are accounted for by either: (1) their completion or correction by the Contractor and acceptance by the Architect, Owner, and DCM Project Inspector, or (2) their resolution under Article 18, Deductions for Uncorrected Work.

**C. ADVERTISEMENT for COMPLETION**

(1) **If the Contract Sum is \$50,000 or less:** The Owner, immediately after being notified by the Architect that all other requirements of the Contract have been completed, shall give public notice of completion of the Contract by having an Advertisement for Completion published one time in a newspaper of general circulation, published in the county in which the Owner is located for one week, and shall require the Contractor to certify under oath that all bills have been paid in full. Final payment may be made at any time after the notice has been posted for one entire week.

(2) **If the Contract Sum is more than \$50,000:** The Contractor, immediately after being notified by the Architect that all other requirements of the Contract have been completed, shall give public notice of completion of the Contract by having an Advertisement for Completion, similar to the sample contained in the Project Manual, published for a period of four successive weeks in some newspaper of general circulation published within the city or county where the Work was performed. Proof of publication of the Advertisement for Completion shall be made by the Contractor to the Architect by affidavit of the publisher, in duplicate, and a printed copy of the Advertisement for Completion published, in duplicate. If no newspaper is published in the county where the work was done, the notice may be given by posting at the Court House for thirty days and proof of same made by Probate Judge or Sheriff and the Contractor. Final payment shall not be due until thirty days after this public notice is completed.

**D. RELEASE of CLAIMS**

The Release of Claims and other documents referenced in Paragraph A(6) above are as follows:

(1) A release executed by Contractor of all claims and claims of lien against the Owner arising under and by virtue of the Contract, other than such claims of the Contractor, if any, as may have been previously made in writing and as may be specifically excepted by the Contractor from the operation of the release in stated amounts to be set forth therein.

(2) An affidavit under oath, if required, stating that so far as the Contractor has knowledge or information, there are no claims or claims of lien which have been or will be filed by any Subcontractor, Supplier or other party for labor or material for which a claim or claim of lien could

be filed.

(3) A release, if required, of all claims and claims of lien made by any Subcontractor, Supplier or other party against the Owner or unpaid Contract funds held by the Owner arising under or related to the Work on the Project; provided, however, that if any Subcontractor, Supplier or others refuse to furnish a release of such claims or claims of lien, the Contractor may furnish a bond executed by Contractor and its Surety to the Owner to provide an unconditional obligation to defend, indemnify and hold harmless the Owner against any loss, cost or expense, including attorney's fees, arising out of or as a result of such claims, or claims of lien, in which event Owner may make Final Payment notwithstanding such claims or claims of lien. If Contractor and Surety fail to fulfill their obligations to Owner under the bond, the Owner shall be entitled to recover damages as a result of such failure, including all costs and reasonable attorney's fees incurred to recover such damages.

#### **E. EFFECT of FINAL PAYMENT**

(1) The making of Final Payment shall constitute a waiver of Claims by the Owner except those arising from:

- (a) liens, claims, security interests or encumbrances arising out of the Contract and unsettled;
- (b) failure of the Work to comply with the requirements of the Contract Documents;
- (c) terms of warranties or indemnities required by the Contract Documents, or
- (d) latent defects.

(2) Acceptance of Final Payment by the Contractor shall constitute a waiver of claims by Contractor except those previously made in writing, identified by Contractor as unsettled at the time of final Application for Payment, and specifically excepted from the release provided for in Paragraph D(1), above.

### **ARTICLE 35** **CONTRACTOR'S WARRANTY**

#### **A. GENERAL WARRANTY**

The Contractor warrants to the Owner and Architect that all materials and equipment furnished under the Contract will be of good quality and new, except such materials as may be expressly provided or allowed in the Contract Documents to be otherwise, and that none of the Work will be Defective Work as defined in Article 1.

#### **B. ONE-YEAR WARRANTY**

(1) If, within one year after the date of Substantial Completion of the Work or each designated portion of the Work (or otherwise as agreed upon in a mutually-executed Certificate of Substantial Completion), any of the Work is found to be Defective Work, the Contractor shall promptly upon receipt of written notice from the Owner or Architect, and without expense to either, replace or correct the Defective Work to conform to the requirements of the Contract Documents, and repair all damage to the site, the building and its contents which is the result of Defective Work or its replacement or correction.

(2) The one-year warranty for punch list items shall begin on the Date of Substantial Completion if they are completed or corrected within the time period allowed in the Certificate of Substantial

Completion in which they are recorded. The one-year warranty for punch list items that are not completed or corrected within the time period allowed in the Certificate of Substantial Completion, and other Work performed after Substantial Completion, shall begin on the date of Final Acceptance of the Work. The Contractor's correction of Work pursuant to this warranty does not extend the period of the warranty. The Contractor's one-year warranty does not apply to defects or damages due to improper or insufficient maintenance, improper operation, or wear and tear during normal usage.

(3) Upon recognizing a condition of Defective Work, the Owner shall promptly notify the Contractor of the condition. If the condition is causing damage to the building, its contents, equipment, or site, the Owner shall take reasonable actions to mitigate the damage or its continuation, if practical. If the Contractor fails to proceed promptly to comply with the terms of the warranty, or to provide the Owner with satisfactory written verification that positive action is in process, the Owner may have the Defective Work replaced or corrected and the Contractor and the Contractor's Surety shall be liable for all expense incurred.

(4) **Year-end Inspection(s):** An inspection of the Work, or each separately completed portion thereof, is required near the end of the Contractor's one-year warranty period(s). The inspection must be scheduled with the Owner, Architect and DCM Inspector. The subsequent delivery of the Architect's report of a Year-end Inspection will serve as confirmation that the Contractor was notified of Defective Work found within the warranty period.

(5) The Contractor's warranty of one year is in addition to, and not a limitation of, any other remedy stated herein or available to the Owner under applicable law.

#### **C. GENERAL CONTRACTOR'S ROOFING GUARANTEE**

(1) In addition to any other roof related warranties or guarantees that may be specified in the Contract Documents, the roof and associated work shall be guaranteed by the General Contractor against leaks and defects of materials and workmanship for a period of five (5) years, starting on the Date of Substantial Completion of the Project as stated in the Certificate of Substantial Completion. This guarantee for punch list items shall begin on the Date of Substantial Completion if they are completed or corrected within the time period allowed in the Certificate of Substantial Completion in which they are recorded. The guarantee for punch list items that are not completed or corrected within the time period allowed in the Certificate of Substantial Completion shall begin on the date of Final Acceptance of the Work.

(2) The "General Contractor's Roofing Guarantee" (DCM Form C-9), included in the Project Manual, shall be executed in triplicate, signed by the appropriate party and submitted to the Architect for submission with the Certificate of Substantial Completion to the Owner and the Division of Construction Management.

(3) This guarantee does not include costs which might be incurred by the General Contractor in making visits to the site requested by the Owner regarding roof problems that are due to lack of proper maintenance (keeping roof drains and/or gutters clear of debris that cause a stoppage of drainage which results in water ponding, overflowing of flashing, etc.), or damages caused by vandalism or misuse of roof areas. Should the contractor be required to return to the job to correct problems of this nature that are determined not to be related to faulty workmanship and materials in the installation of the roof, payment for actions taken by the Contractor in response to such request will be the responsibility of the Owner. A detailed written report shall be made by the General

Contractor on each of these 'Service Calls' with copies to the Architect, Owner and Division of Construction Management.

**D. SPECIAL WARRANTIES**

(1) The Contractor shall deliver to the Owner through the Architect all special or extended warranties required by the Contract Documents from the Contractor, Subcontractors, and suppliers.

(2) The Contractor and the Contractor's Surety shall be liable to the Owner for such special warranties during the Contractor's one-year warranty; thereafter, the Contractor's obligations relative to such special warranties shall be to provide reasonable assistance to the Owner in their enforcement.

**E. ASSUMPTION of GUARANTEES of OTHERS**

If the Contractor disturbs, alters, or damages any work guaranteed under a separate contract, thereby voiding the guarantee of that work, the Contractor shall restore the work to a condition satisfactory to the Owner and shall also guarantee it to the same extent that it was guaranteed under the separate contract.

**ARTICLE 36  
INDEMNIFICATION AGREEMENT**

To the fullest extent permitted by law, the Contractor shall defend, indemnify, and hold harmless the Owner, Architect, Architect's consultants, Alabama Division of Construction Management, State Department of Education (if applicable), and their agents, employees, and consultants (hereinafter collectively referred to as the "Indemnitees") from and against all claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of, related to, or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, including loss of use resulting therefrom, and is caused in whole or in part by negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether such claim, damage, loss or expense is caused in part, or is alleged but not legally established to have been caused in whole or in part by the negligence or other fault of a party indemnified hereunder.

- A. This indemnification shall extend to all claims, damages, losses and expenses for injury or damage to adjacent or neighboring property, or persons injured thereon, that arise out of, relate to, or result from performance of the Work.
- B. This indemnification does not extend to the liability of the Architect, or the Architect's Consultants, agents, or employees, arising out of (1) the preparation or approval of maps, shop drawings, opinions, reports, surveys, field orders, Change Orders, drawings or specifications, or (2) the giving of or the failure to give directions or instructions, provided such giving or failure to give instructions is the primary cause of the injury or damage.
- C. This indemnification does not apply to the extent of the sole negligence of the Indemnitees.

**ARTICLE 37**  
**CONTRACTOR'S and SUBCONTRACTORS' INSURANCE**

*(Provide entire Article 37 to Contractor's insurance representative.)*

**A. GENERAL**

**(1) RESPONSIBILITY.** The Contractor shall be responsible to the Owner from the time of the signing of the Construction Contract or from the beginning of the first work, whichever shall be earlier, for all injury or damage of any kind resulting from any negligent act or omission or breach, failure or other default regarding the work by the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of who may be the owner of the property.

**(2) INSURANCE PROVIDERS.** Each of the insurance coverages required below shall be issued by an insurer licensed by the Insurance Commissioner to transact the business of insurance in the State of Alabama for the applicable line of insurance, and such insurer (or, for qualified self-insureds or group self-insureds, a specific excess insurer providing statutory limits) must have a Best Policyholders Rating of "A-" or better and a financial size rating of Class V or larger.

**(3) NOTIFICATION ENDORSEMENT.** Each policy shall be endorsed to provide that the insurance company agrees that the policy shall not be canceled, changed, allowed to lapse or allowed to expire for any reason until thirty days after the Owner has received written notice by certified mail as evidenced by return receipt or until such time as other insurance coverage providing protection equal to protection called for in the Contract Documents shall have been received, accepted and acknowledged by the Owner. Such notice shall be valid only as to the Project as shall have been designated by Project Name and Number in said notice.

**(4) INSURANCE CERTIFICATES.** The Contractor shall procure the insurance coverages identified below, or as otherwise required in the Contract Documents, at the Contractor's own expense, and to evidence that such insurance coverages are in effect, the Contractor shall furnish the Owner an insurance certificate(s) acceptable to the Owner and listing the Owner as the certificate holder. The insurance certificate(s) must be delivered to the Owner with the Construction Contract and Bonds for final approval and execution of the Construction Contract. The insurance certificate must provide the following:

- (a) Name and address of authorized agent of the insurance company
- (b) Name and address of insured
- (c) Name of insurance company or companies
- (d) Description of policies
- (e) Policy Number(s)
- (f) Policy Period(s)
- (g) Limits of liability
- (h) Name and address of Owner as certificate holder
- (i) Project Name and Number, if any
- (j) Signature of authorized agent of the insurance company
- (k) Telephone number of authorized agent of the insurance company
- (l) Mandatory thirty day notice of cancellation / non-renewal / change

**(5) MAXIMUM DEDUCTIBLE.** Self-insured retention, except for qualified self-insurers or



group self-insurers, in any policy shall not exceed \$25,000.00.

## **B. INSURANCE COVERAGES**

Unless otherwise provided in the Contract Documents, the Contractor shall purchase the types of insurance coverages with liability limits not less than as follows:

### **(1) WORKERS' COMPENSATION and EMPLOYER'S LIABILITY INSURANCE**

(a) Workers' Compensation coverage shall be provided in accordance with the statutory coverage required in Alabama. A group insurer must submit a certificate of authority from the Alabama Department of Industrial Relations approving the group insurance plan. A self-insurer must submit a certificate from the Alabama Department of Industrial Relations stating the Contractor qualifies to pay its own workers' compensation claims.

(b) Employer's Liability Insurance limits shall be at least:

- .1 Bodily Injury by Accident - \$1,000,000 each accident
- .2 Bodily Injury by Disease - \$1,000,000 each employee

### **(2) COMMERCIAL GENERAL LIABILITY INSURANCE**

(a) Commercial General Liability Insurance, written on an ISO Occurrence Form (current edition as of the date of Advertisement for Bids) or equivalent, shall include, but need not be limited to, coverage for bodily injury and property damage arising from premises and operations liability, products and completed operations liability, blasting and explosion, collapse of structures, underground damage, personal injury liability and contractual liability. The Commercial General Liability Insurance shall provide at minimum the following limits:

<u>Coverage</u>	<u>Limit</u>
.1 General Aggregate	\$ 2,000,000.00 per Project
.2 Products, Completed Operations Aggregate	\$ 2,000,000.00 per Project
.3 Personal and Advertising Injury	\$ 1,000,000.00 per Occurrence
.4 Each Occurrence	\$ 1,000,000.00

(b) Additional Requirements for Commercial General Liability Insurance:

- .1 The policy shall name the Owner, Architect, Alabama Division of Construction Management, State Department of Education (if applicable), and their agents, consultants and employees as additional insureds, state that this coverage shall be primary insurance for the additional insureds; and contain no exclusions of the additional insureds relative to job accidents.
- .2 The policy must include separate per project aggregate limits.

### **(3) COMMERCIAL BUSINESS AUTOMOBILE LIABILITY INSURANCE**

(a) Commercial Business Automobile Liability Insurance which shall include coverage for bodily injury and property damage arising from the operation of any owned, non-owned or hired automobile. The Commercial Business Automobile Liability Insurance Policy shall provide not less than \$1,000,000 Combined Single Limits for each occurrence.

(b) The policy shall name the Owner, Architect, Alabama Division of Construction Management, State Department of Education (if applicable), and their agents, consultants, and employees as additional insureds.

### **(4) COMMERCIAL UMBRELLA OR COMMERCIAL EXCESS LIABILITY INSURANCE**

(a) Commercial Umbrella or Commercial Excess Liability Insurance to provide excess

coverage above the Commercial General Liability, Commercial Business Automobile Liability and the Workers' Compensation and Employer's Liability to satisfy the minimum limits set forth herein.

**(b) Minimum Combined Primary Commercial General Liability and Commercial Umbrella or Commercial Excess Limits of:**

- .1 \$ 5,000,000 per Occurrence
- .2 \$ 5,000,000 Aggregate

**(c) Additional Requirements for Commercial Umbrella or Commercial Excess Liability Insurance:**

- .1 The policy shall name the Owner, Architect, Alabama Division of Construction Management, State Department of Education (if applicable), and their agents, consultants, and employees as additional insureds.
- .2 The policy must be on an "occurrence" basis.

**(5) BUILDER'S RISK INSURANCE**

**(a)** The Builder's Risk Policy shall be made payable to the Owner and Contractor, as their interests may appear. The policy amount shall be equal to 100% of the Contract Sum, written on a Causes of Loss - Special Form (current edition as of the date of Advertisement for Bids), or its equivalent. All deductibles shall be the sole responsibility of the Contractor.

**(b)** The policy shall be endorsed as follows:

"The following may occur without diminishing, changing, altering or otherwise affecting the coverage and protection afforded the insured under this policy:

- (i)** Furniture and equipment may be delivered to the insured premises and installed in place ready for use; or
- (ii)** Partial or complete occupancy by Owner; or
- (iii)** Performance of work in connection with construction operations insured by the Owner, by agents or lessees or other contractors of the Owner, or by contractors of the lessee of the Owner."

**C. SUBCONTRACTORS' INSURANCE**

**(1) WORKERS' COMPENSATION and EMPLOYER'S LIABILITY INSURANCE.** The Contractor shall require each Subcontractor to obtain and maintain Workers' Compensation and Employer's Liability Insurance coverages as described in preceding Paragraph B, or to be covered by the Contractor's Workers' Compensation and Employer's Liability Insurance while performing Work under the Contract.

**(2) LIABILITY INSURANCE.** The Contractor shall require each Subcontractor to obtain and maintain adequate General Liability, Automobile Liability, and Umbrella or Excess Liability Insurance coverages similar to those described in preceding Paragraph B. Such coverage shall be in effect at all times that a Subcontractor is performing Work under the Contract.

**(3) ENFORCEMENT RESPONSIBILITY.** The Contractor shall have responsibility to enforce its Subcontractors' compliance with these or similar insurance requirements; however, the Contractor shall, upon request, provide the Architect or Owner acceptable evidence of insurance for any Subcontractor.

**D. TERMINATION of OBLIGATION to INSURE**

Unless otherwise expressly provided in the Contract Documents, the obligation to insure as

provided herein shall continue as follows:

**(1) BUILDER'S RISK INSURANCE.** The obligation to insure under Subparagraph B(5) shall remain in effect until the Date of Substantial Completion as shall be established in the Certificate of Substantial Completion. In the event that multiple Certificates of Substantial Completion covering designated portions of the Work are issued, Builder's Risk coverage shall remain in effect until the Date of Substantial Completion as shall be established in the last issued Certificate of Substantial Completion. However, in the case that the Work involves separate buildings, Builder's Risk coverage of each separate building may terminate on the Date of Substantial Completion as established in the Certificate of Substantial Completion issued for each building.

**(2) PRODUCTS and COMPLETED OPERATIONS.** The obligation to carry Products and Completed Operations coverage specified under Subparagraph B(2) shall remain in effect for two years after the Date(s) of Substantial Completion.

**(3) ALL OTHER INSURANCE.** The obligation to carry other insurance coverages specified under Subparagraphs B(1) through B(4) and Paragraph C shall remain in effect after the Date(s) of Substantial Completion until such time as all Work required by the Contract Documents is completed. Equal or similar insurance coverages shall remain in effect if, after completion of the Work, the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, returns to the Project to perform warranty or maintenance work pursuant to the terms of the Contract Documents.

**E. WAIVERS of SUBROGATION**

The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors performing construction or operations related to the Project, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss. But said waiver shall apply only to the extent the loss or damage is covered by builder's risk insurance applicable to the Work or to other property located within or adjacent to the Project, except such rights as they may have to proceeds of such insurance held by the Owner or Contractor as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors, if any, and the subcontractor, sub-subcontractors, suppliers, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The Policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to the person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged. The waivers provided for in this paragraph shall not be applicable to loss or damage that occurs after final acceptance of the Work.

**ARTICLE 38**  
**PERFORMANCE and PAYMENT BONDS**

**A. GENERAL**

Upon signing and returning the Construction Contract to the Owner for final approval and execution, the Contractor shall, at the Contractor's expense, furnish to the Owner a Performance

Bond and a Payment Bond (P&P Bonds), DCM Forms C-6 and C-7 as contained in the Project Manual, each in a penal sum equal to 100% of the Contract Sum. Each bond shall be on the form contained in the Project Manual, shall be executed by a surety company (Surety) acceptable to the Owner and duly authorized and qualified to make such bonds in the State of Alabama in the required amount. There shall be three original P&P Bonds submitted with original signatures for each of the three contracts required. The P&P bonds must be signed either on the same day or after the construction contract date. Each P&P Bond shall have attached thereto an original power of attorney (POA) of the signing official. The POA signature date must be the same day as the P&P Bond's signature date. All signatures must be present.

The provisions of this Article are not applicable to this Contract if the Contract Sum is less than \$50,000, unless bonds are required for this Contract in the Supplemental General Conditions.

**B. PERFORMANCE BOND**

Through the Performance Bond, the Surety's obligation to the Owner shall be to assure the prompt and faithful performance of the Contract and Contract Change Orders. The Penal Sum shall remain equal to the Contract Sum as the Contract Sum is adjusted by Contract Change Orders. In case of default on the part of the Contractor, the Surety shall take charge of and complete the Work in accordance with the terms of the Performance Bond. Any reasonable expenses incurred by the Owner as a result of default on the part of the Contractor, including architectural, engineering, administrative, and legal services, shall be recoverable under the Performance Bond.

**C. PAYMENT BOND**

Through the Payment Bond the Surety's obligation to the Owner shall be to guarantee that the Contractor and its Subcontractors shall promptly make payment to all persons supplying labor, materials, or supplies for, or in, the prosecution of the Work, including the payment of reasonable attorneys fees incurred by successful claimants or plaintiffs in civil actions on the Bond. Any person or entity indicating that they have a claim of nonpayment under the Bond shall, upon written request, be promptly furnished a certified copy of the Bond and Construction Contract by the Contractor, Architect, Owner, or Alabama Division of Construction Management, whomever is recipient of the request.

**D. CHANGE ORDERS**

The Penal Sum shall remain equal to the Contract Sum as the Contract Sum is adjusted by Contract Change Orders. All Contract Change Orders involving an increase in the Contract Sum will require consent of Surety by endorsement of the Contract Change Order form. The Surety waives notification of any Contract Change Orders involving only extension of the Contract Time.

**E. EXPIRATION**

The obligations of the Contractor's performance bond surety shall be coextensive with the contractor's performance obligations under the Contract Documents; provided, however, that the surety's obligation shall expire at the end of the one-year warranty period(s) of Article 35.

**ARTICLE 39**  
**ASSIGNMENT**

The Contractor shall not assign the Contract or sublet it as a whole nor assign any moneys due or to become due to the Contractor thereunder without the previous written consent of the Owner (and of the Surety, in the case of a bonded Construction Contract). As prescribed by the Public Works Law, the Contract shall in no event be assigned to an unsuccessful bidder for the Contract whose bid was rejected because the bidder was not a responsible or responsive bidder.

**ARTICLE 40**  
**CONSTRUCTION by OWNER or SEPARATE CONTRACTORS**

**A. OWNER’S RESERVATION of RIGHT**

(1) The Owner reserves the right to self-perform, or to award separate contracts for, other portions of the Project and other Project related construction and operations on the site. The contractual conditions of such separate contracts shall be substantially similar to those of this Contract, including insurance requirements and the provisions of this Article. If the Contractor considers such actions to involve delay or additional cost under this Contract, notifications and assertion of claims shall be as provided in Article 20 and Article 23.

(2) When separate contracts are awarded, the term “Contractor” in the separate Contract Documents shall mean the Contractor who executes the respective Construction Contract.

**B. COORDINATION**

Unless otherwise provided in the Contract Documents, the Owner shall be responsible for coordinating the activities of the Owner’s forces and separate contractors with the Work of the Contractor. The Contractor shall cooperate with the Owner and separate contractors, shall participate in reviewing and comparing their construction schedules relative to that of the Contractor when directed to do so, and shall make and adhere to any revisions to the construction schedule resulting from a joint review and mutual agreement.

**C. CONDITIONS APPLICABLE to WORK PERFORMED by OWNER**

Unless otherwise provided in the Contract Documents, when the Owner self-performs construction or operations related to the Project, the Owner shall be subject to the same obligations to Contractor as Contractor would have to a separate contractor under the provision of this Article 40.

**D. MUTUAL RESPONSIBILITY**

(1) The Contractor shall reasonably accommodate the required introduction and storage of materials and equipment and performance of activities by the Owner and separate contractors and shall connect and coordinate the Contractor’s Work with theirs as required by the Contract Documents.

(2) By proceeding with an element or portion of the Work that is applied to or performed on construction by the Owner or a separate contractor, or which relies upon their operations, the Contractor accepts the condition of such construction or operations as being suitable for the Contractor’s Work, except for conditions that are not reasonably discoverable by the Contractor. If the Contractor discovers any condition in such construction or operations that is not suitable for the

proper performance of the Work, the Contractor shall not proceed, but shall instead promptly notify the Architect in writing of the condition discovered.

(3) The Contractor shall reimburse the Owner for any costs incurred by a separate contractor and payable by the Owner because of acts or omissions of the Contractor. Likewise, the Owner shall be responsible to the Contractor for any costs incurred by the Contractor because of the acts or omissions of a separate contractor.

(4) The Contractor shall not cut or otherwise alter construction by the Owner or a separate contractor without the written consent of the Owner and separate contractor; such consent shall not be unreasonably withheld. Likewise, the Contractor shall not unreasonably withhold its consent allowing the Owner or a separate contractor to cut or otherwise alter the Work.

(5) The Contractor shall promptly remedy any damage caused by the Contractor to the construction or property of the Owner or separate contractors.

#### **ARTICLE 41** **SUBCONTRACTS**

##### **A. AWARD of SUBCONTRACTS and OTHER CONTRACTS for PORTIONS of the WORK**

(1) Unless otherwise provided in the Contract Documents, when delivering the executed Construction Contract, bonds, and evidence of insurance to the Architect, the Contractor shall also submit a listing of Subcontractors proposed for each principal portion of the Work and fabricators or suppliers proposed for furnishing materials or equipment fabricated to the design of the Contract Documents. This listing shall be in addition to any naming of Subcontractors, fabricators, or suppliers that may have been required in the bid process. The Architect will promptly reply to the Contractor in writing stating whether or not the Owner, after due investigation, has reasonable objection to any Subcontractor, fabricator, or supplier proposed by the Contractor. The issuance of the Notice to Proceed in the absence of such objection by the Owner shall constitute notice that no reasonable objection to them is made.

(2) The Contractor shall not contract with a proposed Subcontractor, fabricator, or supplier to whom the Owner has made reasonable and timely objection. Except in accordance with prequalification procedures as may be contained in the Contract Documents, through specified qualifications, or on the grounds of reasonable objection, the Owner may not restrict the Contractor's selection of Subcontractors, fabricators, or suppliers.

(3) Upon the Owner's reasonable objection to a proposed Subcontractor, fabricator, or supplier, the Contractor shall promptly propose another to whom the Owner has no reasonable objection. If the proposed Subcontractor, fabricator, or supplier to whom the Owner made reasonable objection was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be equitably adjusted by Contract Change Order for any resulting difference if the Contractor has acted promptly and responsively in this procedure.

(4) The Contractor shall not change previously selected Subcontractors, fabricators, or suppliers without notifying the Architect and Owner in writing of proposed substitute Subcontractors, fabricators, or suppliers. If the Owner does not make a reasonable objection to a proposed substitute within three working days, the substitute shall be deemed approved.

**B. SUBCONTRACTUAL RELATIONS**

(1) The Contractor agrees to bind every Subcontractor and material supplier (and require every Subcontractor to so bind its subcontractors and material suppliers) to all the provisions of the Contract Documents as they apply to the Subcontractor's and material supplier's portion of the Work.

(2) Nothing contained in the Contract Documents shall be construed as creating any contractual relationship between any Subcontractor and the Owner, nor to create a duty of the Architect, Owner, or Director to resolve disputes between or among the Contractor or its Subcontractors and suppliers or any other duty to such Subcontractors or suppliers.

**ARTICLE 42  
ARCHITECT'S STATUS**

A. The Architect is an independent contractor performing, with respect to this Contract, pursuant to an agreement executed between the Owner and the Architect. The Architect has prepared the Drawings and Specifications and assembled the Contract Document and is, therefore, charged with their interpretation and clarification as described in the Contract Documents. As a representative of the Owner, the Architect will endeavor to guard the Owner against variances from the requirements of the Contract Documents by the Contractor. On behalf of the Owner, the Architect will administer the Contract as described in the Contract Documents during construction and the Contractor's one-year warranty.

B. So as to maintain continuity in administration of the Contract and performance of the Work, and to facilitate complete documentation of the project record, all communications between the Contractor and Owner regarding matters of or related to the Contract shall be directed through the Architect, unless direct communication is otherwise required to provide a legal notification. Unless otherwise authorized by the Architect, communications by and with the Architect's consultants shall be through the Architect. Unless otherwise authorized by the Contractor, communications by and with Subcontractors and material suppliers shall be through the Contractor.

**C. ARCHITECT'S AUTHORITY**

Subject to other provisions of the Contract Documents, the following summarizes some of the authority vested in the Architect by the Owner with respect to the Construction Contract and as further described or conditioned in other Articles of these General Conditions of the Contract.

**(1) The Architect is authorized to:**

- (a) approve "minor" deviations as defined in Article 9, Submittals,
- (b) make "minor" changes in the Work as defined in Article 19, Changes in the Work,
- (c) reject or require the correction of Defective Work,
- (d) require the Contractor to stop the performance of Defective Work,
- (e) adjust an Application for Payment by the Contractor pursuant to Article 30, Certification and Approval of payments, and
- (f) issue Notices to Cure pursuant to Article 27.

**(2) The Architect is not authorized to:**

- (a) revoke, alter, relax, or waive any requirements of the Contract Documents (other than

- “minor” deviations and changes) without concurrence of the Owner,
- (b) finally approve or accept any portion of the Work without concurrence of the Owner,
  - (c) issue instructions contrary to the Contract Documents,
  - (d) issue Notice of Termination or otherwise terminate the Contract, or
  - (e) require the Contractor to stop the Work except only to avoid the performance of Defective Work.

**D. LIMITATIONS of RESPONSIBILITIES**

(1) The Architect shall not be responsible to Contractors or to others for supervising or coordinating the performance of the Work or for the Construction Methods or safety of the Work, unless the Contract Documents give other specific instructions concerning these matters.

(2) The Architect will not be responsible to the Contractor (nor the Owner) for the Contractor’s failure to perform the Work in accordance with the requirements of the Contract Documents or for acts or omissions of the Contractor, a Subcontractor, or anyone for whose acts they may be liable. However, the Architect will report to the Owner and Contractor any Defective Work recognized by the Architect.

(3) The Architect will endeavor to secure faithful performance by Owner and Contractor, and the Architect will not show partiality to either or be liable to either for results of interpretations or decisions rendered in good faith.

(4) The Contractor’s remedies for additional time or expense arising out of or related to this Contract, or the breach thereof, shall be solely as provided for in the Contract Documents. The Contractor shall have no claim or cause of action against the Owner, Architect, or its consultants for any actions or failures to act, whether such claim may be in contract, tort, strict liability, or otherwise, it being the agreement of the parties that the Contractor shall make no claim against the Owner or any agents of the Owner, including the Architect or its consultants, except as may be provided for claims or disputes submitted in accordance with Article 24. The Architect and Architect’s consultants shall be considered third party beneficiaries of this provision of the Contract and entitled to enforce same.

**E. ARCHITECT’S DECISIONS**

Decisions by the Architect shall be in writing. The Architect’s decisions on matters relating to aesthetic effect will be final and binding if consistent with the intent expressed in the Contract Documents. The Architect’s decisions regarding disputes arising between the Contractor and Owner shall be advisory.

**ARTICLE 43**  
**CASH ALLOWANCES**

- A. All allowances stated in the Contract Documents shall be included in the Contract Sum. Items covered by allowances shall be supplied by the Contractor as directed by the Architect or Owner and the Contractor shall afford the Owner the economy of obtaining competitive pricing from responsible bidders for allowance items unless other purchasing procedures are specified in the Contract Documents.
- B. Unless otherwise provided in the Contract Documents:



- (1) allowances shall cover the cost to the Contractor of materials and equipment delivered to the Project site and all applicable taxes, less applicable trade discounts;
  - (2) the Contractor's costs for unloading, storing, protecting, and handling at the site, labor, installation, overhead, profit and other expenses related to materials or equipment covered by an allowance shall be included in the Contract Sum but not in the allowances;
  - (3) if required, the Contract Sum shall be adjusted by Change Order to reflect the actual costs of an allowance.
- C. Any selections of materials or equipment required of the Architect or Owner under an allowance shall be made in sufficient time to avoid delay of the Work.

## **ARTICLE 44**

### **PERMITS, LAWS, and REGULATIONS**

#### **A. PERMITS, FEES AND NOTICES**

- (1) Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit and other permits and governmental fees, licenses, and inspections necessary for proper execution and completion of the Work which are customarily secured after award of the Construction Contract and which are in effect on the date of receipt of bids.
- (2) The Contractor shall comply with and give notices required by all laws, ordinances, rules, regulations, and lawful orders of public authorities applicable to performance of the Work.

#### **B. TAXES**

Unless stated otherwise in the Contract Documents, materials incorporated into the Work are exempt from sales and use tax pursuant to Section 40-9-33, Code of Alabama, 1975 as amended. The Owner, Contractor and its subcontractors shall be responsible for complying with rules and regulations of the Sales, Use, & Business Tax Division of the Alabama Department of Revenue regarding certificates and other qualifications necessary to claim such exemption when making qualifying purchases from vendors. The Contractor shall pay all applicable taxes that are not covered by the exemption of Section 40-9-33 and which are imposed as of the date of receipt of bids, including those imposed as of the date of receipt of bids but scheduled to go into effect after that date.

#### **C. COMPENSATION for INCREASES**

The Contractor shall be compensated for additional costs incurred because of increases in tax rates imposed after the date of receipt of bids.

#### **D. ALABAMA IMMIGRATION LAW**

Per ACT 2011-535 as codified in Title 31, Chapter 13 of the Code of Alabama, 1975, as amended:

The contracting parties affirm, for the duration of the agreement, that they will not violate federal immigration law or knowingly employ, hire for employment, or continue to employ an unauthorized alien within the State of Alabama. Furthermore, a contracting party found to be in

violation of this provision shall be deemed in breach of the agreement and shall be responsible for all damages resulting therefrom.

**E. ALABAMA BOYCOTT LAW**

Per Act 2016-312as codified in Title 41, Chapter 16, Article 1, of the Code of Alabama, 1975, as amended:

The contracting parties affirm, for the duration of the agreement, that they are not currently engaged in, and will not engage in, the boycott of a person or an entity based in or doing business with a jurisdiction with which this state can enjoy open trade.

**F. ACCOUNTING OF SALES TAX EXEMPT PROJECTS**

Per Act 2013-205 as codified in Title 40, Chapter 9, Article 1, of the Code of Alabama, 1975, as amended:

In bidding the work on a tax exempt project, the bid form shall provide an accounting for the tax savings.

**ARTICLE 45**  
**ROYALTIES, PATENTS, and COPYRIGHTS**

The Contractor shall pay all royalties and license fees. The Contractor shall defend, indemnify and hold harmless the Owner, Architect, Architect's consultants, Alabama Division of Construction Management, State Department of Education (if applicable), and their agents, employees, and consultants from and against all claims, damages, losses and expenses, including but not limited to attorney's fees, arising out of, related to, or resulting from all suits or claims for infringement of any patent rights or copyrights arising out of the inclusion of any patented or copyrighted materials, methods, or systems selected by the Contractor and used during the execution of or incorporated into the Work. This indemnification does not apply to any suits or claims of infringement of any patent rights or copyrights arising out of any patented or copyrighted materials, methods, or systems specified in the Contract Documents. However, if the Contractor has information that a specified material, method, or system is or may constitute an infringement of a patent or copyright, the Contractor shall be responsible for any resulting loss unless such information is promptly furnished to the Architect.

**ARTICLE 46**  
**USE of the SITE**

- A. The Contractor shall confine its operations at the Project site to areas permitted by the Owner and by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the site with materials, equipment, employees' vehicles, or debris. The Contractor's operations at the site shall be restricted to the sole purpose of constructing the Work, use of the site as a staging, assembly, or storage area for other business which the Contractor may undertake shall not be permitted.
- B. Unless otherwise provided in the Contract Documents, temporary facilities, such as storage sheds,

shops, and offices may be erected on the Project site with the approval of the Architect and Owner. Such temporary buildings and/or utilities shall remain the property of the Contractor, and be removed at the Contractor's expense upon completion of the Work, unless the Owner authorizes their abandonment without removal.

**ARTICLE 47**  
**CUTTING and PATCHING**

- A. The Contractor shall be responsible for all cutting, fitting, or patching that may be required to execute the Work to the results indicated in the Contract Documents or to make its parts fit together properly.
- B. Any cutting, patching, or excavation by the Contractor shall be supervised and performed in a manner that will not endanger persons nor damage or endanger the Work or any fully or partially completed construction of the Owner or separate contractors.

**ARTICLE 48**  
**IN-PROGRESS and FINAL CLEANUP**

**A. IN-PROGRESS CLEAN-UP**

(1) The Contractor shall at all times during the progress of the Work keep the premises and surrounding area free from rubbish, scrap materials and debris resulting from the Work. Trash and combustible materials shall not be allowed to accumulate inside buildings or elsewhere on the premises. At no time shall any rubbish be thrown from window openings. Burning of trash and debris on site is not permitted.

(2) The Contractor shall make provisions to minimize and confine dust and debris resulting from construction activities.

**B. FINAL CLEAN-UP**

(1) Before Substantial Completion or Final Acceptance is achieved, the Contractor shall have removed from the Owner's property all construction equipment, tools, and machinery; temporary structures and/or utilities including the foundations thereof (except such as the Owner permits in writing to remain); rubbish, debris, and waste materials; and all surplus materials, leaving the site clean and true to line and grade, and the Work in a safe and clean condition, ready for use and operation.

(2) In addition to the above, and unless otherwise provided in the Contract Documents, the Contractor shall be responsible for the following special cleaning for all trades as the Work is completed:

- (a) **Cleaning of all painted, enameled, stained, or baked enamel work:** Removal of all marks, stains, finger prints and splatters from such surfaces.
- (b) **Cleaning of all glass:** Cleaning and removing of all stickers, labels, stains, and paint from all glass, and the washing and polishing of same on interior and exterior.
- (c) **Cleaning or polishing of all hardware:** Cleaning and polishing of all hardware.

**(d) Cleaning all tile, floor finish of all kinds:** Removal of all splatters, stains, paint, dirt, and dust, the washing and polishing of all floors as recommended by the manufacturer or required by the Architect.

**(e) Cleaning of all manufactured articles, materials, fixtures, appliances, and equipment:** Removal of all stickers, rust stains, labels, and temporary covers, and cleaning and conditioning of all manufactured articles, material, fixtures, appliances, and electrical, heating, and air conditioning equipment as recommended or directed by the manufacturers, unless otherwise required by the Architect; blowing out or flushing out of all foreign matter from all equipment, piping, tanks, pumps, fans, motors, devices, switches, panels, fixtures, boilers, sanitizing potable water systems; and freeing identification plates on all equipment of excess paint and the polishing thereof.

**C. OWNER'S RIGHT to CLEAN-UP**

If the Contractor fails to comply with these clean-up requirements and then fails to comply with a written directive by the Architect to clean-up the premises within a specified time, the Architect or Owner may implement appropriate clean-up measures and the cost thereof shall be deducted from any amounts due or to become due the Contractor.

**ARTICLE 49**  
**LIQUIDATED DAMAGES**

- A. Time is the essence of the Contract. Any delay in the completion of the Work required by the Contract Documents may cause inconvenience to the public and loss and damage to the Owner including but not limited to interest and additional administrative, architectural, inspection and supervision charges. By executing the Construction Contract, the Contractor agrees that the Contract Time is sufficient for the achievement of Substantial Completion.
- B. The Contract Documents may provide in the Construction Contract or elsewhere for a certain dollar amount for which the Contractor and its Surety (if any) will be liable to the Owner as liquidated damages for each calendar day after expiration of the Contract Time that the Contractor fails to achieve Substantial Completion of the Work. If such daily liquidated damages are provided for, Owner and Contractor, and its Surety, agree that such amount is reasonable and agree to be bound thereby.
- C. If a daily liquidated damage amount is not otherwise provided for in the Contract Documents, a time charge equal to six percent interest per annum on the total Contract Sum may be made against the Contractor for the entire period after expiration of the Contract Time that the Contractor fails to achieve Substantial Completion of the Work.
- D. The amount of liquidated damages due under either paragraph B or C, above, may be deducted by the Owner from the moneys otherwise due the Contractor in the Final Payment, not as a penalty, but as liquidated damages sustained, or the amount may be recovered from Contractor or its Surety. If part of the Work is substantially completed within the Contract Time and part is not, the stated charge for liquidated damages shall be equitably prorated to that portion of the Work that the Contractor fails to substantially complete within the Contract Time. It is mutually understood and agreed between the parties hereto that such amount is reasonable as liquidated damages.

**ARTICLE 50**  
**USE of FOREIGN MATERIALS**

- A. In the performance of the Work the Contractor agrees to use materials, supplies, and products manufactured, mined, processed or otherwise produced in the United States or its territories, if same are available at reasonable and competitive prices and are not contrary to any sole source specification implemented under the Public Works Law.
- B. In the performance of the Work the Contractor agrees to use steel produced in the United States if the Contract Documents require the use of steel and do not limit its supply to a sole source pursuant to the Public Works Law. If the Owner decides that the procurement of domestic steel products becomes impractical as a result of national emergency, national strike, or other cause, the Owner shall waive this restriction.
- C. If domestic steel or other domestic materials, supplies, and products are not used in accordance with preceding Paragraphs A and B, the Contract Sum shall be reduced by an amount equal to any savings or benefits realized by the Contractor.
- D. This Article applies only to Public Works projects financed entirely by the State of Alabama or any political subdivision of the state.

**ARTICLE 51**  
**PROJECT SIGN**

- A. Fully locally-funded State Agency and Public Higher Education projects: DCM Form C-15: Detail of Project Sign must be included in the project manual regardless of expected bid amount. If the awarded contract sum is \$100,000.00 or more, Contractor shall furnish and erect a project sign. Other conditions besides the contract sum may warrant waiver of this requirement, but only with approval of the Technical Staff.
- B. Fully locally-funded K-12 school projects: Project sign is not required unless requested by Owner; if project sign is requested by Owner, include DCM Form C-15: Detail of Project Sign in the project manual.
- C. Partially or fully PSCA-funded projects: DCM Form C-15: Detail of Project Sign must be included in the project manual. Contractor shall furnish and erect a project sign for all PSCA-funded projects, regardless of the contract sum. "Alabama Public School and College Authority" as well as the local owner entity must be included as awarding authorities on the project sign of all PSCA-funded projects.

When required per the above conditions, the project sign shall be erected in a prominent location selected by the Architect and Owner and shall be maintained in good condition until completion of Work. If the Contract involves Work on multiple sites, only one project sign is required, which shall be erected on one of the sites in a location selected by the Architect and Owner. Slogan: The title of the current PSCA Act should be placed on the project sign of all PSCA-funded projects, otherwise the Awarding Authority/Owner's slogan, if any, should be used. If the Awarding Authority/Owner of a fully locally-funded project does not have a slogan, the project sign does not require a slogan.

END of  
GENERAL CONDITIONS of the CONTRACT

## SECTION 01310 - PROJECT MANAGEMENT AND COORDINATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. General project coordination procedures.
  - 2. Administrative and supervisory personnel.
  - 3. Coordination drawings.
  - 4. Requests for Information (RFIs).
  - 5. Project meetings.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.
- C. Related Sections:
  - 1. Division 1 Section "Execution Requirements"
  - 2. Division 1 Section "Project Record Drawings" for coordinating closeout of the Contract.

#### 1.3 DEFINITIONS

- A. RFI: Request from Owner, Architect, or Contractor seeking information from each other during construction.

#### 1.4 COORDINATION

- A. Contractor shall be responsible for coordinating all trades of his contract, Owners Contractors, coordinating construction sequences and schedules, and coordinating actual installed location and interface of work.

- B. Contractor shall supervise and direct the development of coordination drawings showing comprehensive coordination and integration of all Work of this project including, but not limited to, structural, architectural mechanical, plumbing, fire protection, electrical disciplines, and Owners Contractors.
- C. Coordination drawings are intended to assist Contractor and all trades during construction and may be used to supplement shop drawings, record drawings, and other required submittals.
- D. Coordination: Each contractor shall supervise and direct construction operations with those of subcontractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its operations with operations, included in different Sections that depend on each other for proper installation, connection, and operation.
  - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  - 2. Coordinate installation of different components with other contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.
  - 3. Make adequate provisions to accommodate items scheduled for later installation.
- E. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
  - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- F. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
  - 1. Preparation of Contractor's construction schedule.
  - 2. Preparation of the schedule of values.
  - 3. Installation and removal of temporary facilities and controls.
  - 4. Delivery and processing of submittals.
  - 5. Progress meetings.
  - 6. Preinstallation conferences.
  - 7. Project closeout activities.
  - 8. Startup and adjustment of systems.
  - 9. Project closeout activities.

## 1.5 KEY PERSONNEL

- A. Key Personnel Names: Within 5 days of Notice to Proceed, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and email addresses. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
1. Post copies of list at site. Keep list current at all times.

## 1.6 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
  2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

## 1.7 PROJECT MEETINGS

- A. General: Attendance of subcontractors and superintendent at a weekly progress meeting is required.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01310



SECTION 01700  
EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
  - 1. Environmental concerns.
  - 2. Installation of the Work.
  - 3. Cutting and patching.
  - 4. Progress cleaning.
  - 5. Starting and adjusting.
  - 6. Protection of installed construction.
  - 7. Correction of the Work.
- B. Related Sections:
  - 1. Division 1 Sections "Summary of the Work", "Project Record Documents", or "Closeout Procedures", if included in Project Manual, for submitting closeout documents and final cleaning.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 INFORMATIONAL SUBMITTALS

- A. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
  - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
  - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.

3. Products: List products to be used for patching and firms or entities that will perform patching work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate how long services and systems will be disrupted. Prior approval of Utility outages is required. Notify Owner of intent at least 72 hours in advance.

## 1.5 QUALITY ASSURANCE

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
  1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to the Architect for the visual and functional performance of in-place materials.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
  1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
  2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present

where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
  - a. Description of the Work.
  - b. List of detrimental conditions, including substrates.
  - c. List of unacceptable installation tolerances.
  - d. Recommended corrections.
2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

### 3.2 PREPARATION

- A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of the Contractor, submit a request for information to Architect according to requirements in Division 1 Section "Project Management and Coordination."
- D. Surface and Substrate Preparation: Comply with manufacturer's recommendations for preparation of substrates to receive subsequent work.

### 3.3 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  1. Make vertical work plumb and make horizontal work level.
  2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

4. Maintain minimum headroom clearance of 96 inches, but in no case shall the new piping be lower than the existing piping.
  - B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
  - C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
  - D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
  - E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
  - F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
  - G. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
    1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
    2. Allow for building movement, including thermal expansion and contraction.
    3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
  - H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
  - I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous, and meet environmental requirements.
- 3.4 CUTTING AND PATCHING
- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
    1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

- B. Temporary Support: Provide temporary support of work to be cut.
- C. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- D. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching in accordance with requirements of Division 1 Section "Summary."
- E. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.
- F. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
  - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  - 3. [Concrete] [and] [Masonry]: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  - 4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  - 5. Proceed with patching after construction operations requiring cutting are complete.
- G. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
  - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
  - 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
    - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    - b. Restore damaged pipe covering to its original condition.
  - 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space.

Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

- a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
  4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
  5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- H. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

### 3.5 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
  3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
    - a. Utilize containers intended for holding waste materials of type to be stored.
  4. Coordinate progress cleaning for joint-use areas where more than one installer has worked.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
1. Remove liquid spills promptly.
  2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

- E. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- F. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.
- G. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- H. Clean completed construction as frequently as necessary through the remainder of the construction period.

### 3.6 STARTING AND ADJUSTING

- A. Coordinate startup and adjusting of equipment and operating components with requirements in other Division 2 -16 Sections."
- B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Manufacturer's Field Service: Comply with qualification requirements in other Division 2-16 Sections.

### 3.7 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

### 3.8 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
  - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.

- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

### 3.9 ENVIRONMENTAL CONCERNS

- 1. Provide protection and conduct construction in ways that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

### 3.10 STORMWATER CONTROL AND DISCHARGE

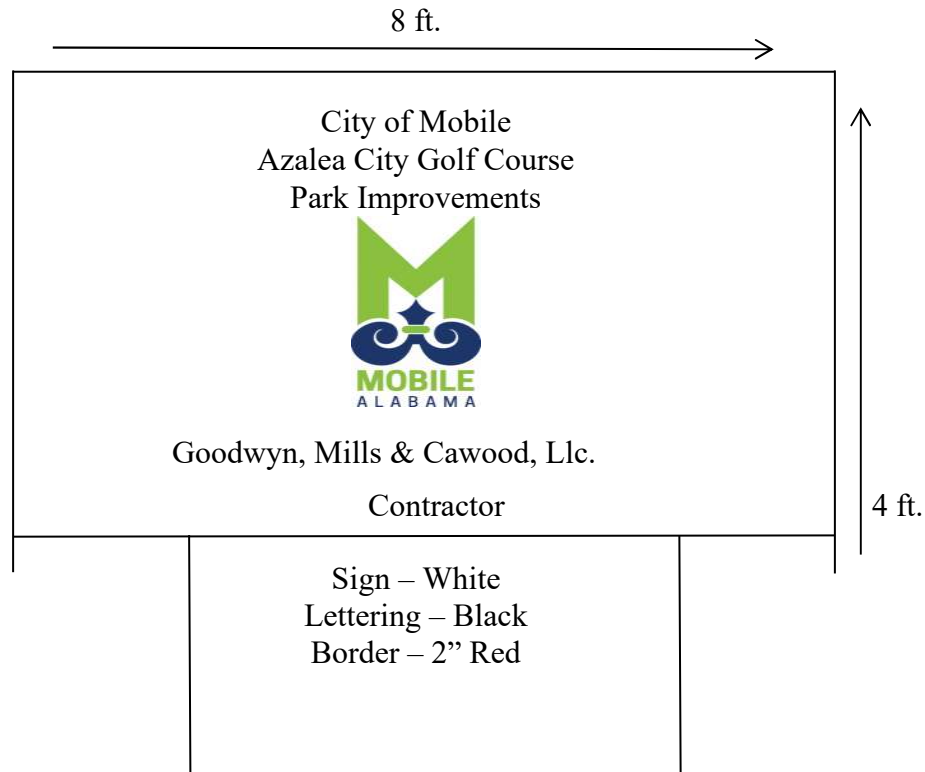
- 1. Comply with City of Mobile and Alabama Department of Environmental Management requirements. Pay particular attention to Water Regulations and Allowable Discharges.
- 2. See City of Mobile Code, Chapter 17, Storm Water Management and Flood Control.
- 3. Obtain any necessary permits that may be required due to discharges.

END OF SECTION 01700





## DETAIL OF PROJECT SIGN



1. Name of Project – 2 ½”
2. City of Mobile – 2 ½”
3. Design Consultants – 2 ½”
4. Contractor – 2”

### Notes:

1. Sign to be constructed of ¾” exterior grade plywood.
2. Paint with two coats best grade exterior paint before painting on letters.
3. Sign to be placed in prominent location, easily readable from existing street or road.
4. Sign to be maintained in good condition until completion of project.

Company ID Number:

Approved by:

Employer	
Name (Please Type or Print)	
Signature	Date
Department of Homeland Security, Division	
Name (Please Type or Print)	Title
Signature	Date

**SAMPLE**

Company ID Number:

Information Required for the E-Verify Program	
Information relating to your Company:	
Company Name	
Company Facility Address	
Company Alternate Address	
County or Parish	
Employer Identification Nun.	
North American Industry Classification Systems Code	
Parent Company	
Number of Employees	
Number of Sites Verified for	

**SAMPLE**

## **OWNERSHIP OF DOCUMENTS AND DISCLAIMER**

The Project Manual, Technical Specifications, Drawings, and all other documents relating to this project have been prepared for this individual and particular project, and for the exclusive use of the original Owner, developer or other party so indicated.

Actual project conditions and as-built conditions may vary significantly. Changes made during bidding, negotiations, construction, due to additions or deletions of portions of this project, and/or for other reasons, may not be indicated in these documents.

These documents may not be used or relied upon as a certification of information indicated, or used for any other project, by any third parties or other parties, for any purpose whatsoever, without the prior written consent of Goodwyn, Mills and Cawood, Inc., or prior to receipt of mutually agreed to compensation paid to Goodwyn, Mills and Cawood, Inc., therefor.

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**See following form for Electronic File Conversion and Transfer Agreement.**

**Goodwyn, Mills and Cawood, LLC.**

11 North Water Street, Suite 15250  
Mobile, Alabama 36602

and

Daphne, Alabama  
Huntsville, Alabama  
Birmingham, Alabama  
Montgomery, Alabama  
Andalusia, Alabama  
Auburn, Alabama  
Vernon, Alabama  
Eufaula, Alabama  
Pensacola, Florida  
Sarasota, Florida  
Tampa, Florida

Columbia, South Carolina  
Greenville, South Carolina  
Nashville, Tennessee  
Savannah, Georgia  
Atlanta, Georgia  
Albany, Georgia  
Augusta, Georgia  
Brunswick, Georgia

## **SECTION 01 0050**

### **PROJECT SAFETY**

#### **PART 1 - GENERAL**

##### **1.1 SECTION INCLUDES**

- A. Enforcement of OSHA regulation.
- B. Reporting of accidents.
- C. Responsibility for safety.
- D. Hot work permits.

##### **1.2 ENFORCEMENT OF OSHA REGULATIONS**

- A. Contractor and all Subcontractors shall adhere to OSHA regulations as they apply to safety of working conditions, conditions of personnel, and environmental contaminations.
- B. Contractor shall maintain on the project site a copy of OSHA regulations. Sections pertaining to safety as applied to the construction industry should be 'highlighted'.

##### **1.3 REPORTING OF ACCIDENTS**

- A. Contractor shall report any accident or injury in writing to the Owner's Project Manager.
- B. Report to identify persons involved, (name, addresses, phone number, title, etc.) work being performed, extent of injury, witnesses, time and circumstances of accident.
- C. Injuries requiring hospitalization, medical evaluation report shall be submitted to Contractor, Owner, and Architect.
- D. Provide copies of claims for Workman's Compensation insurance to Contractor and Owner.

##### **1.4 RESPONSIBILITY FOR SAFETY - SUBCONTRACTOR**

- A. The Subcontractor or Tradesmen are solely responsible for the safety of working conditions and performance condition of personnel whom he has employed while present on the project site.

Azalea City Golf Course  
PR-029-21  
Taylor Park  
PR-070-21

Hope Community Center  
PR-090-21  
Baumhauer-Randle Park  
PR-092-20

- B. No Subcontractor shall commence work after another trade or proceed with work if unsafe conditions exist upon his arrival.
- C. Drug testing of Subcontractors' personnel may be requested if persons who are suspect of being under the influence of drugs or alcohol. Cost of such testing to be at tested party's employer's expense.

#### 1.5 RESPONSIBILITY FOR SAFETY - GENERAL CONTRACTOR

- A. The Contractor is responsible for the safety of his personnel and the working conditions of the tradesmen he employs.
- B. The Contractor is responsible for the total site working conditions and to monitor Subcontractors and other trades in their maintenance of safe working conditions.
- C. Drug testing of Contractor's personnel if requested to be at employer's expense.

#### 1.6 HOT WORK PERMITS

PART 2 - PRODUCTS (Not Used.)

PART 3 - EXECUTION (Not Used.)

END OF PROJECT SAFETY

## SECTION 01010

### SUMMARY OF THE WORK

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Summary of Work: Contract, contractor use of premises.
- B. Contract Considerations: Contingency allowance, schedule of values, applications for payment, change procedures, alternates.
- C. Coordination and Meetings: Coordination, field engineering, meetings, progress meetings, examination, preparation, E-Builder.
- D. Submittals: Submittal procedures, construction progress schedules, proposed products list, shop drawings, product data, samples, manufacturers' installation instructions, manufacturers' certificates.
- E. Quality Control: Quality assurance - control of installation, Tolerances, References, Mock-ups, Manufacturers' field services and reports.
- F. Construction Facilities and Temporary Controls: Electricity, temporary lighting for construction purposes, heat, temporary ventilation, telephone service, water service, temporary sanitary facilities, barriers and fencing, exterior enclosures, protection of installed work, security, access roads, parking, progress cleaning and waste removal, project identification, field offices and sheds, removal of utilities, facilities, and controls.
- G. Material and Equipment: Products, transportation, handling, storage, and protection, products options, substitutions.
- H. Contract Closeout: Contract closeout procedures, final cleaning, adjusting, project record documents, operation and maintenance data, spare parts and maintenance materials, warranties. loss

##### 1.2 CONTRACT

- A. Summary of Work:  
Azalea City Base Bid:  
The work of this contract consists of renovating the Men's and Women's locker rooms and restrooms. Alternate 1 consists of demolishing existing range house and rebuilding a new range house building with sidewalks. Alternate 2 consists of building pre-engineered equipment warehouse building.

ct Description: Stipulated sum.

### 1.3 CONTRACTOR USE OF PREMISES

- A. Limit use of premises to allow continued Owner occupancy. All facilities shall remain in use except the immediate work area for this project. Obey all Facility Regulations and coordinate access and schedule of work with Project Manager.

### 1.4 CONTINGENCY ALLOWANCE

- A. Include in the Contract the stipulated amount for use upon Owner's instruction.
- B. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit are included in Change or Field Orders authorizing expenditure of funds from this Contingency Allowance.

### 1.5 SCHEDULE OF VALUES

- A. Submit Schedule of Values on AIA Form G703 within five (5) calendar days of notification of project award.

### 1.6 APPLICATIONS FOR PAYMENT

- A. Submit two signed and notarized originals of each application on AIA Form G702 and AIA Form G703 for each project location. Submit Lien Release Waivers, including from subcontractors and major suppliers, with each pay application.
- B. Content and Format: Utilize Schedule of Values, AIA Form G703, for listing items in Application for Payment.
- C. Payment Period: Monthly, except for final payment of retainage after all Close Out documents are submitted and approved.

### 1.7 CHANGE ORDER PROCEDURES

- A. All contract changes involving a change in scope, payment and/or time shall be made by change order.
- B. Stipulated Sum/Price Change Order: Based on Proposal Request and Contractor's fixed price quotation or Contractor's request for a Change Order as approved by Owner.

### 1.8 ALTERNATE BID ITEMS

- A. Alternates quoted on Bid Form, if any, will be reviewed and accepted in the order listed.



rate related Work and modify surrounding Work as required.

- C. Schedule of Alternates: Listed on bid form, as applicable.

#### 1.9 COORDINATION

- A. Coordinate scheduling, submittals, and Work at the facility to ensure an efficient and orderly sequence and to facilitate the continued uninterrupted use of the Facility.
- B. Request Utility interruptions at least 72 hours in advance. Note that due to scheduling in the facility, utility interruptions must be approved.

#### 1.10 FIELD ENGINEERING

- A. Establish elevations, lines, and levels and certify that elevations and locations of the Work conform to the Contract Documents. Verify existing conditions.
- B. Contractor shall field verify all measurements and quantities required for a complete installation.

#### 1.11 PRECONSTRUCTION MEETINGS

- A. Owner will schedule a pre-construction meeting after contract award for all affected parties.

#### 1.12 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at pre-approved intervals.
- B. Preside at meetings, record minutes, and distribute copies within two days to those affected by decisions made.

#### 1.13 E-BUILDER

- A. E-Builder is a construction program management to help facilitate project cost, schedule, and documents.
- B. Owner shall provide access and training to E-Builder.
- C. Contractor shall utilize the program to communicate with Architect and Owner for the following:
  - a. Email Communication
  - b. Construction Schedules
  - c. Submittals

ly Applications and Schedule of Values

Request for Information

- f. Field Reports
- g. Architectural Supplemental Information
- h. Change Orders
- i. Contract and Notice to Proceed Documents
- j. Testing Documents
- k. Photos

### 1.13 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial progress schedule in duplicate within five (5) calendar days after date of notice of award of project for Project Manager's review.
- B. Submit revised schedules with each Application for Payment, identifying changes since previous version. Indicate estimated percentage of completion for each item of Work at each submission.

### 1.14 SHOP DRAWINGS

- A. Shop Drawings for Review: Submit to Project Manager/Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.
- B. Submit four copies for use by the owner plus the number of copies that Contractor requires. Electronic submittals may be acceptable with prior approval of the Project Manager and Engineer. Close Out documents shall include electronic and hard copies of all submittals.

### 1.15 QUALITY ASSURANCE - CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' written instructions.
- C. Comply with specified standards as minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- D. Supply certification from manufacturer that the installed Work meets or exceeds all manufacturers' requirements.

√

- A. Verify that existing site conditions and subsurfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Verify that utility services are available, of the correct characteristics, and in the correct location.

#### 1.17 PREPARATION

- A. Prepare surfaces prior to applying next material installation.

#### 1.18 TOLERANCES

- A. Monitor fabrication and installation tolerance control of installed Products over suppliers, manufacturers, Products, site conditions, and workmanship, to produce acceptable Work. Do not permit tolerances to accumulate. Comply fully with manufacturers' tolerances.

#### 1.19 REFERENCES

- A. Conform to reference standards by date of issue current as of date of Contract Documents.
- B. Should specified reference standard conflict with Contract Documents, request clarification from Project Manager before proceeding.

#### 1.20 ELECTRICITY

- A. Unless otherwise provided for, Contractor shall be allowed to utilize power from the facility in moderate amounts.
- B. Provide power outlets for construction operations, branch wiring, distribution boxes, and flexible power cords as required.

#### 1.21 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

- A. Provide and maintain temporary lighting for construction operations as may be required.
- B. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.

WATER

- A. Owner shall provide suitable potable water in moderate quantities without cost to the Contractor.

1.23 TEMPORARY SANITARY FACILITIES

- A. Contractor may use sanitary facilities located at the facility in lieu of contractor provided temporary facilities. Facilities will also continue to be used by the public and shall be maintained clean and in a sanitary condition.

1.24 BARRIERS AND FENCING

- A. Provide barriers and fencing as needed to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from dust, debris and damage.

1.25 PROTECTION OF INSTALLED WORK

- A. Protect installed Work and provide special protection where specified in individual specification sections. Prohibit traffic or storage upon grass or paving surfaces.

1.26 SECURITY

- A. Provide security and facilities to protect Work and existing facilities from unauthorized entry, vandalism, or theft.

1.27 ACCESS ROADS & HAULING

- A. Maintain temporary access routes through the public thoroughfare and parking areas to serve the construction area as required without obstructing traffic or blocking access for facility staff or participants. Provide drive pads as required.
- B. Restore site to pre-construction condition. Fill ruts, replace broken or damaged amenities, sod disturbed areas.

1.28 PARKING

- A. Arrange for temporary parking areas to accommodate construction personnel on site. Do not block traffic.

## CLEANING AND WASTE REMOVAL

- A. Collect and maintain work areas free of waste materials, debris, and rubbish on a daily basis. Maintain site in a clean and orderly condition. Provide refuse containers and dispose of construction debris legally off site. The Owner may request load tickets from landfills permitted to accept construction debris.

### 1.30 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities and materials, prior to Substantial Completion review.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

### 1.31 PRODUCTS

- A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work, but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work.

### 1.32 TRANSPORTATION, HANDLING, STORAGE AND PROTECTION

- A. Transport, handle, store, and protect Products in accordance with manufacturers' instructions.

### 1.33 PRODUCT OPTIONS

- A. Products Specified by Naming One Manufacturer or equal: Products of manufacturer named approved as "Basis of Design". Equal alternate products to be approved by Owner as Substitutions. Submit product data as required in SUBSTITUTIONS.

### 1.34 SUBSTITUTIONS

- A. Architect will consider requests for Substitutions only within 10 days after date established in Notice to Proceed. For Pre-Bid approved Substitutions, submit request 7 calendar days or more before bid date with all back up data to show that all characteristics of the Basis of Design product are met with the substituted product or material.
- B. Document each request with complete backup data substantiating compliance of proposed Substitution with all characteristics of the materials specified in the Contract Documents.

three copies of request for Substitution for consideration. Limit each  
t to one proposed Substitution.

- D. Substitution shall indicate all product properties and show that they are equal to that Specified.
- E. Acceptance or Rejection of Pre-Bid Substitution Requests will be issued by Addendum.

### 1.35 FINAL CLEANING

- A. Execute final cleaning prior to final inspection of work area. User may occupy portions of the work incrementally as the work is completed and accepted. Entire project to be ready for use by User once all areas of work are completed.
- B. Clean debris from site and drainage systems.
- C. Remove waste and surplus materials, rubbish, and construction facilities from the facility and the site. Leave site in raked and smooth condition.

### 1.36 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of Contract Documents to be utilized only for record documents.
- B. Record actual revisions to the Work. Record information concurrent with construction progress.
- C. Specifications: Legibly mark and record at each Product section a description of actual Products installed.
- D. Record Documents and Shop Drawings: Legibly mark each item to record actual construction.
- E. Submit documents to Project Manager with claim for final Application for Payment.
- F. Submit 1 paper copy in binder and 1 thumb drive with pdf copies to include:
  - a. Completed AIA Document G706, Contractor's Affidavit of Payment of Debts and Liens (notarized)
  - b. Completed AIA Document G706A, Contractor's Affidavit of Release of Liens (notarized)
  - c. Releases or Waivers of Liens from all Subcontractors and Material and Equipment Suppliers (notarized).
  - d. Completed AIA Document G707-1994, Consent of Surety to Final Payment.

- Written warrantee on Contractor's letterhead covering materials and labor for one year.
- f. Advertisement of Completion (4 consecutive weeks)
  - g. Closeout of Permits (provide closed documentation)
  - h. Completion of all items on the Punch List.
  - i. Operations and Maintenance Manuals
  - j. Reviewed submittals
  - k. Retainage Pay Application
  - l. Project Record Documents (Printed 24x36)

### 1.37 WARRANTIES

- A. Product and Manufacturer's Warranties shall be provided per specifications.
- B. In addition, all materials and labor shall be warranted for a minimum of one year after Substantial Completion of the entire project. Contractor to promptly repair all deficiencies within that time. A warranty inspection shall be scheduled by the Owner, with the Contractor and Owner's representative, before the end of the warranty period, in order to review the work and note deficiencies for the Contractor to correct. Said meeting may be waived if no deficiencies are noted.

PART 2 PRODUCTS  
Not Used.

PART 3 EXECUTION  
Not Used.

END OF SECTION

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## SECTION 01210

### ALLOWANCES

#### PART 1 GENERAL

##### 1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

##### 1.2 SUMMARY

###### A. Allowances will be utilized to:

1. Defer selection of certain items until more information is available.
2. Provide for discretionary installation of materials where exact and specific conditions cannot be determined in advance.
3. Provide for the discretionary use of labor where tasks and time frames cannot be determined in advance.

###### B. Include in Total Bid a stipulated lump sum allowance amount as specified in this Section.

##### 1.3 ALLOWANCE

A. Include in the Total Base Quote a stipulated allowance(s) as indicated on the Quote Form for the use upon Owner's instruction. Upon Contractor inspection and Owner approval, any additional work that may be required, but not covered in the original Scope of Work (Base Scope Quote), shall be added to the scope and cost charged against the Contingency Allowance. Contractor's cost for products, delivery, installation labor, insurance, payroll, bonding, equipment rental and overhead and profit will be included in the Allowances. Contractor's markups on allowances are limited to 10% for subcontractor's work and 15% for his own forces.

B. Use of Contingency Allowance(s) shall be approved in writing by the Owner before any materials are ordered or work performed.

C. Upon completion of the Work, any unused portion of the Allowances shall be credited back to the City of Mobile in the form of a Change Order.

D. Contractor shall provide a detailed proposal of the work with overhead and profit broken out. Such proposals shall include proposals from subcontractors, also showing their detailed proposal with overhead and profit broken out.

##### 1.4 SELECTION AND PURCHASE

- A. Advise the Project Manager when final selection and purchase of allowance item must be complete to avoid delay.

#### 1.5 SUBMITTALS

- A. Request for Use of Allowance: Submit proposals for approval that detail and break out costs for contractors and subcontractor's markups.
- B. After Use of Allowance: Submit invoices to show quantity delivered to the site for each allowance.

### PART 2 PRODUCTS

Not used

### PART 3 EXECUTION

#### 3.1 INSPECTION

- A. Promptly inspect all Allowance items upon delivery. Immediately report any shortage, damage, or defects to Project Manager.

#### 3.2 PREPARATION

- A. Coordinate materials and installation to assure that each item is integrated with related construction activities.

#### 3.3 ALLOWANCE SCHEDULE

- A. Include as a Azalea City Golf Course Contingency Allowance the lump sum amount of one thousand five hundred and xx/100 Dollars (\$15,000.00).

END OF SECTION

## SECTION 01220

### UNIT PRICES

#### PART 1 GENERAL

##### 1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

##### 1.2 SUMMARY

- A. Section Includes:
  - 1. Measurement.
  - 2. Payment.

##### 1.3 UNIT PRICES

- A. Provide unit prices for items listed, for inclusion in Contract, guaranteed to apply for duration of Project as basis for additions to or deductions from Contract Sum.
- B. Actual quantities and measurements supplied or placed in the Work will determine payment.
- C. Payment includes full compensation for all required labor, Products, tools, equipment, services, and incidentals, and for erection, application, or installation of an item of the Work.

#### PART 2 PRODUCTS Not used

#### PART 3 EXECUTION

##### 3.1 UNIT PRICE SCHEDULE

**A. Unit prices for material are total installed cost including labor, equipment and all markups.**

**B. Item No. 1 – Mass Earth Excavation:**

- 1. Description: Remove and dispose of unsuitable earth, including earth not needed or not suitable for reuse, encountered in open excavations, in accordance with Section 02200 - "Earthwork."
- 2. Unit of Measure: Cubic yard (CY) of earth excavated.

**C. Item No. 2 - Trench Earth Excavation:**

1. Description: Remove and dispose of unsuitable earth, including earth not needed or not suitable for reuse, encountered in trenches, in accordance with Section 02200 - "Earthwork."
  2. Unit of Measure: Cubic yard (CY) of earth excavated.
- D. Item No. 3 - Hand Earth Excavation:**
1. Description: Remove and dispose of unsuitable earth, including earth not needed or not suitable for reuse, which must be excavated by hand, in accordance with Section 02200 - "Earthwork."
  2. Unit of Measure: Cubic yard (CY) of earth excavated.
- E. Item No.4 - Additional Soil:**
1. **Item No. 4a - Topsoil:**
    - a. Description: Provide additional topsoil from offsite locations in accordance with Section 02200 – "Earthwork", Section 02900 – "Landscape Work", and applicable portions of other sections.
    - b. Unit of Measure: Cubic yard (CY) of topsoil in place.
  2. **Item No.4b - General or Open Site Areas:**
    - a. Description: Provide acceptable earth fill in general or open site areas, compacted to meet requirements specified for the affected area, in accordance with Section 02200 - "Earthwork."
    - b. Unit of Measure: Cubic yard (CY) of fill, in place.
  3. **Item No.4c - Trench Backfill:**
    - a. Description: Provide acceptable backfill in trenches, compacted to meet requirements specified for the affected area, in accordance with Section 02200 - "Earthwork."
    - b. Unit of measure: Cubic yard (CY) of fill, in place
  4. **Item No.4d - Select Fill:**
    - a. Description: Provide acceptable select fill obtained from offsite locations, compacted to meet the requirements specified for the affected area, in accordance with Section 02200 -"Earthwork."
    - b. Unit of Measure: Cubic Yard (CY) of fill, in place.
- F. Item No. 5 - Sod:**
1. Description: Provide additional sod as directed, including fine grading, soil amendments, fertilizers, sod, maintenance, etc., in accordance with Section 02900 - "Landscape Work".
  2. Unit of Measure: Square yard (SY) of sod, in place.

**G. Item No. 6 - Fine Grading**

1. Description: Provide all tools and equipment necessary to fine grade in place soil material to depths ranging from 0" - 4", in accordance with Division 31 - "Earth Moving", Drawings, and all related work.
2. Unit of Measure: Square Yard (SY)

**H. Item No. 7 - Grading- Cut and Export**

1. Description: Provide all tools and equipment necessary to cut and export soil materials to on-campus spoils area, in accordance with Division 31 - "Earth Moving", Drawings, and all related work.
2. Unit of Measure: Cubic Yard (CY)

**I. Item No. 8 - Excavation and Disposal of Unsuitable Soils**

1. Description: Provide all tools and equipment necessary to cut and export unsuitable soil materials to an off-campus disposal area provided by the contractor, in accordance with Division 31 - "Earth Moving", Drawings, and all related work.
2. Unit of Measure: Cubic Yard (CY)

**J. Item No. 9 - Seeding and Mulching**

1. Description: Provide and install Seeding and Mulching at location as directed, in accordance with Division 32 - "Lawns and Grasses", Drawings, and all related work.
2. Unit of Measure: Square Yard (SY)

**K. Item No.10 - Silt Fencing**

1. Description: Provide and install Silt Fencing at location as directed, in accordance with Division 31 - "Site Clearing", Drawings, and all related work.
2. Unit of Measure: Linear Foot (LF)

**L. Item No. 11 - New Asphalt Pavement (6" Granular - 4" Binder -1.5" Wearing)**

1. Description: Provide and install 6" thick reinforced concrete sidewalk at location as directed, in accordance with Division 32 - "Concrete Paving", Drawings, and all related work.
2. Unit of Measure: Square Yard (SY)

**M. Item No. 12 - New Concrete Sidewalk (6" Thick)**

1. Description: Provide and install 6" thick reinforced concrete sidewalk at location as directed, in accordance with Division 32 - "Concrete Paving", Drawings, and all related work.
2. Unit of Measure: Square Yard (SY)

**N. Item No. 13 - Temporary Construction Fencing**

1. Description: Provide and install 6' tall segmental chain-link fence, complete with sandbag weights at location as directed.
  2. Unit of Measure: Linear Foot (LF)
- O. Item No.14 - New 4" DI Gravity Sewer**
1. Description: Provide and install 4" Ductile Iron pipe at location as directed, complete with gland packs and required trenching, bedding and backfill, in accordance with Division 33 - "Metal Pipe and Fittings for Sewerage", Drawings, and all related work.
  2. Unit of Measure: Linear Foot (LF)
- P. Item No. 15 - New 8" DI Gravity Sewer**
1. Description: Provide and install 8" Ductile Iron pipe at location as directed, complete with gland packs and required trenching, bedding and backfill, in accordance with Division 33 - "Metal Pipe and Fittings for Sewerage", Drawings, and all related work.
  2. Unit of Measure: Linear Foot (LF)
- Q. Item No. 16- Miscellaneous DI Fittings**
1. Description: Provide and install assorted Ductile Iron fittings at location as directed, complete with gland packs, restraint and required trenching, bedding and backfill, in accordance with Division 33 - "Metal Pipe and Fittings for Water Utilities" and Division 33 - "Metal Pipe and Fittings for Sewerage", Drawings, and all related work.
  2. Unit of Measure: Pounds (LBS)
- R. Item No.17 - 4" DI Water Line**
1. Description: Provide and install 4" Ductile Iron pipe at location as directed, complete with gland packs and required trenching, bedding and backfill, in accordance with Division 33 - "Metal Pipe and Fittings for Water Utilities", Drawings, and all related work.
  2. Unit of Measure: Linear Foot (LF)
- S. Item No.18 - 4" Gate Valve**
1. Description: Provide and install 4" Gate Valves, complete with cast iron valve box and any required valve extensions at location as directed, in accordance with Division 33 - "Water Utility Distribution - Valves", Drawings, and all related work.
  2. Unit of Measure: Each (EA)
- T. Item No. 19 - 6" DI Water Line**
1. Description: Provide and install 6" Ductile Iron pipe at location as directed, complete with gland packs and required trenching, bedding and backfill, in accordance with Division 33 - "Metal Pipe and Fittings for Water Utilities", Drawings, and all related work.
  2. Unit of Measure: Linear Foot (LF)

**U. Item No. 20 - 6" Gate Valve**

1. Description: Provide and install 6" Gate Valves, complete with cast iron valve box and any required valve extensions at location as directed, in accordance with Division 33 - "Water Utility Distribution - Valves", Drawings, and all related work.
2. Unit of Measure: Each (EA)

**V. Item No. 21 - Fire Hydrant Assembly**

1. Description: Provide and install Fire Hydrant Assembly, complete with hydrant tee, isolation valve, cast iron valve box and any required valve and/or hydrant extensions at location as directed, in accordance with Division 22 - "Water Distribution", Drawings, and all related work.
2. Unit of Measure: Each (EA).

**W. Item No. 22 - 2" MDP Gas Line**

1. Description: Provide and install 2" Medium Density Polyethylene pipe at location as directed, complete with required trenching, bedding and backfill, in accordance with Division 33 - "Natural Gas Distribution", Drawings, and all related work.
2. Unit of Measure: Linear Feet (LF)

**X. Item No. 23 - Electrical - Data and Phone Outlet in Wall**

1. Description: Provide and install typical data/phone outlet in wall at location as directed, complete with junction box, 50-feet of conduit and typical wiring, cover plate, connections to device indicated or as directed, in accordance with Division 16 - "Electrical", Drawings, and all related work.
2. Unit of Measure: Each (EA)

**Y. Item No. 24 - Electrical - Junction Box Above Ceiling**

1. Description: Provide and install typical electrical junction box at location as directed, complete with 50-feet of conduit and typical 120-volt wiring, cover plate, connections to power and device indicated or as directed, in accordance with Division 16 - "Electrical", Drawings, and all related work.
2. Unit of Measure: Each (EA)

**Z. Item No. 25 - Electrical - Duplex Power Outlet In Wall (120V)**

1. Description: Provide and install typical duplex electrical outlet at location as directed, complete with junction box, 50-feet of conduit and typical 120-volt wiring, cover plate, connections to power and device indicated or as directed, in accordance with Division 16 - "Electrical", Drawings, and all related work.
2. Unit of Measure: Each (EA)

**AA. Item No. 26 - Electrical - Power Outlet in Wall (240V)**

1. Description: Provide and install electrical outlet at location as directed, complete with junction box, 50-feet of conduit and typical 240 volt wiring, cover plate, connections to power and device indicated or as directed (plug face to match equipment pigtail/plug), in accordance with Division 16 - "Electrical", Drawings, and all related work.
2. Unit of Measure: Each (EA)

**BB. Item No. 27 - Electrical - Floor Outlet for Power and Data**

1. Description: Provide and install typical flush poke-thru quad device with power and data/phone/communications outlets at location as directed, complete with integral junction box, junction box at connection points if required, 50-feet of conduit and typical 120 volt wiring to each duplex receptacle, 50-feet of conduit and typical data/phone/communications wiring (or combination thereof), cover plate(s), connections to power, data/phone/communications and devices indicated or as directed, in accordance with Division 16 - "Electrical", Drawings, and all related work.
2. Unit of Measure: Each (EA)

**CC. Item No. 28 - Electrical - Junction Box in Wall**

1. Description: Provide and install typical electrical junction box at location as directed, complete with 50-feet of conduit and typical 120 volt wiring, cover plate, connections to power and device indicated or as directed, in accordance with Division 16 - "Electrical", Drawings, and all related work
2. Unit of Measure: Each (EA)

**DD. Item No. 29 - Electrical - Duplex Power Outlet in Wall (120V)**

1. Description: Provide and install typical duplex electrical outlet at location as directed, complete with junction box, 50-feet of conduit and typical 120 volt wiring, cover plate, connections to power and device indicated or as directed, in accordance with Division 16 - "Electrical", Drawings, and all related work.
2. Unit of Measure: Each (EA)

**EE. Item No. 30 - Electrical - Power Outlet in Wall (240V)**



1. Description: Provide and install electrical outlet at location as directed, complete with junction box, 50-feet of conduit and typical 240 volt wiring, cover plate, connections to power and device indicated or as directed (plug face to match equipment pigtail/plug), in accordance with Division 16 - "Electrical", Drawings, and all related work.
  2. Unit of Measure: Each (EA)
- FF. Item No. 31 - Electrical –Light Fixture**
1. Description: Provide and install light fixture at location as directed, complete with junction box, 50-feet of conduit and typical 240-volt wiring, cover plate, connections to power and device indicated or as directed in accordance with Division 16 - "Electrical", Drawings, and all related work.
  2. Unit of Measure: Each (EA)
- GG. Item No. 32 – Fire Extinguisher and Cabinet**
1. Description: Provide and install Fire Extinguisher and Cabinet at location as directed including all anchorage and mounting hardware as needed or as directed.
  2. Unit of Measure: Each (EA)
- HH. Item No. 40 – 3 5/8" Interior Walls**
1. Provide and install 3 5/8" metal stud walls with one layer of 5/8" Type X drywall each side, with un-faced sound batt insulation, walls from floor to 6" above suspended ceiling and braced to structure above at 4'-0" o.c., sanded and finished ready for painting complete in place; Typically ceilings are 9'-0" A.F.F.
  2. Unit of Cost – Per Square Foot (SF)
- II. Item No. 41 – 6" Metal Stud Interior Walls**
1. Furnish and install 6" metal stud walls with one layer of 5/8" moisture resistant drywall each side, with plumbing pipes in the walls, unrated and with unfaced sound batt insulation, walls from floor to 6" above suspended ceiling and braced to structure above at 4'-0" o.c., sanded and finished ready for painting complete in place; Typically ceilings are 9'-0" A.F.F.
  2. Unit of Cost – Per Square Foot (SF)
- JJ. Item No. 42 – Drywall**
1. Furnish and install 5/8" drywall, taped and floated over existing wall framing; no finish, one side only.
  2. Unit of Cost – Per Square Foot (SF)
- KK. Item No. 43 – Moisture Resistant Board**
1. Furnish and install 5/8" moisture resistant board, taped and floated over existing wall framing; no finish, one side only.

2. Unit of Cost – Per Square Foot (SF)
- LL. Item No. 44 – Tile Backer Board**
1. Furnish and install 5/8” tile backer board, taped and floated over existing wall framing; no finish, one side only.
  2. Unit of Cost – Per Square Foot (SF)
- MM. Item No. 45 – High Abuse Board**
1. Furnish and install 5/8” high abuse board, taped and floated over existing wall framing; no finish, one side only.
  2. Unit of Cost – Per Square Foot (SF)
- NN. Item No. 46 – Sound Batt Insulation**
1. Furnish and install un-faced sound batt insulation in 3 5/8” metal stud walls. Insulation Only.
  2. Unit of Cost – Per Square Foot (SF)
- OO. Item No. 47 – Welded Hollow Metal Door Frames – Single Door**
1. Furnish and install welded hollow metal door frames-single door – Rough Opening of 40”x86” (Single 3’-0” x 7’-0” door)
  2. Unit of Cost – (1) Each (EA)
- PP. Item No. 48 – Welded Hollow Metal Door Frames – Double Door**
1. Furnish and install welded hollow metal door frames-double door or single door with side lights- for Rough Openings of up to 76” x 86”.
  2. Unit of Cost – (1) Each (EA)
- QQ. Item No. 49 – Metal Stud Framing for Flat Hard Ceiling**
1. Furnish and install 3 5/8” metal stud framing for flat hard ceiling; framing only.
  2. Unit of Cost – Per Square Foot (SF)
- RR. Item No. 50 – Metal Stud Framed Flat ½ Drywall Ceiling Caulked and Painted**
1. Furnish and install metal stud framed flat unrated ½” drywall ceiling caulked and painted complete in place.
  2. Unit of Cost – Per Square Foot (SF)
- SS. Item No. 51 – Metal Stud Framed Flat ½ Drywall Ceiling Unfinished**
1. Furnish and install metal stud framed flat unrated ½” drywall ceiling unfinished.
  2. Unit of Cost – Per Square Foot (SF)
- TT. Item No. 52 – Drywall Finishing**

1. Furnish and install drywall finishing (fire tape and caulk above ceiling, level 4 finish below ceiling).
2. Unit of Cost – Per Square Foot (SF)

**UU. Item No. 53 – Standard Acoustical Ceiling**

1. Furnish and install 2 x 2 standard acoustical ceiling with typical 2x4 lay in lights, 2x2 supply and return grills, and cut in sprinkler heads (center of tile).
2. Unit of Cost – Per Square Foot (SF)

**X.I Item No. 54 – Standard Vinyl Ceiling**

1. Furnish and install 2 x 2 vinyl faced ceiling with typical 2x4 lay in lights, 2x2 supply and return grills, and cut in sprinkler heads (center of tile).
2. Unit of Cost – Per Square Foot (SF)

**WW. Item No. 55 – Un-faced Sound Batt Insulation Above Suspended Ceiling**

1. Furnish and install un-faced sound batt insulation above suspended ceilings.
2. Unit of Cost – Per Square Foot (SF)

**XX.I Item No. 56 – Caulking and (2 Coats) Painting of Finished Gypsum Board Walls or Ceilings**

1. Furnish and install caulking and (2) coats painting of finished gypsum board walls or ceilings, complete and in accordance with Section 09900 – “Painting”
2. Unit of Cost – Per Square Foot (SF)

**YY. Item No. 57 – Painting of Door Frames**

1. Furnish and install painting for door frames.
2. Unit of Cost – (1) Each (EA)

**ZZ. Item No. 58 – 4 ½” Rubber Cove Base**

3. Furnish and install Rubber Cove Base.
4. Unit of Cost – Linear Foot (LF)

**AAA. Item No. 59 – Linear Feet of Chilled Water and Hot Water Pipe**

1. Furnish and install chilled and hot water piping including all fittings, hangers, and insulation in place:
2. Unit of Measure – Linear Foot (LF)
  - a. ½”
  - b. ¾”
  - c. 1”
  - d. 1-1/2”
  - e. 2”
  - f. 2-1/2”

- g. 3"
- h. 4"
- i. 6"

**BBB. Item No. 60 – Valves**

1. Furnish and install valves listed in Specification Section 23 100 in sizes:
2. Unit of Measure – Each (EA)
  - a. ¾"
  - b. 1"
  - c. 1-1/2"
  - d. 2"
  - e. 2-1/2"
  - f. 3"
  - g. 4"
  - h. 6"

**CCC. Item No. 61 – Air Distribution**

1. Furnish and install metal ductwork and insulation:
2. Unit of Measure – Per Pound (LB)

**DDD. Item No. 62 – Flexible Duct**

1. Furnish and install flexible ductwork in place:
2. Unit of Measure – Square Foot (SF)
  - a. 6" Dia
  - b. 8" Dia.
  - c. 10" Dia
  - d. 14" Dia

**EEE. Item No. 63 – Diffusers**

1. Furnish and install Diffusers and Grilles in place:
2. Unit of Measure – Each (EA)
  - a. LD-9
  - b. LD-12
  - c. LD14
  - d. LD16
  - e. R6
  - f. R8
  - g. R10
  - h. R12
  - i. R14
  - j. R16
  - k. R18

I. R22

**FFF. Item No. 64 – Four-Pipe Fan Coil / Air-handler Units**

1. Furnish and install four-pipe fan coil / air handler units in place:
2. Unit of Measure – Each (EA)
  - a. 500 CFM
  - b. 1,000 CFM
  - c. 1,500 CFM
  - d. 2,000 CFM

**GGG. Item No. 65 – Linear Feet of Cold Water and Hot Water Domestic Pipe**

1. Furnish and install cold and hot water piping including all fittings, hangers, and insulation in place:
2. Unit of Measure – Linear Foot (LF)
  - a. ½”
  - b. ¾”
  - c. 1”
  - d. 1-1/2”
  - e. 2”
  - f. 2-1/2”
  - g. 3”
  - h. 4”

**HHH. Item No. 66 – Linear Feet of Pipe Insulation**

1. Furnish and install pipe insulation in place:
2. Unit of Measure – Linear Foot (LF)
  - a. ½”
  - b. ¾”
  - c. 1”
  - d. 1-1/2”
  - e. 2”
  - f. 2-1/2”
  - g. 3”
  - h. 4”

**III. Item No. 67 – Linear Feet of Drain and Vent Pipe**

1. Furnish and install drain and vent piping including all fittings, hangers, and insulation in place:
2. Unit of Measure – Linear Foot (LF)
3. Cast Iron Sizes
  - a. 1”
  - b. 2”

- c. 3"
  - d. 4"
  - e. 6"
4. PVC Schedule 40 Sizes
- a. 1"
  - b. 2"
  - c. 3"
  - d. 4"
  - e. 6"

**JJJ. Item No. 68 – Existing brick veneer system repair / re-finishing:**

1. Existing brick veneer system patching, repair, repointing, cleaning prep and re-finishing per drawings and in accordance with Division 04 Sections and Division 09 Section "High Performance Coatings."
2. Unit of Measure: Per 1000 Square Feet (SF)

**KKK. Item No. 69 – Existing stucco system repair / re-finishing:**

1. Existing stucco system patching, repair, prep and re-finishing per drawings and in accordance with Division 09 Section "High Performance Coatings."
2. Unit of Measure: Per 2500 Square Feet (SF)

**LLL. Item No. 70 – Existing brick veneer system re-finishing:**

1. Existing brick veneer system prep and re-finishing in accordance with Division 04 Sections and Division 09 Section "High Performance Coatings."
2. Unit of Measure: Per 1000 Square Feet (SF)

**MMM. Item No. 71 – Existing stucco system repair re-finishing:**

1. Existing stucco system prep and re-finishing in accordance with Division 09 Section "High Performance Coatings."
2. Unit of Measure: Per 2500 Square Feet (SF)

**NNN. Item No. 72 – Irrigation Well Installation:**

1. Description: Dig irrigation well(s) capable of meeting minimum water pressure in accordance with Section 32 8423 "Performance Irrigation". Well size and capacity to be determined by Landscape Contractor for Irrigation System.
2. Unit of Measure: Lump Sum (LS)

Azalea City Golf Course  
PR-029-21

### 3.1 FINAL ADJUSTMENT TO CONTRACT SUM

- A. Upon completion of the Work, any unused portion or the total amount of the Allowance shall be credited back to the City of Mobile in the form of a Change Order.

END OF SECTION

SECTION 01230  
ALTERNATIVE BID ITEMS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This section identifies each Alternate and describes basic changes to Work only when that Alternate is made a part of the Work
- B. Base Bid and Alternates include costs of all supporting elements required, so that the combination of Base Bid and any Alternates are complete.
- C. The scope of work for Alternates shall be in accordance with applicable Drawings and Specifications.
- D. Except as otherwise indicated, complete work described in Alternates with no increase in Subcontract Time.
- E. This section includes non-technical descriptions of Alternates. Refer to specific sections of the Specifications and to Drawings for technical descriptions of Alternates.
- F. Submit bids for Base Bid and all Alternates listed on Bid Form. Failure to quote an amount, or insertion of the words "no bid," "none" or words of similar meaning, will be considered as not completing the proposal and may constitute disqualification of entire bid, at City's discretion. When there is no change in base bid due to using the Alternate, use the words "No Change". The words "No Change" will be interpreted to mean that work described in the Alternate shall be completed at no adjustment or change in cost of Base Bid.

1.3 PROCEDURES

- A. Alternates will be exercised at the option of Owner, and in number order.
- B. Coordinate related work and modify surrounding work as required to complete the work, including changes under each Alternate, when acceptance is designated in Owner/Contractor Agreement.

1.4 DESCRIPTION OF ALTERNATES

- A. Azalea City Golf Course
  - 1. Alternate #1 (Additive): The construction of a new Range Building per the bid drawings and specifications.
  - 2. Alternate #2 (Additive): The construction of a new Equipment Building per the bid drawings and specifications.
- B. Hope Community Center (No Alternates)
- C. Taylor Park
  - 1. Phase 2 - Alternate #1 (Additive): The renovation of the existing Pavilion.
  - 2. Phase 2- Alternate #2 (Additive): The construction of a new Grill.
- D. Baumhauer-Randle Park



1. Alternate #1 (Additive): The construction of a new Restroom/Concession Building per bid drawings and specifications – including the demolition of the existing restroom building and concession building.

PART 2 PRODUCTS Not used

PART 3 EXECUTION Not used

END OF SECTION

## SECTION 01310 - PROJECT MANAGEMENT AND COORDINATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. General project coordination procedures.
  - 2. Administrative and supervisory personnel.
  - 3. Coordination drawings.
  - 4. Requests for Information (RFIs).
  - 5. Project meetings.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.
- C. Related Sections:
  - 1. Division 1 Section "Execution Requirements"
  - 2. Division 1 Section "Project Record Drawings" for coordinating closeout of the Contract.

#### 1.3 DEFINITIONS

- A. RFI: Request from Owner, Architect, or Contractor seeking information from each other during construction.

#### 1.4 COORDINATION

- A. Contractor shall be responsible for coordinating all trades of his contract, Owners Contractors, coordinating construction sequences and schedules, and coordinating actual installed location and interface of work.

- B. Contractor shall supervise and direct the development of coordination drawings showing comprehensive coordination and integration of all Work of this project including, but not limited to, structural, architectural mechanical, plumbing, fire protection, electrical disciplines, and Owners Contractors.
- C. Coordination drawings are intended to assist Contractor and all trades during construction and may be used to supplement shop drawings, record drawings, and other required submittals.
- D. Coordination: Each contractor shall supervise and direct construction operations with those of subcontractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its operations with operations, included in different Sections that depend on each other for proper installation, connection, and operation.
  - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  - 2. Coordinate installation of different components with other contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.
  - 3. Make adequate provisions to accommodate items scheduled for later installation.
- E. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
  - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- F. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
  - 1. Preparation of Contractor's construction schedule.
  - 2. Preparation of the schedule of values.
  - 3. Installation and removal of temporary facilities and controls.
  - 4. Delivery and processing of submittals.
  - 5. Progress meetings.
  - 6. Preinstallation conferences.
  - 7. Project closeout activities.
  - 8. Startup and adjustment of systems.
  - 9. Project closeout activities.

## 1.5 KEY PERSONNEL

- A. Key Personnel Names: Within 5 days of Notice to Proceed, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and email addresses. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
1. Post copies of list at site. Keep list current at all times.

## 1.6 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
  2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

## 1.7 PROJECT MEETINGS

- A. General: Attendance of subcontractors and superintendent at a weekly progress meeting is required.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01310

SECTION 01320  
CONSTRUCTION PROGRESS DOCUMENTATION

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
1. Start-up construction schedule.
  2. Contractor's construction schedule.
  3. Field condition reports.
  4. Special reports.

## 1.3 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
1. PDF electronic file.
- B. Start-up construction schedule.
1. Approval of cost-loaded start-up construction schedule will not constitute approval of schedule of values for cost-loaded activities.
- C. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
- D. Field Condition Reports: Submit at time of discovery of differing conditions.
- E. Special Reports: Submit at time of unusual event.
- F. Existing Condition Photos: Submit prior to onsite mobilization to record existing conditions. If, during construction, damage occurs by others, notify Project Manager right away.

## PART 2 - PRODUCTS

## 2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of final completion.
- B. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Show the following:
1. Activity Duration
  2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
  3. Submittal Review Time: Include review and resubmittal times indicated in Division 1 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
  4. Startup and Testing Time: Include not less than 15 days for startup and testing.
  5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Phasing: Arrange list of activities on schedule by phase.
  2. Work Restrictions: Show the effect of the following items on the schedule:
    - a. Coordination with existing construction.
    - b. Limitations of continued occupancies.
    - c. Uninterruptible services.
    - d. Partial occupancy before Substantial Completion.
    - e. Use of premises restrictions.
    - f. Provisions for future construction.
    - g. Seasonal variations.
    - h. Environmental control.
- D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.

- E. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
1. Unresolved issues.
  2. Unanswered RFIs.
  3. Rejected or unreturned submittals.
  4. Notations on returned submittals.

## 2.2 START-UP CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Submit start-up horizontal bar-chart-type construction schedule within seven days of date established for the Notice to Proceed .
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 days of construction.

## 2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

- A. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the start-up network diagram, prepare a skeleton network to identify probable critical paths.
1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
    - a. Preparation and processing of submittals.
    - b. Mobilization and demobilization.
    - c. Purchase of materials.
    - d. Delivery.
    - e. Fabrication.
    - f. Utility interruptions.
    - g. Installation.
    - h. Work by Owner that may affect or be affected by Contractor's activities.
    - i. Testing and commissioning.
    - j. Punch list and final completion.
    - k. Activities occurring following final completion.
  2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
  3. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.

- B. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall project schedule.
- C. Initial Issue of Schedule: Identify critical activities. Prepare tabulated reports showing the following:
1. Contractor or subcontractor and the Work or activity.
  2. Description of activity.
  3. Principal events of activity.
  4. Immediate preceding and succeeding activities.
  5. Early and late start dates.
  6. Early and late finish dates.
  7. Activity duration in workdays.
- D. Schedule Updating: Submit at each weekly coordination meeting.
1. Identification of activities that have changed.
  2. Changes in early and late start dates.
  3. Changes in early and late finish dates.
  4. Changes in activity durations in workdays.
  5. Changes in the critical path.
  6. Changes in total float or slack time.
  7. Changes in the Contract Time.

Note: The Contractor may be allowed additional construction days due to inclement conditions ("rain days") only as such are appropriately documented and are in excess of the NOAA/National Weather Service average (previous 5 years) for the given month. A "rain day" is defined as more than a "trace" (0.10") of rain falling within a given 24 hour period. The Contractor shall provide documentation and formally request any "rain days" they feel are legitimately due. Documentation shall be submitted to the Project Manager, in writing, within ten (10) calendar days of the rain event.

## 2.4 REPORTS

- A. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.



## 2.5 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

## PART 3 - EXECUTION

Not Used

END OF SECTION

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## SECTION 01330 SUBMITTAL PROCEDURES

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Section, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Submittal Procedure
  - 2. Submittal Schedule
  - 3. Shop Drawings
  - 4. Product Data
  - 5. Samples

#### 1.3 SUBMITTAL PROCEDURES

- A. Number each submittal with Project Manual specification Section number and sequential number within each section. Number resubmittals with original number and an alphabetic suffix.
- B. Identify Project, Contractor, Subcontractor or supplier, pertinent Drawing sheet and detail numbers, and specification Section number, as appropriate.
- C. Submit all submittals simultaneously for each Produce or Specification Section. Where multiple Products function as an assembly, group submittals for all related Products into single submittal.
- D. Project Manager will not review incomplete submittals.
- E. Apply Contractor's stamp, signed or initialed certifying that:
  - 1. Submittal was reviewed.
  - 2. Products, field dimensions, and adjacent construction have been verified.
  - 3. Information has been coordinated with requirements for Work and Contract Documents.
- F. Schedule submittals to expedite the Project, and deliver to Project Manager. Coordinate submittal of related items.

- G. For each submittal, allow 10 days for Project Manager's review, excluding delivery time to and from Contractor. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of completed Work.
- H. Revise and resubmit submittals when required; identify all changes made since previous submittals.
- I. Distribute copies of reviewed submittals to concerned parties and to Project Record Documents file. Instruct parties to promptly report any inability to comply with provisions.

#### 1.4 SUBMITTAL SCHEDULE

- A. Submit a submittal schedule showing all submittals proposed for project, including:
  - 1. Submittals for Review
  - 2. Closeout Submittals.
- B. Include for each submittal:
  - 1. Specification section number.
  - 2. Description of submittal.
  - 3. Type of submittal.
  - 4. Anticipated submittal date.
- C. Submit three (3) hard copies and one (1) PDF copy, concurrently.

#### 1.5 SHOP DRAWINGS

- A. Present information in clear and thorough manner.
- B. Identify details by reference to sheet and detail numbers or areas shown on Drawings.
- C. Reproductions of details contained in Contract Documents are not acceptable.
- D. Submit four (4) hard copies and one (1) PDF copy (concurrently). One hard copy and a PDF copy will be returned to Contractor for printing and distribution.

#### 1.6 PRODUCT DATA

- A. Mark each copy to identify applicable products, models, options, and other data.
- B. Supplement manufacturers' standard data to provide information unique to this Project.
- C. Submit 3 copies. Project Manager will return one copy to Contractor for printing and distribution.

#### 1.7 SAMPLES

- A. Submit samples to illustrate functional and aesthetic characteristics of Products, with integral parts and attachment of devices. Coordinate sample submittals for interfacing work.
- B. Where so indicated, submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for Project Manager's selection.
- C. Include identification for each sample, with full Project information.
- D. Project Manager will notify Contractor of approval or rejection of samples, or of selection of color, texture or pattern if full range is submitted.

END OF SECTION

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**SECTION 014100**  
**SPECIAL INSPECTIONS**

**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. This Section includes administrative and procedural requirements required for compliance with the International Building Code, Chapter 17, Structural Tests and Special Inspections.
- B. Structural testing and special inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve contractor of responsibility for compliance with other construction document requirements.
  - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the construction document requirements.
  - 3. Requirements for contractor to provide quality-assurance and -control services required by architect, owner, or authorities having jurisdiction are not limited by provisions of this section.
- C. The owner will engage one or more qualified special inspectors and / or testing agencies to conduct structural tests and special inspections specified in this section and related sections and as maybe specified in other divisions of these specifications.
- D. Related Sections include but are not limited to the following:
  - 1. 02300 EARTHWORK
  - 2. 03300 CAST-IN-PLACE CONCRETE.
  - 3. 03381 UNBONDED POST-TENSIONED CONCRETE.
  - 4. 05120 STRUCTURAL STEEL.
  - 5. 05310 STEEL DECK.

**1.02 DEFINITIONS**

- A. **Approved Agency:** An established and recognized agency regularly engaged in conducting tests or furnishing inspection services, when such agency has been approved by the building official.
- B. **Construction Documents:** Written, graphic and pictorial documents prepared or assembled for describing the design, location and physical characteristics of the elements of a project necessary for obtaining a building permit. Construction Documents include all supplemental instructions, sketches, addenda, and revisions to the drawings and specifications issued by the registered design professional beyond those issued for a building permit.
- C. **Shop Drawings / Submittal Data:** Written, graphic and pictorial documents prepared and / or assembled by the contractor based on the Construction Documents.
- D. **Structural Observation:** Visual observation of the structural system by a representative of the registered design professional's office for general conformance to the approved construction documents. Structural observations are not considered part of the structural tests and special inspections and do not replace inspections and testing by the testing agency or special inspector.
- E. **Special Inspector:** A qualified person who demonstrating competence, to the satisfaction of the code enforcement official and registered design professional in responsible charge, for inspection of the construction or operation requiring special inspection. The special inspector shall be

a licensed professional engineer or engineering intern or a qualified representative from the testing agency.

- F. Special Inspection, Continuous: The full-time observation of work requiring special inspection by an approved special inspector who is present in the area where the work is being performed.
- G. Special Inspection, Periodic: The part-time or intermittent observation of work requiring special inspection by an approved special inspector who is present in the area where the work has been or is being performed and at the completion of the work.
- H. Testing Agency: A qualified materials testing laboratory under the responsible charge of a licensed professional engineer, approved by the code enforcement official and the registered design professional in responsible charge, to measure, examine, test, calibrate, or otherwise determine the characteristics or performance of construction materials and verify confirmation with construction documents.

### 1.03 QUALITY ASSURANCE

- A. Testing Agency Qualifications:
  - 1. Minimum qualifications of inspection and testing agencies and their personnel shall comply with ASTM E329-03 Standard Specification for Agencies in the Testing and / or Inspection of Materials Used in Construction.
    - a. Inspectors and individuals performing tests shall be certified for the work being performed as outlined in the appendix of the ASTM E329. Certification by organizations other than those listed must be submitted to the building official for consideration before proceeding with work.
  - 2. In addition to these requirements, local jurisdiction may have additional requirements. It is the responsibility of the testing and inspection agencies to meet local requirements and comply with local procedures.

### 1.04 CONFLICTING REQUIREMENTS, REPORTS, AND TEST RESULTS

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to the registered design professional in responsible charge for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to the registered design professional in responsible charge for a decision before proceeding.
- C. The special inspector's reports and testing agencies results shall have precedence over reports and test results provided by the contractor.
- D. Where a conflict exists between the construction documents and approved shop drawings / submittal data, the construction documents shall govern unless the shop drawings / submittal data are more restrictive. All conflicts shall be brought to the attention of the registered design professional in responsible charge.

### 1.05 SUBMITTALS BY SPECIAL INSPECTOR AND / OR TESTING AGENCY

- A. Special inspectors shall keep and distribute records of inspections. The special inspector shall furnish inspection reports to the building official, and to the registered design professional in responsible charge, contractor, architect, and owner. Reports shall indicate that work inspected was done in conformance to approved construction documents. Discrepancies shall be brought



to the immediate attention of the contractor for correction. If the discrepancies are not corrected, the discrepancies shall be brought to the attention of the building official and to the registered design professional in responsible charge prior to the completion of that phase of the work. A final report documenting required special inspections and correction of any discrepancies noted in the inspections shall be submitted at a point in time agreed upon by the permit applicant and the building official prior to the start of work.

1. Special inspection reports and test results shall include, but not be limited to, the following:
  - a. Date of inspection.
  - b. Description of inspections or tests performed including location (reference gridlines, floors, elevations, etc.).
  - c. Statement noting that the work, material, and / or product conforms or does not conform to the construction document requirements.
    - 1) Name and signature of contractor's representative who was notified of work, material, and / or products that do not meet the construction document requirements.
  - d. Name and signature of special inspector and / or testing agency representative performing the work.
- B. Schedule of Non-Compliant Work: Each agent shall maintain a log of work that does not meet the requirements of the construction documents. Include reference to original inspection / test report and subsequent dates of re-inspection / retesting.
- C. Reports and tests shall be submitted within 1 week of inspection or test. Schedule of Non-Compliant Work shall be updated daily and submitted at monthly intervals.
- D. Final Report of Special Inspections. Submitted by each agent listed in the schedule of Structural Testing and Special Inspections.

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION

3.01 CONTRACTOR'S RESPONSIBILITY

- A. The contractor shall coordinate the inspection and testing services with the progress of the work. The contractor shall provide sufficient notice to allow proper scheduling of all personnel. The contractor shall provide safe access for performing inspection and on site testing.
- B. The contractor shall submit schedules to the owner, registered design professionals and testing and inspecting agencies. Schedules will note milestones and durations of time for materials requiring structural tests and special inspections.
- C. The contractor shall repair and / or replace work that does not meet the requirements of the construction documents.
  1. Contractor shall engage an engineer / architect to prepare repair and / or replacement procedures.
  2. Engineer / architect shall be registered in the state in which the project is located. Engineer shall be acceptable to the registered design professional in responsible charge, code enforcement official, and owner.
  3. Procedures shall be submitted for review and acceptance by the registered design professional in responsible charge, code enforcement official, and owner before proceeding with corrective action.
- D. The contractor shall be responsible for costs of:
  1. Re-testing and re-inspection of materials, work, and / or products that do not meet the requirements of the construction documents and shop drawings / submittal data.

2. Review of proposed repair and / or replacement procedures by the registered design professional in responsible charge and the inspectors and testing agencies.
3. Repair or replacement of work that does not meet the requirements of the construction documents.

3.02 STRUCTURAL OBSERVATIONS

- A. Structural observations may be made periodically as determined by the registered design professional in responsible charge.

3.03 TESTING AND INSPECTION

- A. Testing and inspection shall be in accordance with the attached Schedule of Special Inspections.
- B. Reference related specifications for the minimum level of inspections and testing. Provide additional inspections and testing as necessary to determine compliance with the construction drawings.

PART 4 - SCHEDULES AND FORMS (ATTACHED)

4.01 STATEMENT OF SPECIAL INSPECTIONS.

4.02 SCHEDULE OF SPECIAL INSPECTIONS.

4.03 FINAL REPORT OF SPECIAL INSPECTIONS.

END OF SECTION 01 14 00

# STATEMENT OF SPECIAL INSPECTIONS

Project: Mobile City Parks

Project Address:

Permit Applicant:

Applicant Address:

Owner:

Owner Address:

## Registered Design Professionals (RDP):

Architect: Goodwyn, Mills, & Cawood

Geotechnical Engineer:

Structural Engineer: MBA Engineers

Mechanical Engineer:

Electrical Engineer:

This statement of special inspections is submitted as a condition for permit issuance in accordance with Chapter 17 of the International Building Code. It includes a *Schedule of Special Inspections* applicable to the above referenced project as well as the identity of the individuals, agencies, or firms intended to be retained for conducting these inspections.

The Special Inspector(s) shall keep records of all inspections and shall furnish interim inspection reports to the building official and to the registered design professional in responsible charge at a frequency agreed upon by the permit applicant and building official prior to the start of work. Discrepancies shall be brought to the immediate attention of the contractor for correction. If the discrepancies are not corrected, the discrepancies shall be brought to the attention of the building official and the registered design professional in responsible charge prior to completion of that phase of work. A *Final Report of Special Inspections* documenting required special inspections and correction of any discrepancies noted in the inspections shall be submitted by each agent at the completion of that phase of work.

Maximum frequency of interim report submittals shall not be less than 2 weeks.

The Special Inspection program does not relieve the contractor of the responsibility to comply with the Contract Documents. Jobsite safety and means and methods of construction are solely the responsibility of the Contractor.

Owner's Acknowledgement:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Building Official's Acceptance:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Permit No.

Frequency of interim report submittals to building official:

Monthly

Bi-Monthly

Upon Completion

Per Attached Schedule

RDP in Responsible Charge



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**Project Name: Mobile City Parks**

During construction of the referenced project, it is intended that special inspection as outlined in Chapter 17 of the 2018 International Building Code be provided for by the owner. The following areas of work will require special inspection:

MATERIAL / ACTIVITY	FREQUENCY OF INSPECTION	INSPECTOR
<b>A. Inspection of Steel Fabrication Process per 1704.2.5.1</b> (Not required if fabricator is registered and approved per Section 1704.2.5.1)	Periodic	Testing Agent
<b>B. Inspection of Steel per 1705.2 (in accordance with quality assurance inspection requirements of AISC 360 &amp; SDI QA/QC documentation).</b>		
1. Inspection of welding:		
a. Prior to welding:		
1. Welding procedure specifications available	Continuous	Testing Agent
2. Manufacturer certifications for welding consumables available	Continuous	Testing Agent
3. Material identification (type/grade)	Periodic	Testing Agent
4. Welder identification system	Periodic	Testing Agent
5. Fit-up of groove welds (including joint geometry)	Periodic	Testing Agent
6. Configuration and finish of access holes	Periodic	Testing Agent
7. Fit-up of fillet welds	Periodic	Testing Agent
b. During welding:		
1. Use of qualified welders	Periodic	Testing Agent
2. Control and handling of welding consumables	Periodic	Testing Agent
3. No welding over cracked welds	Periodic	Testing Agent
4. Environmental conditions	Periodic	Testing Agent
5. Welding specification procedure followed	Periodic	Testing Agent
6. Welding Techniques	Periodic	Testing Agent
c. After welding:		
1. Welds cleaned	Periodic	Testing Agent
2. Size, length, and location of welds	Continuous	Testing Agent
3. Welds meet visual acceptance criteria	Continuous	Testing Agent
4. Arc strikes	Continuous	Testing Agent
5. K-area	Continuous	Testing Agent
6. Backing removed and weld tabs removed	Continuous	Testing Agent
7. Repair activities	Continuous	Testing Agent
8. Document acceptance or rejection of welded joint or member	Continuous	Testing Agent
2. Inspection of high-strength bolting:		
a. Prior to bolting:		
1. Manufacturer's certifications available	Continuous	Testing Agent
2. Fasteners marked in accordance with ASTM requirements	Periodic	Testing Agent
3. Proper fasteners selected for the joint detail	Periodic	Testing Agent
4. Proper bolting procedure for the joint detail	Periodic	Testing Agent
5. Connecting elements meet applicable requirements	Periodic	Testing Agent
6. Pre-installation verification testing by installation personnel observed and documented for fastener assemblies and methods used	Periodic	Testing Agent
7. Proper storage provided for bolts, nuts, washers, and other fastener components	Periodic	Testing Agent
b. During bolting:		
1. Fastener assemblies placed in all holes and washers (if required) are positioned as required	Periodic	Testing Agent

2. Joint brought to the snug-tight condition prior to the pretensioning operation	Periodic	Testing Agent
3. Fastener component not turned by the wrench prevented from rotating	Periodic	Testing Agent
4. Fasteners are pretensioned in accordance with the RCSC specification progressing systematically from the most rigid point toward the free edges	Periodic	Testing Agent
c. After bolting:		
1. Document acceptance or rejection of bolted connections	Continuous	Testing Agent
3. Inspection of steel elements of composite construction prior to concrete placement:		
a. Placement and installation of steel deck	Continuous	Testing Agent
b. Placement and installation of steel headed stud anchors	Continuous	Testing Agent
c. Document acceptance or rejection of steel elements	Continuous	Testing Agent
4. Cold-formed steel deck:		
a. Prior to deck placement:		
1. Verify compliance of materials (deck and all deck accessories) with construction documents, including profiles, material properties, and base metal thickness	Periodic	Testing Agent
2. Document acceptance or rejection of deck and deck accessories	Periodic	Testing Agent
b. After deck placement:		
1. Verify compliance of deck and all deck accessories installation with construction documents	Periodic	Testing Agent
2. Verify deck materials are represented by the mill certifications that comply with the construction documents	Periodic	Testing Agent
3. Document acceptance or rejection of installation of deck and deck accessories	Periodic	Testing Agent
c. Prior to welding:		
1. Welding procedure specifications (WPS) available	Periodic	Testing Agent
2. Manufacturer certifications for welding consumables available	Periodic	Testing Agent
3. Material identification (type/grade)	Periodic	Testing Agent
4. Check welding equipment	Periodic	Testing Agent
d. During welding:		
1. Use of qualified welders	Periodic	Testing Agent
2. Control and handling of welding consumables	Periodic	Testing Agent
3. Environmental conditions (wind speed, moisture, temperature)	Periodic	Testing Agent
4. WPS followed	Periodic	Testing Agent
e. After welding:		
1. Verify size and location of welds, including support, sidelap, and perimeter welds.	Periodic	Testing Agent
2. Welds meet visual acceptance criteria	Periodic	Testing Agent
3. Verify repair activities	Periodic	Testing Agent
4. Document acceptance or rejection of welds	Periodic	Testing Agent
f. Prior to mechanical fastening:		
1. Manufacturer installation instructions available for mechanical fasteners	Periodic	Testing Agent
2. Proper tools available for fastener installation	Periodic	Testing Agent
3. Proper storage for mechanical fasteners	Periodic	Testing Agent
g. During mechanical fastening:		
1. Fasteners are positioned as required	Periodic	Testing Agent

2. Fasteners are installed in accordance with manufacturer's instructions	Periodic	Testing Agent
h. After mechanical fastening:		
1. Check spacing, type, and installation of support fasteners	Periodic	Testing Agent
2. Check spacing, type, and installation of sidelap fasteners	Periodic	Testing Agent
3. Check spacing, type, and installation of perimeter fasteners	Periodic	Testing Agent
4. Verify repair activities	Periodic	Testing Agent
5. Document acceptance or rejection of mechanical fasteners	Periodic	Testing Agent
<b>C. Inspection of Concrete per 1705.3</b>		
1. Inspect reinforcement, including prestressing tendons, and verify placement.	Periodic	Testing Agent
2. Reinforcing bar welding:		
a. Verify weldability of reinforcing bars other than ASTM A706.	Periodic	Testing Agent
b. Inspect single-pass fillet welds, maximum 5/16".	Periodic	Testing Agent
c. Inspect all other welds.	Continuous	Testing Agent
3. Inspect anchors cast in concrete.	Periodic	Testing Agent
4. Inspect anchors post-installed in hardened concrete members.		
a. Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads.	Continuous	Testing Agent
b. Mechanical anchors and adhesive anchors not defined in 4.a.	Periodic	Testing Agent
5. Verify use of required design mix.	Periodic	Testing Agent
6. Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	Continuous	Testing Agent
7. Inspect concrete and placement for proper application techniques.	Continuous	Testing Agent
8. Verify maintenance of specified curing temperature and techniques.	Periodic	Testing Agent
9. Inspect prestressed concrete for:		
a. Application of prestressing forces.	Continuous	Testing Agent
b. Grouting of bonded prestressing tendons.	Continuous	Testing Agent
10. Verify in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs.	Periodic	Testing Agent
11. Inspect formwork for shape, location, and dimensions of the concrete member being formed.	Periodic	Testing Agent
<b>D. Inspection of Soil Conditions per 1705.6</b>		
1. Verify excavations are extended to proper depth and have reached proper material.	Periodic	Testing Agent
2. Perform classification and testing of compacted fill materials.	Periodic	Testing Agent
3. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.	Continuous	Testing Agent
4. Prior to placement of compacted fill, observe subgrade and verify that site has been prepared properly.	Periodic	Testing Agent

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# FINAL REPORT OF SPECIAL INSPECTIONS

Project: Mobile City Parks

Project Address:

Testing / Inspection Agent:

Testing / Inspection Agent Address:

Scope of Testing / Inspections:

Soil Conditions, Cast In Place Concrete, & Steel

To the best of my information, knowledge, and belief, the special inspections or testing required for this project, and designated for this Agent in the *Schedule of Special Inspections* submitted for permit, have been completed in accordance with the contract documents.

Interim reports submitted prior to this final report and numbered RS- to RS- , form a basis for, and are to be considered an integral part of this final report.

[Large empty rectangular area for additional information or notes]

Prepared By:

---

Type or print name

---

Signature \_\_\_\_\_ Date \_\_\_\_\_

Special Inspector's Seal

(Licensed Professional Engineer)



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SECTION 01635  
SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Sections:
  - 1. Divisions 2 through 16 Sections for specific requirements and limitations for substitutions and pre-bid approvals.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
  - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
  - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced.
  - 1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
    - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner

and separate contractors that will be necessary to accommodate proposed substitution.

- c. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
  - d. 6"x12" Samples of each finish material in proposed pattern and color.
  - e. Certificates and qualification data.
  - f. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
  - g. Cost information, including a proposal of change, if any, in the Contract Sum (not applicable for pre-bid Submittals).
  - h. Impact of substitution on construction schedule.
  - i. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
  - j. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
2. Project Manager's Action: If necessary, Project Manager will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Project Manager will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Project Manager Supplemental Instructions for minor changes in the Work.
  - b. Use product specified if Project Manager does not issue a decision on use of a proposed substitution within time allocated.

## 1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage qualified testing agency to perform compatibility tests recommended by manufacturers.

## 1.6 PROCEDURES

- A. Coordination: Modify or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01700  
EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Environmental concerns.
2. Installation of the Work.
3. Cutting and patching.
4. Progress cleaning.
5. Starting and adjusting.
6. Protection of installed construction.
7. Correction of the Work.

- B. Related Sections:

1. Division 1 Sections "Summary of the Work", "Project Record Documents", or "Closeout Procedures", if included in Project Manual, for submitting closeout documents and final cleaning.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 INFORMATIONAL SUBMITTALS

- A. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
  2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.

3. Products: List products to be used for patching and firms or entities that will perform patching work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate how long services and systems will be disrupted. Prior approval of Utility outages is required. Notify Owner of intent at least 72 hours in advance.

## 1.5 QUALITY ASSURANCE

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
  1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to the Architect for the visual and functional performance of in-place materials.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
  1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
  2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
    - a. Description of the Work.
    - b. List of detrimental conditions, including substrates.
    - c. List of unacceptable installation tolerances.
    - d. Recommended corrections.
  2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
  3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
  4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

### 3.2 PREPARATION

- A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of the Contractor, submit a request for information to Architect according to requirements in Division 1 Section "Project Management and Coordination."
- D. Surface and Substrate Preparation: Comply with manufacturer's recommendations for preparation of substrates to receive subsequent work.

### 3.3 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
1. Make vertical work plumb and make horizontal work level.
  2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.

3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
  4. Maintain minimum headroom clearance of 96 inches, but in no case shall the new piping be lower than the existing piping.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
  2. Allow for building movement, including thermal expansion and contraction.
  3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous, and meet environmental requirements.

### 3.4 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.



- B. Temporary Support: Provide temporary support of work to be cut.
- C. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- D. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching in accordance with requirements of Division 1 Section "Summary."
- E. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.
- F. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  3. [Concrete] [and] [Masonry]: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  5. Proceed with patching after construction operations requiring cutting are complete.
- G. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
  2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
    - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    - b. Restore damaged pipe covering to its original condition.

3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
    - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
  4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
  5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- H. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

### 3.5 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
  3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
    - a. Utilize containers intended for holding waste materials of type to be stored.
  4. Coordinate progress cleaning for joint-use areas where more than one installer has worked.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
1. Remove liquid spills promptly.
  2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- F. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.
- G. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- H. Clean completed construction as frequently as necessary through the remainder of the construction period.

### 3.6 STARTING AND ADJUSTING

- A. Coordinate startup and adjusting of equipment and operating components with requirements in other Division 2 -16 Sections."
- B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Manufacturer's Field Service: Comply with qualification requirements in other Division 2-16 Sections.

### 3.7 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

### 3.8 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

### 3.9 ENVIRONMENTAL CONCERNS

1. Provide protection and conduct construction in ways that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

### 3.10 STORMWATER CONTROL AND DISCHARGE

1. Comply with City of Mobile and Alabama Department of Environmental Management requirements. Pay particular attention to Water Regulations and Allowable Discharges.
2. See City of Mobile Code, Chapter 17, Storm Water Management and Flood Control.
3. Obtain any necessary permits that may be required due to discharges.

END OF SECTION 01700

SECTION 017823  
OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
  - 1. Operation manuals for systems, subsystems, and equipment.
  - 2. Maintenance manuals for the care and maintenance of products, materials, and finishes, systems and equipment.
- B. See Divisions 01 through 16 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.2 SUBMITTALS

- A. Manual: Submit two copies of each manual in final form at least 15 days before final inspection. Architect will return copy with comments within 10 days after final inspection.
  - 1. Correct or modify each manual to comply with Architect's comments. Submit **2** copies of each corrected manual within 10 days of receipt of Architect's comments.
  - 2. Provide PDF copies on 2 discs. Submit with the corrected manual.

PART 2 - PRODUCTS

2.1 MANUALS, GENERAL

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain a title page, table of contents, and manual contents.
- B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
  - 1. Subject matter included in manual.
  - 2. Name and address of Project.
  - 3. Name and address of Owner.
  - 4. Date of submittal.
  - 5. Name, address, and telephone number of Contractor.

6. Name and address of Architect and Engineer.
  7. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
    - a. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
  2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
  3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
  4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
    - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

## 2.2 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and equipment descriptions, operating standards, operating procedures, operating logs, wiring and control diagrams, and license requirements.
- B. Descriptions: Include the following:
1. Product name and model number.
  2. Manufacturer's name.
  3. Equipment identification with serial number of each component.

4. Equipment function.
  5. Operating characteristics.
  6. Limiting conditions.
  7. Performance curves.
  8. Engineering data and tests.
  9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include start-up, break-in, and control procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; and required sequences for electric or electronic systems.
- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

### 2.3 PRODUCT MAINTENANCE MANUAL

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Product Information: Include the following, as applicable:
1. Product name and model number.
  2. Manufacturer's name.
  3. Color, pattern, and texture.
  4. Material and chemical composition.
  5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and inspection procedures, types of cleaning agents, methods of cleaning, schedule for cleaning and maintenance, and repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

## 2.4 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including maintenance instructions, drawings and diagrams for maintenance, nomenclature of parts and components, and recommended spare parts for each component part or piece of equipment:
- D. Maintenance Procedures: Include test and inspection instructions, troubleshooting guide, disassembly instructions, and adjusting instructions, and demonstration and training videotape if available, that detail essential maintenance procedures.
- E. Submit demonstration and training video for all lighting control systems.
- F. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
- G. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- H. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- I. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

## PART 3 - EXECUTION

### 3.1 MANUAL PREPARATION

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.



- B. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
- C. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
- D. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
  - 1. Do not use original Project Record Documents as part of operation and maintenance manuals.
- E. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823

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SECTION 017839  
PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
  - 1. Record Drawings.
  - 2. Record Specifications.
  - 3. Record Product Data.
- B. See Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
- C. See Divisions 01 through 16 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.2 SUBMITTALS

- A. Record Drawings: Comply with the following:
  - 1. Number of Copies: Submit copies of Record Drawings as follows:
    - a. Final Submittal: Submit one full set of marked-up Record Prints, showing all dimensional locations, materials changes, any changes via addendum or change order. Pay particular attention to noting underground utilities.
- B. Record Specifications: Submit two copies of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit two copies of each Product Data submittal.
- D. Submit PDF's of Record Drawings, Record Specifications, Record Change Orders, Requests for Proposal, Documentation of use of Allowances, Product and Contractor's Warrantees, Product Test Reports, Final Surveys, Record Product Data, etc on 2 discs.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.

1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
    - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    - b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
  2. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
  3. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
  4. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
  2. Record Transparencies: Organize into unbound sets matching Record Prints. Place transparencies in durable tube-type drawing containers with end caps. Mark end cap of each container with identification. If container does not include a complete set, identify Drawings included.
  3. Record CAD Drawings: Organize CAD information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each CAD file.
  4. Identification: As follows:
    - a. Project name.
    - b. Date.
    - c. Designation "PROJECT RECORD DRAWINGS."
    - d. Name of Architect and Engineer.
    - e. Name of Contractor.

## 2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

### 2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
  1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
  3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

### 2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Completed Test Reports.

## PART 3 - EXECUTION

### 3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

END OF SECTION 017839

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**SECTION 02 4119**

**SELECTIVE DEMOLITION**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Demolition and removal of selected site elements.

B. Related Requirements:

1. Section 011000 "Summary" for restrictions on the use of the premises, Owner-occupancy requirements, and phasing requirements.
2. Section 017329 "Cutting and Patching" for cutting and patching requirements as necessary for the installation or performance of other components of the Work.
3. Section 311000 "Site Clearing" for site clearing and removal of above- and below-grade improvements.

1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.
- C. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.5 PREINSTALLATION MEETINGS

- A. Pre-demolition Conference: Conduct conference at Project site.
  - 1. Inspect and discuss condition of construction to be selectively demolished.
  - 2. Review structural load limitations of existing structure.
  - 3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
  - 4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
  - 5. Review areas where existing construction is to remain and requires protection.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For refrigerant recovery technician.
- B. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.
- C. Schedule of Selective Demolition Activities: Indicate the following:
  - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
  - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
  - 3. Coordination for shutoff, capping, and continuation of utility services.
  - 4. Use of elevator and stairs.
  - 5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
- D. Inventory: Submit a list of items to be removed and salvaged and deliver to Owner prior to start of demolition.
- E. Predemolition Photographs or Video: Submit before Work begins.
- F. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.
- G. Warranties: Documentation indicated that existing warranties are still in effect after completion of selective demolition.



1.7 CLOSEOUT SUBMITTALS

- A. Inventory: Submit a list of items that have been removed and salvaged.
- B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.8 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.9 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
  - 1. Before selective demolition, Owner will remove the following items:
    - a. All materials currently stored in storage room
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
  - 1. Hazardous materials will be removed by Owner before start of the Work.
  - 2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. Hazardous Materials: Hazardous materials are present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
  - 1. Hazardous material remediation is specified elsewhere in the Contract Documents.
  - 2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
  - 3. Owner will provide material safety data sheets for suspected hazardous materials that are known to be present in buildings and structures to be selectively demolished because of building operations or processes performed there.
- F. Storage or sale of removed items or materials on-site is not permitted.

- G. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  - 1. Maintain fire-protection facilities in service during selective demolition operations.

#### 1.10 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Review record documents of existing construction. Owner does not guarantee that existing conditions are same as those indicated in record documents.
- C. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- E. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.
  - 1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

2. Steel Tendons: Locate tensioned steel tendons and include recommendations for de-tensioning.
- F. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs and/or preconstruction videotapes.
1. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

### 3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
1. Comply with requirements for existing services/systems interruptions specified in Section 011000 "Summary."
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned (if any): Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
1. Owner will arrange to shut off indicated services/systems when requested by Contractor (if required).
  2. Arrange to shut off indicated utilities with utility companies.
  3. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
  4. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.
    - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
    - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    - d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
    - e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner (if any)
    - f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    - g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.

### 3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  - 1. Comply with requirements for access and protection specified in Section 015000 "Temporary Facilities and Controls."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
  - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
  - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
  - 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
  - 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
  - 5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 015000 "Temporary Facilities and Controls."
- C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
  - 1. Strengthen or add new supports when required during progress of selective demolition.

### 3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
  - 1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
  - 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
  - 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.

4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Dispose of demolished items and materials promptly.

B. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

### 3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 3/4 inch at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.
- B. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, then remove concrete between saw cuts.

- C. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.
- D. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.
- E. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI's "Recommended Work Practices for the Removal of Resilient Floor Coverings." Do not use methods requiring solvent-based adhesive strippers.
- F. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weathertight.
  - 1. Remove existing roof membrane, flashings, copings, and roof accessories.
  - 2. Remove existing roofing system down to substrate.

### 3.6 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site.
  - 1. Do not allow demolished materials to accumulate on-site.
  - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  - 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

### 3.7 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

**SECTION 033000**  
**CAST-IN-PLACE CONCRETE**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
1. Footings.
  2. Slabs-on-grade.
  3. Columns.
- B. Related Sections include the following:
1. Division 03 Section "Architectural Concrete" for general building applications of specially finished formed concrete.
  2. Division 31 Section "Earth Moving" for drainage fill under slabs-on-grade.
  3. Division 32 Section "Concrete Paving" for concrete pavement and walks.
  4. Division 32 Section "Decorative Concrete Paving" for decorative concrete pavement and walks.

1.03 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.04 SUBMITTALS

- A. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
1. Indicate amounts of mixing water to be withheld for later addition at Project site.
- B. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.
- C. Welding certificates.
- D. Field quality-control test and inspection reports.

1.05 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from one source, and obtain admixtures through one source from a single manufacturer.
- B. Welding: Qualify procedures and personnel according to AWS D1.4, "Structural Welding Code--Reinforcing Steel."
- C. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
1. ACI 301, "Specification for Structural Concrete," Sections 1 through 5".
  2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

- D. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

#### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

### PART 2 - PRODUCTS

#### 2.01 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

#### 2.02 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.
- B. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.

#### 2.03 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), plain-steel bars, cut bars true to length with ends square and free of burrs.

#### 2.04 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
  - 1. Portland Cement: ASTM C 150, Type I/II, gray. Supplement with the following:
    - a. Fly Ash: ASTM C 618, Class C
- B. Normal-Weight Aggregates: ASTM C 33, Class 3M coarse aggregate or better, graded. Provide aggregates from a single source.
  - 1. Maximum Coarse-Aggregate Size: 1 inch (25 mm) nominal.
  - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: ASTM C 94/C 94M and potable.

#### 2.05 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
  - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
  - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
  - 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
  - 4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
  - 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
  - 6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

#### 2.06 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- B. Water: Potable.
- C. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.



1. Products:
  - a. Burke by Edoco; Aqua Resin Cure.
  - b. Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior Company; W.B. Resin Cure.
  - c. Dayton Superior Corporation; Day Chem Rez Cure (J-11-W).
  - d. Euclid Chemical Company (The); Kurez DR VOX.
  - e. Lambert Corporation; Aqua Kure-Clear.

#### 2.07 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.
- B. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- C. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:
  1. Types I and II, non-load bearing IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.
- D. Reglets: Fabricate reglets of not less than 0.0217-inch- (0.55-mm-) thick, galvanized steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.
- E. Dovetail Anchor Slots: Hot-dip galvanized steel sheet, not less than 0.0336 inch (0.85 mm) thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.

#### 2.08 REPAIR MATERIALS

- A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch (3.2 mm) and that can be feathered at edges to match adjacent floor elevations.
  1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
  2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
  3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3.2 to 6 mm) or coarse sand as recommended by underlayment manufacturer.
  4. Compressive Strength: Not less than 4100 psi (29 MPa) 28 days when tested according to ASTM C 109/C 109M.
- B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch (3.2 mm) and that can be feathered at edges to match adjacent floor elevations.
  1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
  2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
  3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3.2 to 6 mm) or coarse sand as recommended by topping manufacturer.
  4. Compressive Strength: Not less than 5000 psi (34.5 MPa) at 28 days when tested according to ASTM C 109/C 109M.

## 2.09 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
  - 1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
  - 1. Fly Ash: 25 percent.
- C. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- D. Admixtures: Use admixtures according to manufacturer's written instructions.
  - 1. Use water-reducing high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
  - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
  - 3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.

## 2.10 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Footings: Proportion normal-weight concrete mixture as follows:
  - 1. Minimum Compressive Strength: 3000 psi (20.7 MPa) at 28 days.
  - 2. Maximum Water-Cementitious Materials Ratio: 0.50
  - 3. Slump Limit: 5 inches (125 mm) plus or minus 1 inch (25 mm).
  - 4. Air Content: 5-1/2 percent, plus or minus 1.5 percent at point of delivery.
- B. Slabs-on-Grade: Proportion normal-weight concrete mixture as follows:
  - 1. Minimum Compressive Strength: 3000 psi (20.7 MPa) at 28 days.
  - 2. Minimum Cementitious Materials Content: 470 lb/cu. yd. (279 kg/cu. m)
  - 3. Slump Limit: 5 inches (125 mm), plus or minus 1 inch (25 mm).
  - 4. Air Content: No entrained air. Do not allow air content of trowel finished floors to exceed 3 percent.
- C. Columns: Proportion normal-weight concrete mixture as follows:
  - 1. Minimum Compressive Strength: 4000 psi (20.7 MPa) at 28 days.
  - 2. Minimum Cementitious Materials Content: 470 lb/cu. yd. (279 kg/cu. m).
  - 3. Slump Limit: 5 inches (125 mm), plus or minus 1 inch (25 mm).
  - 4. Air Content: 5-1/2 percent, plus or minus 1.5 percent at point of delivery.

## 2.11 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

## 2.12 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116, and furnish batch ticket information.
  - 1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

### 2.13 VAPOR RETARDERS

- A. Plastic Vapor Retarder: ASTM E 1745, Class C, or polyethylene sheet, ASTM D 4397, not less than 10 mills thick. Include manufacturer's recommended adhesive or pressure-sensitive joint tapes

## PART 3 - EXECUTION

### 3.01 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:
  - 1. SF-2.0 - Typical [all concealed areas of concrete or concrete finished with Textured Acrylic Coating.
  - 2. SF -3.0 - All exposed concrete walls, columns and ceilings including but not limited to: Interior of all stairwells, stair treads, landings and risers, exposed walls in storm shelter area, ceilings of units, columns and walls designated to receive paint or textured ceiling finish, including those in commons and exposed columns on all floors in East and West corridors(on all levels), corridors, etc.
- D. Construct forms tight enough to prevent loss of concrete mortar.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
  - 1. Install keyways, reglets, recesses, and the like, for easy removal.
  - 2. Do not use rust-stained steel form-facing material.
- F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- H. Chamfer exterior corners and edges of permanently exposed concrete.
- I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

### 3.02 SEALED CONCRETE

- A. Protect all floors to receive sealed concrete finish with 3/8 inch thick exterior grade plywood deck.
  - 1. The plywood shall be placed after the slab has cured and before masonry walls are started.

2. The sealed concrete Subcontractor shall review the floor finish and accept the floors prior to installing plywood.
3. Do not attach plywood to the concrete slab.
4. The plywood shall be maintained and remain in place until the sealing process has started.

### 3.03 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
  2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
  3. Install dovetail anchor slots in concrete structures as indicated.

### 3.04 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete, if concrete is hard enough to not be damaged by form-removal operations and curing and protection operations are maintained.
  1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved[ at least 70 percent of] its 28-day design compressive strength.
  2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

### 3.05 SHORES AND RESHORES

- A. Comply with ACI 318 (ACI 318M) and ACI 301 for design, installation, and removal of shoring and reshoring.
  1. Do not remove shoring or reshoring until measurement of slab tolerances is complete.
- B. In multistory construction, extend shoring or reshoring over a sufficient number of stories to distribute loads in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members without sufficient steel reinforcement.
- C. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

### 3.06 VAPOR RETARDERS

- A. Plastic Vapor Retarders: Place, protect, and repair vapor retarders according to ASTM E 1643 and manufacturer's written instructions.
  1. Lap joints 6 inches (150 mm) and seal with manufacturer's recommended tape.
- B. Granular Course: Install vapor retarder over granular fill, moisten, and compact with mechanical equipment to elevation tolerances of plus 0 inch (0 mm) or minus 3/4 inch (19 mm).

1. Place and compact a 1/2-inch- (13-mm-) thick layer of fine-graded granular material over granular fill.

### 3.07 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
  1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
  1. Weld reinforcing bars according to AWS D1.4, where indicated.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

### 3.08 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
  1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
  2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches (38 mm) into concrete.
  3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
  4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
  5. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
  6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
  7. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
  1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch (3.2 mm). Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
  2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3.2-mm-) wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
  - 1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.
  - 2. Terminate full-width joint-filler strips not less than 1/2 inch (13 mm) or more than 1 inch (25 mm) below finished concrete surface where joint sealants, specified in Division 07 Section "Joint Sealants," are indicated.
  - 3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

### 3.09 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.
- C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
  - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
  - 1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
  - 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
  - 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
  - 1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
  - 2. Maintain reinforcement in position on chairs during concrete placement.
  - 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
  - 4. Slope surfaces uniformly to drains where required.
  - 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When average high and low temperature is expected to fall below 40 deg F (4.4 deg C) for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
  2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
  3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- G. Hot-Weather Placement: Comply with ACI 301 and as follows:
1. Maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
  2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

### 3.10 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
1. Apply to concrete surfaces not exposed to public view.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
1. Apply to concrete surfaces exposed to public view.
- C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:
1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
  2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one part portland cement to one and one-half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
  3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix one part portland cement and one part fine sand with a 1:1 mixture of bonding agent and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.
- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

### 3.11 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

- B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch (6 mm) in 1 direction.
  - 1. Apply scratch finish to surfaces indicated and to receive concrete floor toppings to receive mortar setting beds for bonded cementitious floor finishes.
- C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.
  - 1. Apply float finish to surfaces indicated to receive trowel finish.
- D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
  - 1. Apply a trowel finish to surfaces indicated exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
  - 2. Finish and measure surface so gap at any point between concrete surface and an unlevelled, freestanding, 10-foot- (3.05-m-) long straightedge resting on 2 high spots and placed anywhere on the surface does not exceed 3/16 inch (4.8 mm).

### 3.12 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.
- D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Cast-in inserts and accessories as shown on Drawings. Screed, tamp, and trowel-finish concrete surfaces.

### 3.13 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- C. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- D. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
  - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:



- a. Water.
  - b. Continuous water-fog spray.
  - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
    - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
    - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
    - c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project..
  3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
    - a. After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.
  4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

#### 3.14 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
  1. Defer joint filling until concrete has aged at least one month(s). Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches (50 mm) deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

#### 3.15 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 (1.18-mm) sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
  1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch (13 mm) in any dimension in solid concrete, but not less than 1 inch (25 mm) in

- depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
  3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
  2. After concrete has cured at least 14 days, correct high areas by grinding.
  3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
  4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
  5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch (6 mm) to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
  6. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch (19-mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
  7. Repair random cracks and single holes 1 inch (25 mm) or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Architect's approval.

### 3.16 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

- B. Testing and Inspecting: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
- C. Inspections:
  - 1. Steel reinforcement placement.
  - 2. Steel reinforcement welding.
  - 3. Headed bolts and studs.
  - 4. Verification of use of required design mixture.
  - 5. Concrete placement, including conveying and depositing.
  - 6. Curing procedures and maintenance of curing temperature.
  - 7. Verification of concrete strength before removal of shores and forms from beams and slabs.
- D. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
  - 1. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. (76 cu. m) or fraction thereof of each concrete mixture placed each day.
    - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
  - 2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
  - 3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  - 4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F (4.4 deg C) and below and when 80 deg F (27 deg C) and above, and one test for each composite sample.
  - 5. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  - 6. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
    - a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
    - b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
  - 7. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
  - 8. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa).
  - 9. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

10. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
  11. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
  12. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
  13. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.
- E. Measure floor and slab flatness and levelness according to ASTM E 1155 (ASTM E 1155M) within 48 hours of finishing. FF shall be 40 and FL shall be 30 for slabs on grade and slab at dining area. FF shall be 25 for all other elevated slabs.

END OF SECTION 03 30 00

**SECTION 04 2200**

**CONCRETE UNIT MASONRY**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Concrete masonry units.
2. Concrete building brick.
3. Mortar and grout.
4. Steel reinforcing bars.
5. Masonry joint reinforcement.
6. Miscellaneous masonry accessories.

B. Related Sections:

1. Section "Structural Tests and Special Inspections" for specific masonry quality Control and special inspections of post-installed anchors.
2. Section 071900 "Water Repellents" for water repellents applied to unit masonry assemblies.
3. Section 076200 "Sheet Metal Flashing and Trim" for exposed sheet metal flashing and for furnishing manufactured reglets installed in masonry joints.

1.3 DEFINITIONS

- A. CMU(s): Concrete masonry unit(s).
- B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.4 PERFORMANCE REQUIREMENTS

- A. Provide structural unit masonry that develops indicated net-area compressive strengths at 28 days.

1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.
2. Net Area Compressive Strength for Concrete Masonry:  $f'_m = 1,900$  psi (10.3Mpa).

#### 1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product Specified.
- B. Shop Drawings: For the following:
  1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.
  2. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement." Reproduction and re-use of contract drawings for the purpose of preparing shop drawings is strictly prohibited. As a minimum, masonry reinforcement shop drawings shall contain the following:
    - a. Key Plan with rebar size and spacing for each wall condition
    - b. Rebar diagrams depicting splice locations and grout pour heights for each different wall height
    - c. Bending diagrams and dimensions for each type of bent bar and footing dowel
    - d. Wall Elevations showing placement of reinforcement at South gymnasium wall
    - e. Details of the following:
      - 1) Typical Wall Opening
      - 2) Typical Masonry Control Joint
    - f. Rebar Lap Splice Schedule

#### 1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For testing agency.
- B. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that each of the following complies with the specified requirements:
  1. Concrete Masonry Unit Test: For each type of unit required, according to ASTM C 140 for compressive strength.
  2. Grout Test (Compressive Strength): For each mix required, according to ASTM C 1019.
- C. Material Certificates: For each type and size of the following:
  1. Masonry units.
    - a. Include material test reports substantiating compliance with requirements.
    - b. For brick, include size-variation data verifying that actual range of sizes falls within specified tolerances.
    - c. For masonry units used in structural masonry, include data and calculations establishing average net-area compressive strength of units.

2. Cementitious materials. Include brand, type, and name of manufacturer.
3. Preblended, dry mortar mixes. Include description of type and proportions of ingredients.
4. Grout mixes. Include description of type and proportions of ingredients.
5. Reinforcing bars.
6. Joint reinforcement.
7. Anchors, ties, and metal accessories.

D. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.

1. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.

E. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.

F. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

## 1.7 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM C 1093 for testing indicated.

B. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.

C. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

D. Masonry Standard: Comply with ACI 530.1/ASCE 6/TMS 602 unless modified by requirements in the Contract Documents.

## 1.8 DELIVERY, STORAGE, AND HANDLING

A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.

B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Deliver preblended, dry mortar mix in moisture-resistant containers designed for use with dispensing silos. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in covered weatherproof dispensing silos.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

## 1.9 PROJECT CONDITIONS

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
  - 1. Extend cover a minimum of 24 inches (600 mm) down both sides of walls and hold cover securely in place.
- B. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
  - 1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
  - 2. Protect sills, ledges, and projections from mortar droppings.
- C. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
  - 1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.
- D. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

## PART 2 - PRODUCTS

### 2.1 MASONRY UNITS, GENERAL

- A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed Work.



- B. Fire-Resistance Ratings: Comply with requirements for fire-resistance-rated assembly designs indicated.
  - 1. Where fire-resistance-rated construction is indicated, units shall be listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction.

## 2.2 CONCRETE MASONRY UNITS

- A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
  - 1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
  - 2. Provide square edge units for outside corners unless otherwise indicated.
- B. CMUs: ASTM C 90.
  - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 1900 psi (13.1 MPa).
  - 2. Density Classification: Lightweight or Medium weight
  - 3. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.
- C. Face shells and web option requirements:
  - 1. 4-inch nominal width face shell with 3/4-inch face shell thickness; 3/4-inch web thickness with a web area of 6.5 in<sup>2</sup>/ ft<sup>2</sup>.
  - 2. 6-inch nominal width face shell with 1-inch face shell thickness; 3/4-inch web thickness with a web area of 6.5 in<sup>2</sup>/ ft<sup>2</sup>.
  - 3. 8-inch and greater nominal width face shell with 1 1/4-inch face shell thickness; 3/4-inch web thickness with a web area of 6.5 in<sup>2</sup>/ ft<sup>2</sup>.
- D. CMUs: ASTM C 90.
  - 4. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 1900 psi (13.1 MPa).
  - 5. Density Classification: Lightweight or Medium weight
  - 6. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.

General: Provide one of the following:

- 1. Masonry Lintels: Built-in-place masonry lintels made from bond beam CMUs with reinforcing bars placed as indicated and filled with coarse grout. Temporarily support built-in-place lintels until cured.

## 2.3 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.
- D. Masonry Cement: ASTM C 91.
- E. Aggregate for Mortar: ASTM C 144.
  - 1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
  - 2. For joints less than 1/4 inch (6 mm) thick, use aggregate graded with 100 percent passing the No. 16 (1.18-mm) sieve.
- F. Aggregate for Grout: ASTM C 404.
- G. Cold-Weather Admixture: Non-chloride, noncorrosive, accelerating admixture complying with ASTM C 494/C 494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated. H. Water: Potable.

## 2.4 REINFORCEMENT

- A. Uncoated Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60 (Grade 420).
- B. Masonry Joint Reinforcement, General: ASTM A 951/A 951M.
  - 1. Exterior Walls: Hot-dip galvanized, carbon or Stainless steel.
  - 2. Wire Size for Side Rods: 0.148-inch (3.77-mm) diameter.
  - 3. Wire Size for Cross Rods: 0.148-inch (3.77-mm) diameter.
  - 4. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches (407 mm) o.c.
  - 5. Provide in lengths of not less than 10 feet (3 m), with prefabricated corner and tee units.
- C. Masonry Joint Reinforcement for Single-Wythe Masonry: Ladder type with single pair of side rods.
  - 1. Tab type, ladder design, with 1 side rod at each face shell of backing wythe and with rectangular tabs sized to extend at least halfway through facing wythe but with at least 5/8-inch (16-mm) cover on outside face.

- D. Wire Ties, General: Unless otherwise indicated, size wire ties to extend at least halfway through veneer but with at least 5/8-inch (16-mm) cover on outside face. Outer ends of wires are bent 90 degrees and extend 2 inches (50 mm) parallel to face of veneer.

## 2.5 MISCELLANEOUS MASONRY ACCESSORIES

- A. Compressible Filler: Pre-molded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene, urethane or PVC.
- B. Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).
- C. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and hold reinforcing bars in center of cells. Units are formed from 0.148-inch (3.77mm) steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.

## 2.6 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
  - 1. Do not use calcium chloride in mortar or grout.
  - 2. Use masonry cement mortar unless otherwise indicated.
  - 3. For exterior masonry, use masonry cement mortar.
  - 4. For reinforced masonry, use masonry cement mortar.
  - 5. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
- B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
- C. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion] Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.
  - 1. For masonry below grade or in contact with earth, use Type M or Type S.
  - 2. For reinforced masonry, use Type S

- D. Grout for Unit Masonry: Comply with ASTM C 476.
  - 1. Use grout of type indicated or, if not otherwise indicated, of type coarse that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
  - 2. Proportion grout in accordance with ASTM C 476, Table 1 or paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2000 psi (14 MPa).
  - 3. Provide grout with a slump of 8 to 11 inches (203 to 279 mm) as measured according to ASTM C 143/C 143M.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
  - 1. Verify that foundations are within tolerances specified.
  - 2. Verify that reinforcing dowels are properly placed.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 INSTALLATION, GENERAL

- A. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

#### 3.3 TOLERANCES

- A. Dimensions and Locations of Elements:
  - 1. For dimensions in cross section or elevation do not vary by more than plus 1/2 inch (12 mm) or minus 1/4 inch (6 mm).
  - 2. For location of elements in plan do not vary from that indicated by more than plus or minus 1/2 inch (12 mm).
  - 3. For location of elements in elevation do not vary from that indicated by more than plus or minus 1/4 inch (6 mm) in a story height or 1/2 inch (12 mm) total.
- B. Lines and Levels:
  - 1. For bed joints and top surfaces of bearing walls do not vary from level by more than 1/4 inch in 10 feet (6 mm in 3 m), or 1/2 inch (12 mm) maximum.

2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2 inch (12 mm) maximum.
3. For vertical lines and surfaces do not vary from plumb by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2 inch (12 mm) maximum.
4. For lines and surfaces do not vary from straight by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2 inch (12 mm) maximum.
5. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet (6 mm in 3 m), or 1/2 inch (12 mm) maximum.
6. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch (1.5 mm) except due to warpage of masonry units within tolerances specified for warpage of units.

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm), with a maximum thickness limited to 1/2 inch (12 mm).
2. For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch (3 mm).
3. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch (9 mm) or minus 1/4 inch (6 mm).
4. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm). Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch (3 mm).
5. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch (1.5 mm) from one masonry unit to the next.

### 3.4 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less than nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.
- C. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.

### 3.5 MORTAR BEDDING AND JOINTING

- A. Lay CMUs as follows:
1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
  2. With webs fully bedded in mortar in grouted masonry, including starting course on footings.

### 3.6 MASONRY JOINT REINFORCEMENT

- A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch (16 mm) on exterior side of walls, 1/2 inch (13 mm) elsewhere. Lap reinforcement a minimum of 6 inches (150 mm).
1. Space reinforcement not more than 16 inches (406 mm) o.c.
  2. Space reinforcement not more than 8 inches (203 mm) o.c. in foundation walls and parapet walls.
  3. Provide reinforcement not more than 8 inches (203 mm) above and below wall openings and extending 12 inches (305 mm) beyond openings
- B. Provide continuity at wall intersections by using prefabricated T-shaped units, unless noted otherwise.
- C. Provide continuity at corners by using prefabricated L-shaped units.
- D. Cut and bend reinforcing units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

### 3.7 REINFORCED UNIT MASONRY INSTALLATION

- A. Placing Reinforcement: Comply with requirements in ACI 530.1/ASCE 6/TMS 602.
- B. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
1. Comply with requirements in ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height. Grout shall be consolidated into cells using mechanical vibration as specified in referenced standards.

### 3.8 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner may engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to work areas, as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.

- B. Inspections: Level C special inspections according to TMS 402/ACI 530/ ASCE5.
  - 1. Begin masonry construction only after inspectors have verified proportions of site prepared mortar.
  - 2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
  - 3. Place grout only after inspectors have verified proportions of site-prepared grout. C.

Testing Prior to Construction: One set of tests.

- D. Testing Frequency: One set of tests for each 1000 sq. ft. of wall area or portion thereof.
- E. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C 140 for compressive strength.
- F. Grout Test (Compressive Strength): For each mix provided, according to ASTM C 1019.

### 3.9 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
  - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
  - 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
  - 3. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
  - 4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.

3.10 MASONRY WASTE DISPOSAL

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.

END OF SECTION 04 2200



**SECTION 051200**  
**STRUCTURAL STEEL FRAMING**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

**1.02 SUMMARY**

- A. This Section includes the following:
  - 1. Structural steel.
  - 2. Grout.
- B. Related Sections include the following:
  - 1. Division 01 Section "Quality Requirements" for independent testing agency procedures and administrative requirements.
  - 2. Division 05 Section "Steel Decking" for field installation of shear connectors.
  - 3. Division 05 Section "Metal Fabrications" for steel lintels or shelf angles not attached to structural-steel frame miscellaneous steel fabrications not defined as structural steel.
  - 4. Division 09 painting Sections for surface preparation and priming requirements.
  - 5. Division 13 Section "Metal Building Systems" for structural steel.

**1.03 DEFINITIONS**

- A. Structural Steel: Elements of structural-steel frame, as classified by AISC's "Code of Standard Practice for Steel Buildings and Bridges," that support design loads.

**1.04 PERFORMANCE REQUIREMENTS**

- A. Connections: Provide details of connections required by the Contract Documents to be selected or completed by structural-steel fabricator to withstand LRFD loads indicated and comply with other information and restrictions indicated.
  - 1. Select and complete connections using schematic details indicated and AISC's "Manual of Steel Construction, Load and Resistance Factor Design," Volume 2, Part 9
  - 2. Engineering Responsibility: Fabricator's responsibilities include using a qualified professional engineer to prepare structural analysis data for structural-steel connections.
- B. Construction: Type 2, simple framing.

**1.05 SUBMITTALS**

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show fabrication of structural-steel components.
  - 1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
  - 2. Include embedment drawings.
  - 3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld.
  - 4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical high-strength bolted connections.

C. Welding certificates.

1.06 QUALITY ASSURANCE

- A. Welding: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code--Steel."
- B. Comply with applicable provisions of the following specifications and documents:
1. AISC's "Code of Standard Practice for Steel Buildings and Bridges."
  2. AISC's "Seismic Provisions for Structural Steel Buildings" and "Supplement No. 2."
  3. AISC's "Load and Resistance Factor Design Specification for Structural Steel Buildings."
  4. AISC's "Specification for the Design of Steel Hollow Structural Sections."
  5. AISC's "Specification for Load and Resistance Factor Design of Single-Angle Members."
  6. RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from erosion and deterioration.
1. Store fasteners in a protected place. Clean and relubricate bolts and nuts that become dry or rusty before use.
  2. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.

1.08 COORDINATION

- A. Furnish anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

PART 2 - PRODUCTS

2.01 STRUCTURAL-STEEL MATERIALS

- A. W-Shapes: ASTM A 992/A 992M
- B. Channels, Angles, Shapes: ASTM A 36/A 36M
- C. Plate and Bar: ASTM A 36/A 36M
- D. Cold-Formed Hollow Structural Sections: ASTM A 500, Grade B structural tubing.
- E. Steel Pipe: ASTM A 53/A 53M, Type E or S, Grade B.
1. Weight Class: Standard
  2. Finish: Black
- F. Welding Electrodes: Comply with AWS requirements.

2.02 BOLTS, CONNECTORS, AND ANCHORS

- A. High-Strength Bolts, Nuts, and Washers: ASTM A 325 (ASTM A 325M), Type 1, heavy hex steel structural bolts; ASTM A 563 (ASTM A 563M) heavy hex carbon-steel nuts; and ASTM F 436 (ASTM F 436M) hardened carbon-steel washers.
1. Finish: Plain
- B. Unheaded Anchor Rods: ASTM A 36/A 36M ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6).

1. Configuration: Hooked.
  2. Nuts: ASTM A 563 (ASTM A 563M) hex carbon steel.
  3. Plate Washers: ASTM A 36/A 36M carbon steel.
  4. Washers: ASTM F 436 (ASTM F 436M) hardened carbon steel.
  5. Finish: Plain
- C. Headed Anchor Rods: ASTM F 1554, Grade 36 straight.
1. Nuts: ASTM A 563 (ASTM A 563M) heavy hex carbon steel.
  2. Plate Washers: ASTM A 36/A 36M carbon steel.
  3. Washers: ASTM F 436 (ASTM F 436M) hardened carbon steel.
  4. Finish: Plain.

## 2.03 PRIMER

- A. Primer: Fabricator's standard lead- and chromate-free, nonasphaltic, rust-inhibiting primer.
- B. Galvanizing Repair Paint: ASTM A 780.

## 2.04 GROUT

- A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

## 2.05 FABRICATION

- A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and AISC's " Load and Resistance Factor Design Specification for Structural Steel Buildings."
  1. Camber structural-steel members where indicated.
  2. Identify high-strength structural steel according to ASTM A 6/ A 6M and maintain markings until structural steel has been erected.
  3. Mark and match-mark materials for field assembly.
  4. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.
- B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.
  1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1.
- C. Bolt Holes: Cut, drill, or punch standard bolt holes perpendicular to metal surfaces.
- D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.
- E. Cleaning: Clean and prepare steel surfaces that are to remain unpainted according to SSPC-SP 3, "Power Tool Cleaning."
- F. Holes: Provide holes required for securing other work to structural steel and for passage of other work through steel framing members.
  1. Cut, drill, or punch holes perpendicular to steel surfaces.
  2. Base-Plate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.
  3. Weld threaded nuts to framing and other specialty items indicated to receive other work.

## 2.06 SHOP CONNECTIONS

- A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
  - 1. Joint Type: Snug tightened
- B. Weld Connections: Comply with AWS D1.1 for welding procedure specifications, tolerances, appearance, and quality of welds and for methods used in correcting welding work.
  - 1. Remove backing bars or runoff tabs, back gouge, and grind steel smooth.
  - 2. Assemble and weld built-up sections by methods that will maintain true alignment of axes without exceeding tolerances of AISC's "Code of Standard Practice for Steel Buildings and Bridges" for mill material.

## 2.07 SHOP PRIMING

- A. Shop prime steel surfaces except the following:
  - 1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches (50 mm).
  - 2. Surfaces to be field welded.
  - 3. Surfaces to be high-strength bolted with slip-critical connections.
  - 4. Surfaces to receive sprayed fire-resistive materials.
  - 5. Galvanized surfaces.
- B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:
  - 1. SSPC-SP 3, "Power Tool Cleaning."
- C. Priming: Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a dry film thickness of not less than 1.5 mils (0.038 mm). Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.
  - 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.
  - 2. Apply two coats of shop paint to inaccessible surfaces after assembly or erection. Change color of second coat to distinguish it from first.
- D. Painting: Apply a 1-coat, nonasphaltic primer complying with SSPC-PS Guide 7.00, "Painting System Guide 7.00: Guide for Selecting One-Coat Shop Painting Systems," to provide a dry film thickness of not less than 1.5 mils (0.038 mm).

## 2.08 GALVANIZING

- A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel according to ASTM A 123/ A 123M.
  - 1. Fill vent holes and grind smooth after galvanizing.
  - 2. Galvanize lintels shelf angles attached to structural-steel frame and located in exterior walls.

## 2.09 SOURCE QUALITY CONTROL

- A. Owner will engage an independent testing and inspecting agency to perform shop tests and inspections and prepare test reports.
  - 1. Provide testing agency with access to places where structural-steel work is being fabricated or produced to perform tests and inspections.

- B. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.
- C. Bolted Connections: Shop-bolted connections will be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- D. Welded Connections: In addition to visual inspection, shop-welded connections will be tested and inspected according to AWS D1.1 and the following inspection procedures, at testing agency's option:
  - 1. Liquid Penetrant Inspection: ASTM E 165.
  - 2. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
  - 3. Ultrasonic Inspection: ASTM E 164.
  - 4. Radiographic Inspection: ASTM E 94.

### PART 3 - EXECUTION

#### 3.01 EXAMINATION

- A. Verify elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments, with steel erector present, for compliance with requirements.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.02 PREPARATION

- A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place, unless otherwise indicated.

#### 3.03 ERECTION

- A. Set structural steel accurately in locations and to elevations indicated and according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and "Load and Resistance Factor Design Specification for Structural Steel Buildings."
- B. Base and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting base and bearing plates. Clean bottom surface of base and bearing plates.
  - 1. Set base and bearing plates for structural members on wedges, shims, or setting nuts as required.
  - 2. Weld plate washers to top of base plate.
  - 3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of base or bearing plate before packing with grout.
  - 4. Promptly pack grout solidly between bearing surfaces and base or bearing plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.
- C. Maintain erection tolerances of structural steel and architecturally exposed structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."
- D. Align and adjust various members forming part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that

will be in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. Level and plumb individual members of structure.
  2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.
- E. Splice members only where indicated.
- F. Remove erection bolts on welded, architecturally exposed structural steel; fill holes with plug welds; and grind smooth at exposed surfaces.
- G. Do not use thermal cutting during erection unless approved by Architect.
- H. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.

### 3.04 FIELD CONNECTIONS

- A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
1. Joint Type: Snug tightened
- B. Weld Connections: Comply with AWS D1.1 for welding procedure specifications, tolerances, appearance, and quality of welds and for methods used in correcting welding work.
1. Comply with AISC's "Code of Standard Practice for Steel Buildings and Bridges" and "Load and Resistance Factor Design Specification for Structural Steel Buildings" for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.
  2. Remove backing bars or runoff tabs, back gouge, and grind steel smooth.
  3. Assemble and weld built-up sections by methods that will maintain true alignment of axes without exceeding tolerances of AISC's "Code of Standard Practice for Steel Buildings and Bridges" for mill material.

### 3.05 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to inspect field welds and high-strength bolted connections.
- B. Bolted Connections: Shop-bolted connections will be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- C. Welded Connections: Field welds will be visually inspected according to AWS D1.1.
1. In addition to visual inspection, field welds will be tested according to AWS D1.1 and the following inspection procedures, at testing agency's option:
    - a. Liquid Penetrant Inspection: ASTM E 165.
    - b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
    - c. Ultrasonic Inspection: ASTM E 164.
    - d. Radiographic Inspection: ASTM E 94.
- D. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

### 3.06 REPAIRS AND PROTECTION

- A. Repair damaged galvanized coatings on galvanized items with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.

- B. Touchup Painting: After installation, promptly clean, prepare, and prime or reprime field connections, rust spots, and abraded surfaces of prime-painted joists and accessories, bearing plates, and abutting structural steel.
  - 1. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.
  - 2. Apply a compatible primer of same type as shop primer used on adjacent surfaces.
- C. Touchup Painting: Cleaning and touchup painting are specified in Division 09 painting Sections.

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**SECTION 053100**  
**STEEL DECKING**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes the following:
  - 1. Roof deck.
- B. Related Sections include the following:
  - 1. Division 03 Section "Cast-in-Place Concrete" for concrete fill.
  - 2. Division 05 Section "Structural Steel Framing" for shop- and field-welded shear connectors.
  - 3. Division 05 Section "Metal Fabrications" for framing deck openings with miscellaneous steel shapes.
  - 4. Division 09 painting Sections for repair painting of primed deck.

1.03 SUBMITTALS

- A. Product Data: For each type of deck, accessory, and product indicated.
- B. Shop Drawings: Show layout and types of deck panels, anchorage details, reinforcing channels, pans, cut deck openings, special jointing, accessories, and attachments to other construction.
- C. Product Certificates: For each type of steel deck, signed by product manufacturer.
- D. Welding certificates.
- E. Research/Evaluation Reports: For steel deck.

1.04 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent agency qualified according to ASTM E 329 for testing indicated.
- B. Source Limitations for Electrified Cellular Floor Deck: Obtain cellular floor-deck units and compatible electrical components, such as preset inserts, activation kits, after set inserts, service fittings, header ducts, and trench header ducts, from same manufacturer.
- C. Welding: Qualify procedures and personnel according to AWS D1.3, "Structural Welding Code - Sheet Steel."
- D. AISI Specifications: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.
- B. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.
  - 1. Protect and ventilate acoustical cellular roof deck with factory-installed insulation to maintain insulation free of moisture.

## PART 2 - PRODUCTS

### 2.01 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Steel Deck:
    - a. Consolidated Systems, Inc.
    - b. Epic Metals Corporation.
    - c. Nucor Corp.; Vulcraft Division.
    - d. Roof Deck, Inc.
    - e. Valley Joist; Division of EBSCO Industries, Inc.
    - f. Wheeling Corrugating Company; Div. of Wheeling-Pittsburgh Steel Corporation.

### 2.02 ROOF DECK

- A. Steel Roof Deck: Fabricate panels, without top-flange stiffening grooves, to comply with "SDI Specifications and Commentary for Steel Roof Deck," in SDI Publication No. 30, and with the following:
  - 1. Galvanized Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grade 33 (230), G60 (Z180) zinc coating.
  - 2. Deck Profile: As indicated
  - 3. Profile Depth: As indicated
  - 4. Design Uncoated-Steel Thickness: As indicated
  - 5. Design Uncoated-Steel Thicknesses; Deck Unit/Bottom Plate: As indicated
  - 6. Span Condition: Triple span or more.
  - 7. Side Laps: Overlapped

### 2.03 ACCESSORIES

- A. General: Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.
- B. Mechanical Fasteners: Corrosion-resistant, low-velocity, power-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.
- C. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, No. 10 (4.8-mm) minimum diameter.
- D. Flexible Closure Strips: Vulcanized, closed-cell, synthetic rubber.
- E. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of 33,000 psi (230 MPa), not less than 0.0359-inch (0.91-mm) design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.
- F. Pour Stops and Girder Fillers: Steel sheet, minimum yield strength of 33,000 psi (230 MPa), of same material and finish as deck, and of thickness and profile recommended by SDI Publication No. 30 for overhang and slab depth.
- G. Column Closures, End Closures, Z-Closures, and Cover Plates: Steel sheet, of same material, finish, and thickness as deck, unless otherwise indicated.
- H. Piercing Hanger Tabs: Piercing steel sheet hanger attachment devices for use with floor deck.

- I. Weld Washers: Uncoated steel sheet, shaped to fit deck rib, 0.0598 inch (1.52 mm) thick, with factory-punched hole of 3/8-inch (9.5-mm) minimum diameter.
- J. Galvanizing Repair Paint: ASTM A 780

### PART 3 - EXECUTION

#### 3.01 EXAMINATION

- A. Examine supporting frame and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance.

#### 3.02 INSTALLATION, GENERAL

- A. Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 30, manufacturer's written instructions, and requirements in this Section.
- B. Install temporary shoring before placing deck panels, if required to meet deflection limitations.
- C. Locate deck bundles to prevent overloading of supporting members.
- D. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.
- E. Place deck panels flat and square and fasten to supporting frame without warp or deflection.
- F. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.
- G. Provide additional reinforcement and closure pieces at openings as required for strength, continuity of deck, and support of other work.
- H. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.
- I. Mechanical fasteners may be used in lieu of welding to fasten deck. Locate mechanical fasteners and install according to deck manufacturer's written instructions.

#### 3.03 ROOF-DECK INSTALLATION

- A. Fasten roof-deck panels to steel supporting members by arc spot (puddle) welds of the surface diameter indicated or arc seam welds with an equal perimeter that is not less than 1-1/2 inches (38 mm) long, and as follows:
  - 1. Weld Diameter: 5/8 inch (16 mm) nominal.
  - 2. Weld Spacing: Weld edge and interior ribs of deck units with a minimum of two welds per deck unit at each support. Space welds as indicated.
  - 3. Weld Washers: Install weld washers at each weld location.
- B. Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports, at intervals not exceeding the lesser of 1/2 of the span or 18 inches (450 mm) and as follows:
  - 1. Mechanically fasten with self-drilling, No. 10 (4.8-mm-) diameter or larger, carbon-steel screws.
  - 2. Mechanically clinch or button punch.
  - 3. Fasten with a minimum of 1-1/2-inch- (38-mm-) long welds.
- C. End Bearing: Install deck ends over supporting frame with a minimum end bearing of 1-1/2 inches (38 mm), with end joints as follows:
  - 1. End Joints: Lapped 2 inches (51 mm) minimum

- D. Miscellaneous Roof-Deck Accessories: Install ridge and valley plates, finish strips, end closures, and reinforcing channels according to deck manufacturer's written instructions. Weld to substrate to provide a complete deck installation.
  - 1. Weld cover plates at changes in direction of roof-deck panels, unless otherwise indicated.
- E. Flexible Closure Strips: Install flexible closure strips over partitions, walls, and where indicated. Install with adhesive according to manufacturer's written instructions to ensure complete closure.
- F. Sound-Absorbing Insulation: Installation into topside ribs of deck as specified in Division 07 Section

#### 3.04 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Field welds will be subject to inspection.
- C. Testing agency will report inspection results promptly and in writing to Contractor and Architect.
- D. Remove and replace work that does not comply with specified requirements.
- E. Additional inspecting, at Contractor's expense, will be performed to determine compliance of corrected work with specified requirements.

#### 3.05 REPAIRS AND PROTECTION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on both surfaces of deck with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- B. Provide final protection and maintain conditions to ensure that steel deck is without damage or deterioration at time of Substantial Completion.

END OF SECTION 05 31 00

**SECTION 05 4400**  
**COLD FORMED STEEL TRUSS**

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes:
  - 1. Pre-engineered Cold-Formed steel trusses.
  - 2. Cold-formed steel framing accessories.
- B. Related sections:
  - 1. Section 05 31 00 – Steel Deck.
  - 2. DEFINITIONS
- C. Truss Component Manufacturer: The maker of the components that will be assembled into trusses by the Truss Manufacturer. See MANUFACTURERS for acceptable Truss Component Manufacturer.
- D. Truss Manufacturer: An individual or organization engaged in the manufacturing of trusses. See MANUFACTURERS for acceptable Truss Manufacturers.
- E. Truss Design Drawing: Written, graphic and pictorial depiction of an individual truss.
- F. Truss Design Engineer: Person who is licensed to practice engineering as defined by the legal requirements of the jurisdiction in which the building is to be constructed and who supervises the preparation of the truss design drawings. In this case, the Truss Design Engineer is the Truss Component Manufacturer.
- G. Truss Placement Diagram: Illustration identifying the assumed location of each Truss.

1.02 REFERENCES

- A. ANSI/AISI/ S100-2012: North American Specification for the Design of Cold-Formed Steel Structural Members; American Iron and Steel Institute; 2012 edition.
- B. ANSI/AISI /S200-12: North American Standard for Cold-Formed Steel Framing - General Provisions; 2012 edition.
- C. ANSI/AISI/S202-11: Code of Standard Practice for Cold-Formed Steel Structural Framing; 2011 edition.
- D. ANSI/AISI /S214-12: North American Standard for Cold-Formed Steel Framing - Truss Design; 2012 edition.
- E. ASTM A 370-14 - Standard Test Methods and Definitions for Mechanical Testing of Steel Products; 2014.

- F. ASTM A 500-13 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2013.
- G. ASTM A 653-15 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- H. ASTM A 780-09 (2015) – Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dipped Galvanized Coatings; 2009 and reapproved in 2015.
- I. CFSBCSI - Cold-Formed Steel Building Components Safety Information; Cold-Formed Steel Council (CFSC); 2008 edition with insert for Modifications to Chapters CFSB1, B2, & B3.
- J. CFSEI Technical Note 551e - Design Guide for Permanent Bracing of Cold-Formed Steel Trusses; Cold-Formed Steel Engineers Institute; February 1998.

#### 1.03 SUBMITTALS

- A. Product Data: Truss Component Manufacturer's descriptive literature for each item of cold-formed metal framing and each accessory specified in this section.
- B. Truss Design Drawings: Detailed drawings and calculations prepared by Truss Manufacturer under the supervision of the licensed (State of Alabama) Truss Design Engineer that are in accordance with AISI references. These drawings may also include referenced detail drawings germane to the trusses.
- C. Truss Placement Diagram: Diagram that identifies the assumed location of each individually designated truss and references the corresponding Truss Design Drawing.
- D. Installation Instructions: Truss Component Manufacturer's printed instructions for handling, storage, and installation of each item of cold-formed metal framing and each accessory specified in this section.

#### 1.04 QUALITY ASSURANCE

- A. Provide design of trusses by Truss Component Manufacturer, using design methodologies recommended in AISI references.
  - 1. Determine mechanical properties of load bearing components by testing in accordance with ASTM A 370-14.
  - 2. Provide drawings by a Registered Design Professional licensed in the State in which project is to be constructed.
  - 3. Provide Truss Manufacturer's Truss Design Drawings.
- B. Pre-Installation Meeting: Meet at job site prior to scheduled beginning of installation to review requirements:
  - 1. Attendees: Require attendance by representatives of the following:
    - a. Installer of this section.
    - b. Other entities directly affecting, or affected by, construction activities of this section, including but not limited to, the following:
      - Installer of truss support framing.
      - Installer of mechanical systems.

Installer of electrical systems.

2. Review potential interface conflicts; coordinate layout and support provisions.
3. DELIVERY, STORAGE, AND HANDLING OF STEEL TRUSSES

C. Pack, ship, handle, unload, and lift shop products in accordance with Truss Component Manufacturer's recommendations and in manner necessary to prevent damage or distortion.

D. Store and protect products in accordance with Truss Component Manufacturer's recommendations and in manner necessary to prevent damage, distortion and moisture buildup.

E. PRODUCTS

#### 1.05 MANUFACTURERS

A. Acceptable Truss Component Manufacturer: TrusSteel Products from Alpine TrusSteel, An ITW Company; 2400 Lake Orange Dr, Ste 150, Orlando, FL 32837. Tel: (888) 565-9181. www.TrusSteel.com.

B. Acceptable Truss Manufacturers: Truss components shall be fabricated into completed trusses by one of the following fabricators:

1. Cascade Manufacturing Company Inc. 190 Madison Street Cascade Iowa 52033.
2. Power Steel Systems 725 Plantation Drive E Heber Springs AR 72543.
3. Southern Components, Inc. 7360 Julie Francis Drive Shreveport LA 71129.

C. Acceptable Truss Manufacturers: Truss components shall be fabricated into completed trusses by fabricators that have at least 5 years worth of experience in the design and supply of Cold-Formed Steel Trusses.

D. Substitutions: Not permitted.

E. Requests for substitutions will be considered.

1. All substitutions must be approved in writing by the Engineer.
2. All applications for substitution must include samples and technical data.
3. COMPONENTS

F. Pre-Engineered, Pre-Fabricated Cold-Formed Steel Trusses: TrusSteel truss components by Alpine TrusSteel, An ITW Company, meeting specified requirements.

1. Truss Type, Span, and Height: As indicated on drawings.
2. Comply with requirements of 2012 Arkansas Fire Prevention Code.
3. Deflection Under Either Live, Snow or Wind Loads (10 year wind speed): 1/180th of span, maximum.
4. Deflection Under Dead plus Live Loads: 1/120th of span, maximum.
5. Shop fabricate in accordance with Truss Design Drawings, using jiggling systems to ensure consistent component placement and alignment of components, and to maintain specified tolerances; field fabrication is strictly prohibited unless performed by authorized Truss Manufacturer using Truss Manufacturer's shop assemblers and proper jiggling systems.

6. Shop fabrication of other cold-formed steel framing components into assemblies prior to erection is permitted; fabricate assemblies in accordance with shop drawings.
  7. Fasten connections within truss assembly with Truss Component Manufacturer's screws only and as shown on the Truss Design Drawings; welding and other fasteners are prohibited.
  8. Fabricate straight, level, and true, without rack, and to the tolerances specified in ANSI/AISI /S214-12:
- G. Truss Chord and Web Components: All truss components to be symmetrical in profile and loading orientation, with rolled or closed edges to minimize the danger of cutting during handling; chord and web components without rolled edges are prohibited. Galvanize all truss members and fasteners with G90 coating.
1. Shapes, Sizes, and Thicknesses: As required to suit design and as indicated on shop drawings.
  2. Chords: Cold-formed from ASTM A 653/A 653M galvanized steel sheet; minimum yield strength of 55,000 psi (380 MPa) for 22, 20, 18 and 16 GA components or 50,000 psi (345 MPa) for 14 GA and 12 GA components; minimum tensile strength of 65,000 psi (448 MPa) for 22, 20, 18, 16, 14, and 12 GA components.
    - a. Nominal 28 mil (22 GA) members:  
Minimum bare metal thickness: 0.0284 inch (0.72 mm).  
Maximum design thickness: 0.0299 inch (0.76 mm).
    - b. Nominal 33 mil (20 GA) members:  
Minimum bare metal thickness: 0.0329 inch (0.84 mm).  
Maximum design thickness: 0.0346 inch (0.88 mm).
    - c. Nominal 43 mil (18 GA) members:  
Minimum bare metal thickness: 0.0428 inch (1.09 mm).  
Maximum design thickness: 0.0451 inch (1.15 mm).
    - d. Nominal 54 mil (16 GA) members:  
Minimum bare metal thickness: 0.0538 inch (1.37 mm).  
Maximum design thickness: 0.0566 inch (1.44 mm).
    - e. Nominal 68 mil (14 GA) members:  
Minimum bare metal thickness: 0.0677 inch (1.72 mm).  
Maximum design thickness: 0.0713 inch (1.81 mm).
    - f. Nominal 97 mil (12 GA) members:  
Minimum bare metal thickness: 0.0966 inch (2.46 mm).  
Maximum design thickness: 0.1017 inch (2.58 mm).
  3. Tube Webs: Cold-formed ASTM A500 steel structural tubing; minimum yield strength of 45,000 psi (310 MPa); minimum tensile strength of 55,000 psi (380 MPa).
    - a. Nominal 33 mil (20 GA) members:  
Minimum bare metal thickness: 0.033 inch (0.84 mm).  
Maximum design thickness: 0.035 inch (0.89 mm).
    - b. Nominal 47 mil (18 GA) members:  
Minimum bare metal thickness: 0.047 inch (1.19 mm).  
Maximum design thickness: 0.049 inch (1.24 mm).
    - c. Nominal 63 mil (16 GA) members:  
Minimum bare metal thickness: 0.063 inch (1.6 mm).  
Maximum design thickness: 0.065 inch (1.65 mm).



4. Rolled formed Webs: Cold-formed from ASTM A 653/A 653M galvanized steel sheet, minimum G60 coating; minimum yield strength of 40,000 psi (276 MPa) for 20 and 18 GA components or 50,000 psi (345 MPa) for 16 GA components; minimum tensile strength of 55,000 psi (379 MPa) for 20 and 18 GA components or 65,000 psi (448 MPa) for 16 GA components.
  - a. Nominal 33 mil (20 GA) members:  
Minimum bare metal thickness: 0.0329 inch (0.84 mm).  
Maximum design thickness: 0.0346 inch (0.88 mm).
  - b. Nominal 43 mil (18 GA) members:  
Minimum bare metal thickness: 0.0428 inch (1.09 mm).  
Maximum design thickness: 0.0451 inch (1.15 mm).
  - c. Nominal 54 mil (16 GA) members:  
Minimum bare metal thickness: 0.0538 inch (1.37 mm).  
Maximum design thickness: 0.0566 inch (1.44 mm).
  
- H. Fasteners Used in Fabricating Trusses: Fasteners as recommended by Truss Component Manufacturer, bearing stamp of Truss Component Manufacturer for ready identification.
  
- I. EXECUTION
  
- 1.06 EXAMINATION
  - A. Verify that bearing surfaces and substrates are ready to receive steel trusses.
  
  - B. Verify that truss bearing surfaces are within the following tolerances:
    1. Variation from Level or Specified Plane: Maximum 1/8 inch in 10 feet (6 mm in 3 m).
    2. Variation from Specified Position: Maximum 1/4 inch (6 mm).
  
  - C. Verify that rough-in utilities and chases that will penetrate plane of trusses are in correct locations and do not interfere with truss, bracing, or bridging placement.
  
  - D. Inspect conditions under which installation is to be performed and submit written notification if such conditions are unacceptable to installer.
    1. Notify Architect/Building Designer within 24 hours of inspection.
    2. Beginning construction activities of this section before unacceptable conditions have been corrected is prohibited.
    3. Beginning construction activities of this section indicates installer's acceptance of conditions.
  
  4. INSTALLATION
  
  - E. Install trusses in accordance with Truss Component Manufacturer's instructions and Truss Manufacturer's Truss Design Drawings and Truss Placement Diagram. Use correct fasteners as previously described.
  
  - F. Place components at spacings indicated on the Truss Design Drawings.
  
  - G. Install all erection (temporary installation) bracing and permanent bracing and bridging before application of any loads; follow recommendations of the CFSBCSI - Cold-Formed Steel Building Components Safety Information.

- H. Install erection bracing - follow recommendations of the CFSBCSI - Cold-Formed Steel Building Components Safety Information.
  - 1. Provide bracing that holds trusses straight and plumb and in safe condition until decking and permanent truss bracing has been fastened to form a structurally sound framing system.
  - 2. All subcontractors shall employ proper construction procedures to ensure adequate distribution of temporary construction loads so that the carrying capacity of any single truss or group of trusses is not exceeded.
- I. Install permanent bracing and bridging as shown in the Architect/Building Designer's drawings and notes and in the locations shown on the Truss Manufacturer's Truss Design Drawings.
- J. Removal, cutting, or alteration of any truss chord, web or bracing member in the field is prohibited, unless approved in advance in writing by the Architect/Building Designer and the Truss Design Engineer.
- K. Repair or replace damaged chords, webs, and complete trusses as directed and approved in writing in advance by the Architect/Building Designer and the Truss Component Manufacturer.

1.07 FIELD QUALITY CONTROL

- A. Owner will provide inspection service to inspect field connections.

1.08 REPAIRS AND PROTECTION

- A. Galvanizing repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed steel trusses with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- B. Provide final protection and maintain conditions in a manner acceptable to the manufacturer and installer, that ensure the cold-formed steel trusses are without damage or deterioration at the time of substantial completion.

END OF SECTION 05 44 00

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**SECTION 055000**

**METAL FABRICATIONS**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions, USA Special Conditions, GMC Special Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Steel framing and supports for countertops.
2. Steel tube reinforcement for low partitions.
3. Steel framing and supports for mechanical and electrical equipment.
4. Steel framing and supports for applications where framing and supports are not specified in other Sections.
5. Metal bollards.
6. Loose bearing and leveling plates for applications where they are not specified in other Sections.

B. Products furnished, but not installed, under this Section include the following:

1. Loose steel lintels.
2. Anchor bolts, steel pipe sleeves, slotted-channel inserts, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.
3. Steel weld plates and angles for casting into concrete for applications where they are not specified in other Sections.

C. Related Requirements:

1. Section 033000 "Cast-in-Place Concrete" for installing anchor bolts, steel pipe sleeves, slotted-channel inserts, wedge-type inserts, and other items cast into concrete.
2. Section 042000 "Unit Masonry" for installing loose lintels, anchor bolts, and other items built into unit masonry.
3. Section 051200 "Structural Steel Framing."

1.3 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of metal fabrications that are anchored to or that receive other work. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.4 ACTION SUBMITTALS

- A. Product Data: For the following:
  - 1. Nonslip aggregates and nonslip-aggregate surface finishes.
  - 2. Paint products.
  - 3. Grout.
- B. Shop Drawings: Show fabrication and installation details. Provide Shop Drawings for the following:
  - 1. Steel framing and supports for ceiling-hung medical equipment and surgical lighting.
  - 2. Steel framing and supports for mechanical and electrical equipment.
  - 3. Steel framing and supports for applications where framing and supports are not specified in other Sections.
  - 4. Metal bollards.
  - 5. Metal downspout boots.
  - 6. Loose bearing and leveling plates for applications where they are not specified in other sections.
  - 7. Loose steel lintels.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For professional engineer.
- B. Mill Certificates: Signed by stainless-steel manufacturers, certifying that products furnished comply with requirements.
- C. Welding certificates.
- D. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.

- E. Research/Evaluation Reports: For post-installed anchors, from ICC-ES.

## 1.6 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- B. Welding Qualifications: Qualify procedures and personnel according to the following:
  - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
  - 2. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."
  - 3. AWS D1.6/D1.6M, "Structural Welding Code - Stainless Steel."

## 1.7 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.
  - 1. Temperature Change: 120 deg F ambient; 180 deg F material surfaces.

### 2.2 METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- C. Stainless-Steel Sheet, Strip, and Plate: ASTM A 240/A 240M or ASTM A 666, Type 304.
- D. Stainless-Steel Bars and Shapes: ASTM A 276, Type 304.
- E. Steel Tubing: ASTM A 500/A 500M, cold-formed steel tubing.

- F. Steel Pipe: ASTM A 53/A 53M, Standard Weight (Schedule 40) unless otherwise indicated.
- G. Slotted Channel Framing: Cold-formed metal box channels (struts) complying with MFMA-4.
  - 1. Size of Channels: 1-5/8 by 1-5/8 inches or, as required by application.
  - 2. Material: Structural steel, Grade 33, with G90coating; 0.108-inch nominal thickness.
- H. Cast Iron: Either gray iron, ASTM A 48/A 48M, or malleable iron, ASTM A 47/A 47M, unless otherwise indicated.
- I. Aluminum Plate and Sheet: ASTM B 209 Alloy 6061-T6.
- J. Aluminum Extrusions: ASTM B 221 Alloy 6063-T6.
- K. Aluminum-Alloy Rolled Tread Plate: ASTM B 632/B 632M, Alloy 6061-T6.
- L. Aluminum Castings: ASTM B 26/B 26M, Alloy 443.0-F.

## 2.3 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941 Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.
  - 1. Provide stainless-steel fasteners for fastening aluminum.
  - 2. Provide stainless-steel fasteners for fastening stainless steel.
  - 3. Provide stainless-steel fasteners for fastening nickel silver.
  - 4. Provide bronze fasteners for fastening bronze.
- B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 325, Type 3 with hex nuts, ASTM A 563, Grade C3 and, where indicated, flat washers.
- C. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, ASTM F 593 with hex nuts, ASTM F 594 and, where indicated, flat washers; Alloy Group 1.
- D. Anchor Bolts: ASTM F 1554, Grade 36, of dimensions indicated; with nuts, ASTM A 563; and, where indicated, flat washers.
  - 1. Hot-dip galvanize or provide mechanically deposited, zinc coating where item being fastened is indicated to be galvanized.
- E. Anchors, General: Anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed

when installed in concrete, as determined by testing according to ASTM E 488/E 488M, conducted by a qualified independent testing agency.

- F. Cast-in-Place Anchors in Concrete: Either threaded type or wedge type unless otherwise indicated; galvanized ferrous castings, either ASTM A 47/A 47M malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, all hot-dip galvanized per ASTM F 2329.
- G. Post-Installed Anchors: Torque-controlled expansion anchors or chemical anchors.
  - 1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, unless otherwise indicated.
  - 2. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless-steel bolts, ASTM F 593, and nuts, ASTM F 594.
- H. Slotted-Channel Inserts: Cold-formed, hot-dip galvanized-steel box channels (struts) complying with MFMA-4, 1-5/8 by 7/8 inches by length indicated with anchor straps or studs not less than 3 inches long at not more than 8 inches o.c. Provide with temporary filler and tee-head bolts, complete with washers and nuts, all zinc-plated to comply with ASTM B 633, Class Fe/Zn 5, as needed for fastening to inserts.

#### 2.4 MISCELLANEOUS MATERIALS

- A. Low-Emitting Materials: Paints and coatings shall comply with the testing and product requirements of the California Department of Public Health's (formerly, the California Department of Health Services) "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- B. Shop Primers: Provide primers that comply with Section 099113 "Exterior Painting," Section 099123 Interior Painting," and Section 099600 "High-Performance Coatings."
- C. Shop Primer for Galvanized Steel: Primer formulated for exterior use over zinc-coated metal and compatible with finish paint systems indicated.
- D. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.
- E. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.
- F. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- G. Concrete: Comply with requirements in Section 033000 "Cast-in-Place Concrete" for normal-weight, air-entrained, concrete with a minimum 28-day compressive strength of 3000 psi.

2.5 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
- J. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches, with a minimum 6-inch embedment and 2-inch hook, not less than 8 inches from ends and corners of units and 24 inches o.c., unless otherwise indicated.



2.6 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.
  - 1. Fabricate units from slotted channel framing where indicated.
  - 2. Furnish inserts for units installed after concrete is placed.
- C. Fabricate supports for ceiling-hung medical equipment from steel angles, plates, and other members, of sizes indicated, with attached bearing plates, anchors, and braces as indicated, or as recommended by partition manufacturer. Drill or punch bottom flanges of mounting plates to receive equipment hanger rods; locate holes where indicated on equipment Shop Drawings.
- D. Galvanize miscellaneous framing and supports where indicated.
- E. Prime miscellaneous framing and supports with zinc-rich primer where indicated.
  - 1. Galvanize exterior ladders, including brackets.

2.7 METAL BOLLARDS

- A. Fabricate metal bollards from [**Schedule 40 steel pipe**] [**Schedule 80 steel pipe**] [**1/4-inch wall-thickness rectangular steel tubing**] [**steel shapes, as indicated**].
  - 1. Cap bollards with 1/4-inch-thick steel plate.
  - 2. Where bollards are indicated to receive controls for door operators, provide cutouts for controls and holes for wire.
  - 3. Where bollards are indicated to receive light fixtures, provide cutouts for fixtures and holes for wire.
- B. Fabricate bollards with 3/8-inch-thick steel baseplates for bolting to concrete slab. Drill baseplates at all four corners for 3/4-inch anchor bolts.
  - 1. Where bollards are to be anchored to sloping concrete slabs, angle baseplates for plumb alignment of bollards.
- C. Fabricate sleeves for bollard anchorage from steel pipe with 1/4-inch-thick steel plate welded to bottom of sleeve. Make sleeves not less than 8 inches deep and 3/4 inch larger than OD of bollard.
- D. Fabricate internal sleeves for removable bollards from Schedule 40 steel pipe or 1/4-inch wall-thickness steel tubing with an OD approximately 1/16 inch less than ID of bollards. Match drill sleeve and bollard for 3/4-inch steel machine bolt.

- E. Prime bollards with zinc-rich primer. Paint Black

## 2.8 LOOSE BEARING AND LEVELING PLATES

- A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.
- B. Galvanize plates.
- C. Prime plates with zinc-rich primer.

## 2.9 LOOSE STEEL LINTELS

- A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Fabricate in single lengths for each opening unless otherwise indicated. Weld adjoining members together to form a single unit where indicated.
- B. Size loose lintels to provide bearing length at each side of openings equal to 1/12 of clear span, but not less than 8 inches unless otherwise indicated.
- C. Galvanize and prime loose steel lintels located in exterior walls.

## 2.10 STEEL WELD PLATES AND ANGLES

- A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the Work. Provide each unit with no fewer than two integrally welded steel strap anchors for embedding in concrete.

## 2.11 FINISHES, GENERAL

- A. Finish metal fabrications after assembly.
- B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

## 2.12 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153/A 153M for steel and iron hardware and with ASTM A 123/A 123M for other steel and iron products.
  - 1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.

- B. Preparation for Shop Priming Galvanized Items: After galvanizing, thoroughly clean railings of grease, dirt, oil, flux, and other foreign matter, and treat with metallic phosphate process.
- C. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.
  - 1. Shop prime with universal shop primer unless indicated.
- D. Preparation for Shop Priming: Prepare surfaces to comply with requirements indicated below:
  - 1. Exterior Items: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
  - 2. Items Indicated to Receive Zinc-Rich Primer: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
  - 3. Items Indicated to Receive Primers Specified in Section 099600 "High-Performance Coatings": SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
  - 4. Other Items: SSPC-SP 3, "Power Tool Cleaning."
- E. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
  - 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Field Welding: Comply with the following requirements:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.

- 
4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.
  - E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
  - F. Corrosion Protection: Coat concealed surfaces of aluminum that come into contact with grout, concrete, masonry, wood, or dissimilar metals with the following:
    1. Cast Aluminum: Heavy coat of bituminous paint.
    2. Extruded Aluminum: Two coats of clear lacquer.
- 3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS
- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.
  - B. Anchor supports for ceiling hung equipment securely to, and rigidly brace from, building structure.
- 3.3 INSTALLING METAL BOLLARDS
- A. Fill metal-capped bollards solidly with concrete and allow concrete to cure seven days before installing.
  - B. Anchor bollards in place with concrete footings. Center and align bollards in holes 3 inches above bottom of excavation. Place concrete and vibrate or tamp for consolidation. Support and brace bollards in position until concrete has cured.
  - C. Fill bollards solidly with concrete, mounding top surface to shed water.
- 3.4 INSTALLING BEARING AND LEVELING PLATES
- A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.

- B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with nonshrink grout. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

### 3.5 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
  - 1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.
- B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Section 099113 "Exterior Painting" or Section 099123 "Interior Painting."
- C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780/A 780M.

END OF SECTION 055000

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**SECTION 06 10 00**

**ROUGH CARPENTRY**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. Section Includes:

1. Framing with dimension lumber.
2. Rooftop equipment bases and support curbs.
3. Wood blocking, cants, and nailers.
4. Plywood backing panels.

- B. Related Requirements:

1. Coordinate this specification sections with Structural Drawings and Specifications
2. Specification Section -061600 Sheathing

**1.3 DEFINITIONS**

- A. Boards or Strips: Lumber of less than 2 inches nominal size in least dimension.
- B. Dimension Lumber: Lumber of 2 inches nominal size or greater but less than 5 inches nominal size in least dimension.
- C. Exposed Framing: Framing not concealed by other construction.
- D. Timber: Lumber of 5 inches nominal size or greater in least dimension.

**1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with

- requirements. Indicate type of preservative used and net amount of preservative retained.
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
  3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D5664.
  4. For products receiving a waterborne treatment, include written statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

- B. Fastener Patterns: Full-size templates for fasteners in exposed framing.

### **1.5 INFORMATIONAL SUBMITTALS**

- A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.
- B. Evaluation Reports: For the following, from ICC-ES:
1. Wood-preservative-treated wood.
  2. Fire-retardant-treated wood.
  3. Power-driven fasteners.
  4. Post-installed anchors.
  5. Metal framing anchors.

### **1.6 QUALITY ASSURANCE**

- A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

### **1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Stack wood products flat with spacers beneath and between each bundle to provide air circulation. Protect wood products from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.



## **PART 2 - PRODUCTS**

### **2.1 WOOD PRODUCTS, GENERAL**

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
  - 1. Factory mark each piece of lumber with grade stamp of grading agency.
  - 2. Dress lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 19 percent for 2-inch nominal thickness or less; no limit for more than 2-inch nominal thickness unless otherwise indicated.

### **2.2 WOOD-PRESERVATIVE-TREATED LUMBER**

- A. Preservative Treatment by Pressure Process: AWWA U1; Use Category UC2.
  - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
  - 2. For exposed items indicated to receive a stained or natural finish, chemical formulations shall not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- D. Application: Treat items indicated on Drawings, and the following:
  - 1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.

### **2.3 FIRE-RETARDANT-TREATED MATERIALS**

- A. General: Where fire-retardant-treated materials are indicated, materials shall comply with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
  - 1. Treatment shall not promote corrosion of metal fasteners.
  - 2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D2898.
  - 3. Design Value Adjustment Factors: Treated lumber shall be tested according to ASTM D5664 and design value adjustment factors shall be calculated according to ASTM D6841.
- C. Kiln-dry lumber after treatment to maximum moisture content of 19 percent.
- D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.
- E. For exposed items indicated to receive a stained or natural finish, chemical formulations shall not bleed through, contain colorants, or otherwise adversely affect finishes.
- F. Application: Treat items indicated on Drawings, and the following:
  - 1. Concealed blocking.
  - 2. Roof construction.
  - 3. Plywood backing panels.

## **2.4 MISCELLANEOUS LUMBER**

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
  - 1. Blocking.
  - 2. Nailers.
  - 3. Rooftop equipment bases and support curbs.
  - 4. Cants.
- B. Dimension Lumber Items: Construction or No.2 grade lumber of any of the following species:
  - 1. Hem-fir (north); NLGA.
  - 2. Mixed southern pine or southern pine; SPIB.
  - 3. Spruce-pine-fir; NLGA.
  - 4. Hem-fir; WCLIB or WWPA.
  - 5. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.

6. Eastern softwoods; NeLMA.
- C. Concealed Boards: 19 percent maximum moisture content and the following species and grades:
    1. Mixed southern pine or southern pine; No. 2 grade; SPIB.
    2. Hem-fir or hem-fir (north); Construction or No. 2 Common grade; NLGA, WCLIB, or WWPA.
    3. Spruce-pine-fir (south) or spruce-pine-fir; Construction or No. 2 Common grade; NeLMA, NLGA, WCLIB, or WWPA.
    4. Eastern softwoods; No. 2 Common grade; NeLMA.
  - D. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
  - E. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

## **2.5 PLYWOOD BACKING PANELS**

- A. Equipment Backing Panels: Unless otherwise noted on drawings, Plywood, DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

## **2.6 FASTENERS**

- A. General: Fasteners shall be of size and type indicated and shall comply with requirements specified in this article for material and manufacture.
  1. Where rough carpentry is exposed to pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M.
- B. Nails, Brads, and Screws: ASTM F1667. No construction staples.
- C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- D. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01, ICC-ES AC58, ICC-ES AC193, or ICC-ES AC308 as appropriate for the substrate.
  1. Material: Carbon-steel components, zinc plated to comply with ASTM B633, Class Fe/Zn 5.

## **2.7 METAL FRAMING ANCHORS**

- A. Allowable design loads, as published by manufacturer, shall meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency. Framing anchors shall be punched for fasteners adequate to withstand same loads as framing anchors.
- B. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A653/A653M, G60 coating designation.
  - 1. Use for interior locations unless otherwise indicated.
- C. Hot-Dip, Heavy-Galvanized Steel Sheet: ASTM A653/A653M; structural steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G185 coating designation; and not less than 0.036 inch thick.
  - 1. Use for wood-preservative-treated lumber and where indicated.

## **2.8 MISCELLANEOUS MATERIALS**

- A. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber or rubberized-asphalt compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION, GENERAL**

- A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- B. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- C. Install plywood backing panels by fastening to studs; coordinate locations with roofing wall base flashing needs and utilities requiring backing panels. Install fire-retardant-treated plywood backing panels with classification marking of testing agency exposed to view.
- D. Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

- E. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
  - 1. Provide metal clips for fastening gypsum board at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- F. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- G. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
  - 1. Use inorganic boron for items that are continuously protected from liquid water.
  - 2. Use copper naphthenate for items not continuously protected from liquid water.
- H. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.
- I. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
  - 1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code (IBC).
  - 2. ICC-ES evaluation report for fastener.
- J. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

### **3.2 INSTALLATION OF WOOD BLOCKING AND NAILERS**

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

**3.3**

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.
- B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet enough that moisture content exceeds that specified, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.
- C. Do not overload the roof sheathing with lumber or plywood stored on completed low-slope roofing area.

**END OF SECTION 06 10 00**

**SECTION 06 4000**

**ARCHITECTURAL WOODWORK**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. Related work specified elsewhere includes:
  - 1. Section 06 1000 - "Rough Carpentry"
  - 2. Section 06 2000 - "Finish Carpentry"
  - 3. Section 07 9200 - "Joint Sealers"
  - 4. Section 08 1416 - "Flush Wood Doors"
  - 5. Section 09 9000 - "Painting"

**1.2 DESCRIPTION OF WORK:**

- A. Extent of each type of architectural woodwork is indicated on drawings and in schedules.
- B. Types of architectural woodwork include the following, and related work and trim:
  - 1. Laminate clad cabinets and countertops
  - 2. Wood cabinets and countertops.
  - 3. Closet and utility shelving (paint on site, under Section 099123).
  - 4. Wood frames, panels, base, and miscellaneous trim (paint on site, under Section 099123), painted (opaque finish) unless specifically indicated otherwise; or stained (transparent finish) only where specifically indicated.
  - 5. Wood panels, mouldings, trim and related work.
  - 6. Hardware for architectural woodwork.
  - 7. Stone countertops, inserts, backsplash, and as otherwise indicated on the Drawings.
- C. Architectural woodwork and components for opaque finish are intended to be finish painted on-site, under Section 09900.
- D. Architectural woodwork and components for natural, stained and/or transparent finish (IF ANY) are intended to be painted in woodwork fabricator's shop under controlled conditions, under the work of this Section 064000.

1.3 QUALITY ASSURANCE:

- A. AWI Quality Standard: Comply with applicable requirements of “Architectural Woodwork Quality Standards” published by the Architectural Woodwork Institute (AWI), except as otherwise indicated.
- B. Fabricator Qualifications: Fabricators shall be experienced firms specializing in the types of architectural woodwork required for this project for at least 5-verifiable years and on at least 5-verifiable projects of similar size, scope, complexity, and quality as this project.
  - 1. Architectural Woodwork Fabricator: 5-years and 10-verifiable projects.
- C. Installer Qualifications: Arrange for installation of architectural woodwork by a firm which can demonstrate at least 5-verifiable years successful experience in installing architectural woodwork items on at least 5-verifiable projects, similar in type and quality to those required for this project.
- D. Refer to Section 01015 - “Special Conditions”, for additional information and minimum experience requirements.

1.4 SUBMITTALS:

- A. Shop Drawings: Submit shop drawings showing location of each item, dimensioned plans and elevations, large scale details, attachment devices and other components.
  - 1. Manufacturer’s current and complete product data, for manufactured units of work, including color selection data and samples; and design load capacities for any wood columns, and their plinths and anchorage systems.
- B. Samples: Submit the following samples:
  - 1. Lumber and panel products with or for transparent finish; 6-inches x 3/4-inch x 18-inches, for each species and cut, finished on 1-side and 1-edge.
  - 2. Lumber and panel products with factory-applied opaque finish, 8-inches x 10-inches, for each finish system and color.
  - 3. Stone: Manufacturer’s standard samples, approximately 12-inches x 12-inches with finish as required for this project, and representative color range anticipated.
  - 4. Exposed Cabinet Hardware Support Hardware: One unit of each type and finish, which will be returned for use on the project, upon request by the Contractor.



1.5 DELIVERY, STORAGE, AND HANDLING:

- A. Protect woodwork during transit, delivery, storage and handling to prevent damage, soiling and deterioration.
- B. Do not deliver woodwork, until painting, wet work, grinding and similar operations which could damage, soil or deteriorate woodwork have been completed in installation areas. If, due to unforeseen circumstances, woodwork must be stored in other than installation areas, store only in areas meeting requirements specified for installation areas.

1.6 PROJECT CONDITIONS:

- A. Conditioning: Woodwork Manufacturer and Installer shall advise Contractor of temperature and humidity requirements for woodwork installation and storage areas. Do not install woodwork until required temperature and relative humidity have been stabilized and will be maintained in installation areas.
- B. Maintain temperature and humidity in installation area as required to maintain moisture content of installed woodwork within a 1.0-percent tolerance of optimum moisture content, from date of installation through remainder of construction period. Require Woodwork Manufacturer to establish optimum moisture content and required temperature and humidity conditions.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

- A. Laminate Clad Cabinet Manufacturers: Subject to compliance with requirements, provide premium grade custom made cabinets and woodwork from a millwork shop complying with requirements of "Quality Assurance" article above.
- B. Plastic Laminate Manufacturer: Subject to compliance with requirements, provide solid, stippled, textured, and/or patterned high pressure decorative laminates of one of the following:
  - 1. Wilsonart/Ralph Wilson Plastics Co.
  - 2. Formica Corporation.
  - 3. Micarta Division, Westinghouse Electric Corporation.
  - 4. Nevamar Division, International Paper Co.

2.2 FABRICATION, GENERAL:

- A. Wood Moisture Content: Comply with requirements of referenced quality standard for moisture content of lumber at time of fabrication and for relative humidity conditions in the installation areas.
- B. Fabricate woodwork to dimensions, profiles, and details indicated with dowel, dado, glue and screw construction, with openings and mortises precut, where possible, to receive hardware and other items and work.
  - 1. Ease edges to a 1/16-inch radius, for corners of cabinets and edges of solid wood (lumber) members less than 1-inch in nominal thickness, 1/8-inch radius for edges of rails and similar members over 1-inch in nominal thickness.
- C. Complete fabrication, assembly, hardware application, and other work before shipment to project site to maximum extent possible. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
- D. Pre-Cut Openings: Fabricate architectural woodwork with pre-cut openings, where possible, to receive hardware, appliances, plumbing fixtures, electrical work and similar items. Locate openings accurately and use templates or roughing-in diagrams for proper size and shape. Smooth edges of cutoffs and, where located in countertops and similar exposures seal edges of cutouts with a water-resistant coating.
- E. Measurements: Before proceeding with fabrication of woodwork required to be fitted to other construction, obtain field measurements and verify dimensions and shop drawing details as required for accurate fit. A tight fit of less than 1/8-inch is expected.

2.3 FIRE-RETARDANT MATERIALS:

- A. Where fire-retardant treated lumber is indicated, provide materials which are pressure impregnated with fire-retardant chemicals and comply with the following requirements:
  - 1. As required to comply with referenced standards and finish classifications necessary as per the International Building Code, NFPA 101 - Life Safety Code, authorities having jurisdiction, and acceptable in all respects for indoor use and finish requirements.
  - 2. Fire-Retardant Chemicals: Use chemicals of type and for applications indicated which do not bleed-through or otherwise adversely affect finishes. Do not use colorants in solution to distinguish treated lumber from untreated lumber.
- B. Fire Performance Characteristics: Provide materials which are identical to those tested per ASTM methods and time periods indicated, are marked and listed for fire performance characteristics by Underwriters Laboratories, Inc., or other testing and inspecting agency

acceptable to authorities having jurisdiction, and comply with the following requirements:

1. Mill lumber after treatment, within limits set for wood removal which does not affect listed fire performance characteristics, using a woodworking plant certified by testing and inspecting agency.
- C. Marking: Identify treated lumber with separable paper classification marking of inspecting and testing agency, unless otherwise indicated.
- D. Surface Burning Characteristics: Not exceeding values required by latest edition of the "International Building Code" and "NFPA 101" (with amendments), tested per ASTM E 84 for standard time period.
1. Flame Spread: Per Code.
  2. Smoke Developed: Per Code.
- E. Kiln-dry woodwork after treatment to levels required for non-fire-retardant treated woodwork materials. Maintain moisture content required by kiln drying, before and after treatment.
1. Discard treated lumber which does not comply with requirements of referenced woodworking standard. Do not use twisted, warped, bowed, discolored, or otherwise damaged or defective lumber.

2.4 STANDING AND RUNNING TRIM, AND SILLS:

- A. Quality Standard: Comply with AWI Section 300.
- B. Rout or groove backs of flat trim members, kerf backs of other wide flat members, except for members with ends exposed in finished work.
- C. Assemble Casings in plant except where limitations of access to place of installation require field assembly.
- D. Interior Trim and Sills for Transparent Finish (only where specifically indicated, if any); Comply with the following requirements:
1. Grade: Premium.
  2. Lumber Species: Select Poplar, unless otherwise indicated.
  3. Cut: Plain Sliced.
  4. Locations: Provide stained transparent finish within rooms which have new woodwork with transparent finish, and all other exposed locations, unless indicated otherwise.

- E. Interior trim and Sills for Opaque Finish; (typical finish unless specifically indicated otherwise); Comply with the following requirements:
1. Grade: Premium.
  2. Lumber Species: Any closed-grain hardwood listed in referenced woodworking standard.
  3. Cut: Plain or Rotary cut.
  4. Locations: Provide opaque finish within rooms which have new woodwork with opaque finish, unless indicated otherwise.

2.5 ARCHITECTURAL CABINET TOPS:

- A. Quality Standard: Comply with applicable 400 and its Divisions 400B and 400C.
- B. Type of Top – Solid Surface
1. Type: Solid Surface
  2. Colors, Patterns and Finishes: As indicated, or if not indicated, as selected from any of manufacturer's standard finishes and colors.
    - a. Basis of Design: Corian
      - Or equal.
    - b. Color: Refer to Finish Schedule, if none selected color as selected by Architect from Manufacturer's FULL RANGE OF COLORS (not only the standard lines)
    - c. Finish: Polished.
  3. Edge Treatment: Eased Edge unless noted otherwise on the Construction Documents.
  4. Thickness - Tops and Substrates:
    - a. Tops: 1/2-inch, unless indicated otherwise on the Drawings.
    - b. Built-Up Edges: 1-1/2 inches, unless indicated otherwise on the Drawings.
    - c. Substrates: Refer to the Drawings for thickness of plywood below solid surface or if not indicated, at least 1-inch thick
- C. Type of Top - Laminate Clad:
1. Grade: Premium; Grade I.

2. Color, Patterns, and Finishes: As indicated, or if not indicated, as selected from any of manufacturer's standard finishes and colors.
  3. Edge Treatment: HPDL to match exposed face; Back- and end-splash pieces similar.
  4. Core: Minimum 47-lb. density particle board, except at least 3/4-inch A-B plywood with exterior glue (approved for interior use), at tops with sinks and/or plumbing fixtures.
  5. Minimum Thickness: 1-1/4-inches at exposed edges, 3/4-inch at tops and splashes, unless indicated otherwise on the Drawings.
- D. Type of Top - Wood Panel Product for Opaque Finish:
1. Grade: Premium.
  2. Wood Species: Any closed-grain hardwood listed in referenced woodworking standard;
  3. Cut: Plain or Rotary cut.
  4. Matching of Adjacent Veneer Leaves: Not required.
  5. Edge Treatment: Solid wood matching face for species and cut.
  6. Core Material: Medium-density moisture resistant particleboard or veneer core plywood with exterior glue (approved for interior use).
  7. Thickness: As indicated, or if not indicated, at least 3/4-inch.
- E. Type of Top - Wood Panel Product for Transparent Finish:
1. Grade: Premium.
  2. Wood Species: AWI Veneer Grade A, Poplar, Plain Sliced, unless specifically indicated otherwise.
  3. Matching of Adjacent Veneer Leaves: Slip match.
  4. Veneer Matching Within Panel Face: Balanced center match, and end match.
  5. Edge Treatment: Solid wood matching face for species and cut.
  6. Core Material: Medium-density moisture resistant particleboard or veneer core

plywood with exterior glue (approved for interior use).

7. Thickness: As indicated, or if not indicated, at least 3/4-inch.

## 2.6 CABINET HARDWARE AND ACCESSORY MATERIALS:

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets, except for items which are specified in Division 8 Section "Finish Hardware."
- B. Cabinet Hardware Schedule: Refer to schedule at end of this section for cabinet hardware required for architectural cabinets.
- C. Hardware Standard: Comply with ANSI/BHMA A156.9 "American National Standard for Cabinet Hardware" for items indicated by reference to BHMA numbers or referenced to this standard.
- D. Hardware Finishes: Comply with BHMA 1301 for finishes indicated by BHMA Code Numbers or if not otherwise indicated, provide finishes complying with requirements indicated.
  1. For exposed hardware comply with requirements indicated for finish and base indicated at the end of this Section 064000.
  2. For concealed hardware provide manufacturer's standard brushed chrome or brass finish which complies with product class requirements of ANSI/BHMA A156.9, and to match exposed hardware on same cabinet unit.

## 2.7 CLOSET AND UTILITY SHELVING:

- A. Quality Standard: Comply with AWI Section 600.
- B. Shelving for Opaque Finish: Comply with the following requirements:
  1. Grade: Premium.
  2. Shelving Material: Birch faced veneer core plywood.
  3. Exposed Edging: Solid hardwood.
  4. Thickness: 1-inch at wood shelves, unless indicated otherwise
- C. Shelving for *Transparent* Finish: Comply with the following requirements:
  1. Location: Only in rooms where specifically indicated on Drawings.

2. Grade: Premium.
3. Species: AWI Veneer Grade A, Select Poplar, Rotary Cut, unless otherwise indicated on the Drawings.
4. Thickness (plywood): 1-inch (minimum), with solid wood nosing.
5. Lumber for shelving, *only* where indicated on the Drawings: 5/4-inch with nosings as indicated.

2.8 CLOSET AND UTILITY SHELVING HARDWARE:

A. Adjustable Shelf Standards and Related Supports:

1. Provide standards and supports of type indicated, with matching finish on fasteners and accessories.
2. Horizontal Slotted Type:
  - a. Mortise mounted, 5/8-inch wide x 3/16-inch high x length indicated, plated steel.
  - b. Equivalent to K & V No. 255, BRN.
3. Support Type:
  - a. Closed shelf rest, bronze plated steel.
  - b. Equivalent to K & V No. 256, BRN.
4. Closet Hanger Rod and Support:
  - a. Rod: Equivalent to K&V No. 770-1.
  - b. Supports: Equivalent to K&V No. 734 and No. 735, one (1) each per rod.

2.9 FASTENERS AND ANCHORS:

- A. Screws: Select material, type, size and finish required for each use. Comply with FS FF-S-111 for applicable requirements.
- B. Nails: Select material, type, size and finish required for each use. Comply with FS FF-N-105 for applicable requirements.

- C. Anchors: Select material, type, size and finish required by each substrate for secure anchorage. Provide non-ferrous metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion-resistance. Provide toothed steel or lead expansion bolt devices for drilled-in-place anchors. Furnish inserts and anchors, as required, to be set into concrete or masonry work for subsequent woodwork anchorage.

2.10 FINISHING OF INTERIOR ARCHITECTURAL WOODWORK:

- A. Quality Standard: Comply with AWI Section 1500, unless otherwise indicated.
- B. Preparations for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing of concealed surfaces and similar preparations for finishing of architectural woodwork, as applicable to each unit of work.

2.11 ARCHITECTURAL LAMINATE CLAD CABINETS:

- A. Quality Standard:
  - 1. Comply with AWI Section 400 and its Divisions 400B and 400C.
  - 2. Grade: Premium.
  - 3. Design: Flush overlay European style with concealed adjustable hinges, and as otherwise indicated on the Drawings.
- B. Laminate Cladding: High pressure decorative laminate complying with NEMA LD 3 and as follows:
  - 1. Colors, Patterns and Finishes: As indicated or, if not otherwise indicated, as selected by Architect from laminate manufacturers' standard products in the following categories: Solid, stippled, textured and/or patterned colors; Thru-color type.
  - 2. Laminate Grade for Exposed Surfaces: Provide laminate cladding complying with the following requirements for type of surface and grade.
    - a. Horizontal Surfaces Other Than Tops: GP-50 (0.050" nominal thickness).
    - b. Post formed Surfaces: PF-42 (0.042" nominal thickness).
    - c. Vertical Surfaces: GP-50 (0.050" nominal thickness).
    - d. Balance Sheets and Liners: GP-28 (0.028" nominal thickness) -minimum.
- C. Hardboard: AHA A135.4 (tempered).



2.12 FLUSH WOOD PANELING AND WAINSCOTS FOR OPAQUE FINISH:

- A. Quality Standard: Comply with AWI Section 500 requirements for flush wood paneling.
  - 1. Grade: Premium.
  - 2. Wood Species: Any closed-grain hardwood listed in referenced woodworking standard.
  - 3. Cut: Plain or Rotary cut.
  - 4. Matching of Adjacent Veneer Leaves: Not required.
  - 5. Edge Treatment: Solid wood matching face for species and cut, at exposed edges.
  - 6. Core Material: Medium-density moisture resistant particleboard or veneer core plywood with exterior glue (approved for interior use).
  - 7. Back Veneer: Hardwood with similar density as face veneer.
  - 8. Thickness: As indicated, or if not indicated, at least 1/2-inch.

2.13 INTERIOR FRAMES AND JAMBS FOR OPAQUE FINISH:

- A. Quality Standard: Comply with AWI Section 900.
  - 1. Grade: Premium.
- B. Wood Species: Any closed-grain hardwood listed in referenced woodworking standard.

PART 3 - EXECUTION

3.1 PREPARATION:

- A. Condition woodwork to average prevailing humidity conditions in installation areas prior to installing.
- B. Pre-Installation Meeting: Meet at project site prior to delivery of architectural woodwork and review coordination and environmental controls required for proper installation and ambient conditioning in areas to receive work. Include in meeting the Contractor; Architect and other Owner Representatives (if any); Installers of architectural woodwork, wet work such as plastering, other finishes, painting, mechanical work and electrical work; and firms or

persons responsible for continued operation (whether temporary or permanent) of HVAC system as required to maintain temperature and humidity conditions. Proceed with woodwork installation only when everyone concerned agrees that required ambient conditions can be maintained.

- C. Deliver concrete inserts and similar anchoring devices to be built into substrates, well in advance of time substrates are to be built.
  - 1. Coordinate location and placement of concealed treated blocking (by others) prior to finish materials installations.
- D. Prior to installation of architectural woodwork, examine shop fabricated work for completion, and complete work as required, including back priming and removal of packing.

### 3.2 INSTALLATION:

- A. Quality Standard: Install woodwork to comply with AWI Section 1700 for the same grade specified in Part 2 of this Section for type of woodwork involved.
- B. Install woodwork plumb, level, true and straight with no distortions. Shim as required using concealed shims. Install to a tolerance of 1/8-inch in 8'-0" for plumb and level (including tops); and with no variations in flushness of adjoining surfaces.
- C. Scribe and cut woodwork to fit adjoining work, and refinish cut surfaces or repair damaged finish at cuts.
  - 1. Seal all hardware cuts, routed slots, etc., before installation of hardware.
- D. Anchor woodwork to anchors or blocking built-in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Except where prefinished matching fasteners heads are required, use fine finishing nails for exposed nailing, countersunk and filled flush with woodwork, and matching final finish where transparent finish is indicated.
- E. Standing and Running Trim, and Sills: Install with maximum number of joints possible, using full-length pieces (from maximum length of lumber available) to the greatest extent possible. Stagger joints in adjacent and related members. Cope at returns, miter at corners and comply with referenced Quality Standards for joinery.
- F. Cabinets: Install without distortion so that doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete the installation of hardware and accessory items as indicated. Maintain veneer sequence matching (if any) of cabinets with transparent finish.
  - 1. Install cabinets with no more than 1/8-inch in 96-inches sag, bow, or other variation

from a straight line.

- G. Wood Storage Shelving: Complete the assembly of units and install in the areas indicated, including hardware and accessories as indicated.
- H. Tops: Anchor securely to base units and other support systems indicated. Caulk space between backsplash and wall with specified sealant.
  - 1. Install countertops with no more than 1/8-inch in 96-inches (3 mm in 2400-mm) sag, bow, or other variation from a straight line.
- I. Wood Panels: Anchor panels to supporting substrate with concealed panel-hanger clips and by blind nailing on backup strips, splined-connection strips, and similar associated trim and framing. Do not face nail unless otherwise indicated.
  - 1. Install flush panels with no more than 1/16-inch in 96-inches vertical cup or bow and 1/8- inch in 96-inches horizontal variation from a true plane.
- J. Refer to Section 099123 - "Painting", for final finishing of installed architectural woodwork.

### 3.3 ADJUSTMENT, CLEANING, FINISHING, AND PROTECTION:

- A. Repair damaged and defective woodwork where possible to eliminate defects functionally and visually; where not possible to repair replace woodwork. Adjust joinery for uniform appearance.
- B. Clean, lubricate and adjust hardware.
- C. Clean woodwork on exposed and semi-exposed surfaces. Touch-up shop-applied finishes to restore damaged or soiled areas.
- D. Complete the finishing work specified as work of this section, to whatever extent not completed at shop or prior to installation of woodwork.
- E. Provide final protection and maintain conditions, in a manner acceptable to Fabricator and Installer, which ensures architectural woodwork being without damage or deterioration at time of substantial completion.

### 3.4 CABINET HARDWARE SCHEDULE:

- A. General: Subject to requirements and finishes stated above, furnish the following items in quantities and at locations indicated, by named manufacturers or equivalent products acceptable to Architect.

1. Cabinet Hinges: 170-degrees adjustable "CLIP System" concealed self-closing hinges as manufactured by Julius Blum, Inc., or equivalent by Grass or Stanley.
- B. Cabinet Door and Drawer Pulls:
  1. Wire pulls, equivalent to Stanley No. 4484, solid brass (ANSI B12012), 4-inches long, with 1-inch clearance; Finish to match Section 087100 – "Finish Hardware" finish in room(s) where occurs, or equivalent priced pulls selected by Architect after bidding.
- C. Cabinet Door Catches: Manufacturer's standard 2-screw sill mounted unit made of molded nylon, lipped over sill to form bumper and hold in place, with 2-screw mounted heavy door mounted unit with nylon roller; provide spring-mounted units where required.
  1. Acceptable Manufacturers: Any of manufacturer's listed for other cabinet hardware.
- D. Drawer Slides: Heavy Duty, non-corrosive (galvanized) full extension ball bearing slides rated at 100-pounds, with positive stop, and self-closing and lift-out disconnect features; Model No. 1429, as manufactured by Knappe & Vogt, or equivalent by Blum or Grant.
  1. At legal size drawers, use K&V No. 1483 or equivalent, rated at 150-pounds, with same features as noted above.
- E. Shelf Standards: Manufacturer's standard steel units with anchors and supports 5/8-inch wide x 3/16-inch high, adjustable on 1/2-inch centers; Series 255, as manufactured by K&V, or equivalent by Grant or Stanley.
  1. Wood Cabinets: Model No. 255 BRN with No. 256 BRN supports and matching fasteners.
  2. Omit standards where fixed shelves are indicated.
  3. All standards to be recess mounted (flush in routed dados), unless specifically indicated otherwise.
- F. Locks: Where indicated on the Drawings, provide cabinet manufacturer's standard 5-disc tumbler, cam type, keyed differently at each room and at each teller station, and master keyed.
  1. Furnish 2-keys for each lock.
  2. Furnish 5-master keys
  3. Finish to match Section 087100 – "Finish Hardware" finish in room(s) where occurs.

END OF ARCHITECTURAL WOODWORK

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**SECTION 07 2100**

**THERMAL INSULATION**

PART 1- GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

Section Includes:

1. Glass-fiber thermal/acoustical insulation blankets.
2. Vapor Retarders.

Related Sections:

3. Section 072119 "Foamed-in-Place Insulation" for spray-applied polyurethane foam insulation.
4. Section 072413 "Polymer-Based Exterior Insulation and Finish System (EIFS)" for insulation specified as part of these systems.
5. Section 075552 "SBS-Modified Bituminous Membrane Roofing" for insulation specified as part of roofing construction.
6. Section 078446 "Fire-Resistive Joint Systems" for insulation installed as part of a perimeter fire-resistive joint system.

1.3 ACTION SUBMITTALS

Product Data: For each type of product indicated.

1.4 INFORMATIONAL SUBMITTALS

Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each product.

1.5 QUALITY ASSURANCE

Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1.6 DELIVERY, STORAGE, AND HANDLING

Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

Protect foam-plastic board insulation as follows:

1. Do not expose to sunlight except to necessary extent for period of installation and concealment.
2. Protect against ignition at all times. Do not deliver foam-plastic board materials to Project site before installation time.
3. Quickly complete installation and concealment of foam-plastic board insulation in each area of construction.

PART 2 - PRODUCTS

2.1 GLASS-FIBER BLANKET INSULATION

Sustainability Requirements: Provide glass-fiber blanket insulation as follows:

1. Free of Formaldehyde: Insulation manufactured with 100 percent acrylic binders and no formaldehyde.

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

2. CertainTeed Corporation.
3. Guardian Building Products, Inc.
4. Johns Manville.
5. Knauf Insulation.
6. Owens Corning.

Unfaced, Glass-Fiber Blanket Insulation: ASTM C 665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.

## 2.2 RIGID BOARD INSULATION

Extruded Polystyrene Board Insulation: Rigid cellular polystyrene thermal insulation with closed cells and integral high-density skin, formed by the exposition of polystyrene base resin in an extrusion process to comply with ASTM C 578, Type IV; 5-year aged r-value of 5 Btu/ (hr x sf x degree F) at 75 degree F in manufacturer's standard lengths and widths. Compressive strength shall be 25 PSI. Flame spread rating shall be not more than 25 w/ smoke-developed index of not more than 450. Thickness shown on drawings.

Manufacturers: The following manufacturers' products have been used to establish minimum standards for materials, workmanship & function. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect.

"Styrofoam Scoreboard"; Dow Chemical USA.

"Foamular 250"; Owens Corning.

"Certifoam", Minnesota Diversified Products, Inc.

"GreenGuard"; Type IV 25 PSI

Adhesive: Type recommended by insulation board manufacturer for application indicated.

## 2.3 VAPOR RETARDERS

Reinforced-Polyethylene Vapor Retarders: Two outer layers of polyethylene film laminated to an inner reinforcing layer consisting of either nylon cord or polyester scrim and weighing not less than 25 lb/1000 sq. ft., with maximum permeance rating of 0.0507 perm.

1. Products: Subject to compliance with requirements, provide one of the following:

- a. Raven Industries Inc.; DURA-SKRIM 6WW.
- b. Reef Industries, Inc.; Griffolyn T-65.

Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.

Vapor-Retarder Fasteners: Pancake-head, self-tapping steel drill screws; with fender washers.

Single-Component Nonsag Urethane Sealant: ASTM C 920, Type I, Grade NS, Class 25, Use NT related to exposure, and Use O related to vapor-barrier-related substrates.

Adhesive for Vapor Retarders: Product recommended by vapor-retarder manufacturer and has demonstrated capability to bond vapor retarders securely to substrates indicated.

## 2.1 ACCESSORIES

Insulation for Miscellaneous Voids:

1. Glass-Fiber Insulation: ASTM C 764, Type II, loose fill; with maximum flame-spread and smoke-developed indexes of 5, per ASTM E 84.

## PART 3 - EXECUTION

### 3.1 PREPARATION

Clean substrates of substances that are harmful to insulation or vapor retarders, including removing projections capable of puncturing vapor retarders, or that interfere with insulation attachment.

### 3.2 INSTALLATION, GENERAL

Comply with insulation manufacturer's written instructions applicable to products and applications indicated.

Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.

Extend insulation to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

Provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.

### 3.3 INSTALLATION OF INSULATION FOR FRAMED CONSTRUCTION

Glass-Fiber Blanket Insulation: Install in cavities formed by framing members according to the following requirements:

1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
3. At electrical receptacles in wall cavities scheduled for sound attenuation insulation:
  - a. Fully insulate behind receptacles
  - b. Ensure that blanket insulation butts tight to boxes top, bottom, and sides.
4. At light fixtures:



- a. Maintain 3-inch clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.
5. Install eave ventilation troughs between roof framing members in insulated attic spaces at vented eaves.
6. For metal-framed wall cavities where cavity heights exceed 96 inches, support unfaced blankets mechanically and support faced blankets by taping flanges of insulation to flanges of metal studs.

Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation.

### 3.4 INSTALLATION OF INSULATION IN CEILINGS FOR SOUND ATTENUATION

Where glass-fiber blankets are indicated for sound attenuation above ceilings, install blanket insulation over entire ceiling area in thicknesses indicated. Extend insulation 48 inches up either side of partitions.

### 3.5 INSTALLATION OF VAPOR RETARDERS

Place vapor retarders on side of construction indicated on Drawings. Extend vapor retarders to extremities of areas to protect from vapor transmission. Secure vapor retarders in place with adhesives or other anchorage system as indicated. Extend vapor retarders to cover miscellaneous voids in insulated substrates, including those filled with loose-fiber insulation.

Seal vertical joints in vapor retarders over framing by lapping no fewer than two studs.

1. Fasten vapor retarders to wood framing at top, end, and bottom edges; at perimeter of wall openings; and at lap joints. Space fasteners 16 inches o.c.
2. Before installing vapor retarders, apply urethane sealant to flanges of metal framing including runner tracks, metal studs, and framing around door and window openings. Seal overlapping joints in vapor retarders with vapor-retarder tape according to vapor-retarder manufacturer's written instructions. Seal butt joints with vapor-retarder tape. Locate all joints over framing members or other solid substrates.
3. Firmly attach vapor retarders to metal framing and solid substrates with vapor-retarder fasteners as recommended by vapor-retarder manufacturer.

Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-retarder tape to create an airtight seal between penetrating objects and vapor retarders.

Repair tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarders.

3.6 PROTECTION

Protect installed insulation and vapor retarders from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 07 2100

**SECTION 073113**

**ASPHALT SHINGLES**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work of this Section.
- B. Related work specified elsewhere includes:
  - 1. Section 061000 - "Rough Carpentry"
  - 2. Section 076200 - "Sheet Metal Flashing and Trim"

**1.2 DESCRIPTION OF WORK:**

- A. Extent of roofing work is indicated on drawings.
- B. Work described in this section includes new heavy weight, laminated, architectural, self-sealing ("seal-tab") strip roof shingles with stain and fungus protection, and continuous ridge vents; Roofing shall be installed over synthetic roofing felt underlayment over entire roof deck and self-adhered membrane underlayment ("Special Flashing") at eaves, valleys, roof penetrations and where indicated on the drawings and turn up at least 8 inches on vertical surfaces intersecting roof; and in accordance with manufacturer's written instructions and recommendations; to include in part, extra nails, roofing cement at tabs, etc., for any mansard roofing and any higher than normal wind zone indicated.
- C. Required metal flashings, continuous drip edge; special roof edge, perimeter, ridge, penetration and valley flashing / waterproofing underlayment ("Ice and Water Shield"), etc., are specified in Section 076200 - "Sheet Metal Flashing and Trim," and shall be coordinated and installed in proper sequence with roofing work.

**1.3 SUBMITTALS:**

- A. Product Data: For each type of product indicated.
- B. Samples:
  - 1. Shingles: Submit full range of samples for color(s) and texture verification; After verification, submit two (2) full-size shingles for verification of each color, style and texture selected.

2. Accessories: Submit at least three (3) samples or ridge vent material and each roofing accessory.
  3. Include color samples for items where color selections are available, and where color selection(s) is required.
- C. Warranties: Special warranties specified in this Section.
- D. Qualification data for roofing manufacturer and installer.
- E. Manufacturer's certification for installer.
- F. Manufacturer's certification for roofing system; shall also be attached to completed and executed warranty.
- G. Certification: The roofing manufacturer shall be required to provide written documentation certifying that the roof design provided complies with the performance requirements, for that particular system, as set forth in IBC Chapter 15 in Section 1504; This certification shall be included in other required submittals and be attached to completed and executed manufacturer's roofing warranty provided at the close out of the project.
1. The written documentation from roofing manufacturer shall also certify that roofing design and system provided comply with requirements specified and the manufacturer's requirements for the roofing system provided.

1.4 QUALITY ASSURANCE:

- A. Installer Qualifications: Engage an experienced Installer (Roofer) to perform roofing work who has specialized in installing roofing systems similar to that required for this Project and who is acceptable to manufacturer of primary roofing materials.
1. Installer's Field Supervision: Require Installer to maintain a full-time supervisor/foreman who is on job site during times that roofing work is in progress and who is experienced in installing roofing systems similar to type and scope required for this Project.
  2. Refer to Division 1 Section "Special Conditions", for additional information and experience and other requirements.
- B. Manufacturer Qualifications: A qualified manufacturer that has 10 years experience in manufacturing shingle roofing system identical to that specified for this Project.
1. Refer to Division 1 Section "Special Conditions", for additional information and experience and other requirements.
  2. Certification: Provide written certification from roofing manufacturer that roofing design and system provided comply with requirements specified and manufacturer's requirements for the roofing system provided.

3. This certification shall be included in other required submittals and be attached to completed and executed manufacturer's roofing warranty.
  4. Upon request, submit evidence of complying with requirements.
- C. Single Source Responsibility: Obtain primary products, including each type of roofing, bitumen, composition flashings, etc., from a single manufacturer. Provide secondary products as recommended by manufacturer of primary products to use with roofing system specified.
- D. Insurance, Code and Warranty Requirements: Provide materials complying with governing regulations that can be installed to comply with the following:
1. UL Fire Classified.
  2. Wind Uplift Resistance: As per local building code and warranty requirements.
  3. Wind Speed at the Project Site: As per local building code and warranty requirements, but no less than 160 mph, unless a higher wind load is indicated on Structural Drawings or otherwise required by applicable codes. Refer to Drawings for additional information and requirements.
- E. Insurance Certification: Assist Owner in preparing and submitting roof installation acceptance certification as necessary in connection with fire and extended-coverage insurance on roofing and associated work.
- F. UL Listing: Provide roofing system and component materials that have been tested for application and slopes indicated and that are listed by UL for Class A external fire exposure.
1. Provide roof-covering materials bearing UL Classification Marking on bundle, package, or container indicating that materials have been produced under UL's Classification and Follow-up Service. Submit nailing pattern and size of plates.
- G. Pre-Roofing Conference: A pre-roofing conference is required before any roofing materials are installed. This conference shall be conducted by a representative of the Architect and attended by representatives of the Owner, General Contractor, Roofing Contractor, Roof Deck Manufacturer (if applicable), and the Roofing Materials Manufacturer (if warranty is required of this manufacturer). If equipment of substantial size is to be placed on the roof, the Mechanical Contractor must also attend this meeting.
1. The pre-roofing conference is intended to clarify demolition (for renovation or re-roofing projects) and application requirements for work to be completed before roofing operations can begin. This would include a detailed review of the specifications, roof plans, roof deck information, flashing details, and approved shop drawings, submittal data, and samples.

If conflict exists between the specifications and the Manufacturer's requirements, this shall be resolved. If this pre-roofing conference cannot be satisfactorily concluded without further inspection and investigation by any of the parties present, it shall be reconvened at the earliest possible time to avoid delay of the work. In no case should the work proceed without inspection of all roof deck areas and substantial agreement on all points.

2. The following are to be accomplished during the conference:
  - a. Review all Factory Mutual and Underwriters Laboratories requirements listed in the specifications and resolve any questions or conflicts that may arise.
  - b. Establish trade-related job schedules, including the installation of roof-mounted mechanical equipment.
  - c. Establish roofing schedule and work methods that will prevent roof damage.
  - d. Require that all roof penetrations and walls be in place prior to installing the roof.
  - e. Establish those areas on the job site that will be designated as work and storage areas for roofing operations.
  - f. Establish weather and working temperature conditions to which all parties must agree.
  - g. Establish acceptable methods of protecting the finished roof if any trades must travel across or work on or above any areas of the finished roof.
3. The Architect shall prepare a written report indicating actions taken and decisions made at this pre-roofing conference. This report shall be made a part of the project record and copies furnished the General Contractor and the Owner.

1.5 DELIVERY, STORAGE AND HANDLING:

- A. Deliver materials in manufacturer's unopened, labeled bundles, rolls, or containers.
- B. Store materials to avoid water damage, and store rolled goods on end. Comply with manufacturer's recommendations for job-site storage and protection.
- C. Refer to Division 1 Sections "Summary of Work" and "Special Conditions" for additional information and requirements regarding stored materials.

1.6 JOB CONDITIONS:

- A. Weather Conditions: Proceed with Shingle work only when weather conditions are in compliance with manufacturer's current written instructions and recommendations and when substrate is completely dry.

1.7 WARRANTIES AND GUARANTEES:

- A. **Manufacturer's Roofing System and Wind Warranty:** Provide shingle manufacturer's warranty on installed work, agreeing to pay for repair or replacement of defective shingles and roofing system components; and as necessary to eliminate leaks.

Period of warranty:

1. No less than Thirty (30) years from date of "Substantial Completion"; Warranty shall provide 100% non-prorated coverage for materials and labor (workmanship errors) for:
    - a. The first 20 years, then prorated thereafter for the remainder of the 30 years.
  2. Warranty coverage for shingles to withstand wind gusts up to 160 MPH.
- B. **Special Project Guarantee:** Provide 3 fully executed copies of "Roofing Guarantee" on the form included in the "General Conditions" Section of the Project Manual, covering the work of this Section, including in part, roofing, concealed and exposed flashings, accessories, etc., signed by the General Contractor.
- C. Repairs that become necessary, such as for leaks, wind damage or temperature stress while roofing is under warranty and/or guarantee, shall be performed by the installer within 7-days of notification. Should for any reason, the installer not be able to perform the repairs, it shall be incumbent upon the manufacturer to do so. If repairs are not begun on time, Owner shall have work done by others and costs will be charged to the Contractor, with no detrimental effect on the remaining warranty and no termination of warranty.
- D. The above warranties and guarantee shall be in addition to, shall be in effect simultaneously with, and shall not alter or limit other project or product warranties or guarantees, nor shall they serve as a limitation to other remedies available to the Owner.
- E. Standard manufacturer's roofing warranties and guarantees which contain language regarding the governing of the warranties and guarantees by any state other than the State of Alabama, must be amended to exclude such language, and substituting the requirement that the Laws of the State of Alabama shall govern all such warranties and guarantees.

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PART 2 - PRODUCTS - Match the new shingles for the Range House to the existing Club House Shingles

2.1 ASPHALT SHINGLE MATERIALS:

- A. Asphalt Shingle Material - Granule surfaced, self-sealing, fiberglass reinforced asphalt shingle. UL 790 Class A fire-test response rated with UL 997 Wind Resistance Label; ASTM D 7158, Class H; ASTM D 3161, Type 1; ASTM D 3018, Type 1; ASTM D 3462.
  - 1. Subject to compliance with requirements, provide one (1) of the following, or approved equivalent:
    - a. Timberline Natural Shadow Series by GAF Corp.
    - b. Landmark Series by CertainTeed Corp.
    - c. Duration Series by Owens Corning Roofing and Asphalt, LLC.
  - 2. Color: Weathered Wood, or as selected by Architect, from manufacturer's full line of standard colors available on bid date.
- C. Synthetic Roofing Underlayment equal to Grace SYN 15 exceeding the requirements of ASTM D226
- D. Self-Adhered Membrane Underlayment ("Ice and Water Shield"): Refer to Division 7 Section "Sheet Metal Flashing and Trim", for information and requirements.
- E. Asphalt Plastic Cement: Fibrated asphalt cement complying with ASTM D 2822, designed for trowel application.
- F. Hip and Ridge Shingles: Manufacturer's standard factory pre-cut units to match shingles.
- G. Nails:
  - 1. Aluminum or hot-dip galvanized 11 or 12-gage, sharp-pointed, conventional roofing nails with barbed shanks, minimum 3/8" diameter head, and of sufficient length to penetrate 3/4" into solid decking or to penetrate through plywood sheathing.
  - 2. The use of square head nails, staples, and pneumatic, and/or electric nail or staple guns are strictly prohibited.
- H. Ridge Vents (if any): Equivalent to "Ridge Master," as manufactured by Mid-America Building Products Corp. (Phone: 1-800-521-8486).



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PART 3 - EXECUTION

3.1 INSPECTION:

- A. Examine substrate under which shingle work is to be performed and notify Contractor in writing of unsatisfactory conditions. Do not proceed with shingle work until unsatisfactory conditions have been corrected.

3.2 PREPARATION OF SUBSTRATE:

- A. Clean substrate of any projections and substances detrimental to shingling work. Cover knotholes or other minor voids in substrate with sheet metal flashing secured with roofing nails.
- B. Coordinate installation of shingles with flashing and other adjoining work to ensure proper sequencing. Do not install shingle roofing until all vent stacks and other penetrations through roofing have been installed and are securely fastened against movement.

3.3 INSTALLATION:

- A. General: Comply with current written instructions and recommendations of shingle and accessories manufacturers, except to extent more stringent requirements are indicated, including in part extra nails, roofing cement at tabs, etc., for the higher than normal wind zone indicated.
  - 1. Coordinate all work under this Section 07311 with other roofing systems and roof related work of other trades.
- B. Underlayment: Coordinate installation of the following with requirements of Division 7 Section "Flashing and Sheet Metal", including in part, special flashing / waterproofing underlayment (below felts), continuous metal drip edge, and other materials indicated or otherwise required by project conditions.
  - 1. Apply one layer synthetic roof underlayment where indicated on Drawings.
  - 2. Apply one layer of self-adhered membrane underlayment at eaves, valleys, roof penetrations and expansion joints and as indicated on Drawings
- C. Shingles: Install starter strip of roll roofing or inverted shingles with tabs removed; fasten shingles in pattern, weather exposure and number of fasteners per shingle as recommended in writing by manufacturer. Use horizontal and vertical chalk lines to ensure straight coursing.
- D. Comply with installation details and recommendations of shingle and accessories manufacturers and NRCA Steep Roofing Manual.

E. Flashing and Edge Protection:

1. Install metal flashing, vent flashing and edge protection as indicated and in compliance with details and recommendations of the NRCA Steep Roofing manual.
2. Install diverters 1'-0" above roof edge at locations where water would otherwise run over exterior doorways or mechanical units.

3.4 PROTECTION:

- A. Restrict areas of completed work from all non-essential pedestrian traffic or other use.

3.5 CLEANING:

- A. Remove all trash, scraps, debris, etc., from roof and site, which results from work under this Section, and legally dispose of off-site.

END OF ASPHALT SHINGLES

**SECTION 07462**

**FIBER-CEMENT SOFFIT SYSTEMS**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section includes the following:
1. Fiber-cement siding systems, including in part, fascia, soffit, siding, trim, and decorative accessories; Extent of fiber-cement siding systems is indicated on the Drawings.
  2. Fiber-cement products are to be factory prime painted on all surfaces, and touched-up as necessary and finish painted on site as specified in Division 9 Section "Painting", not the work of this Section.
- B. Related Sections include the following:
1. Division 6 Section "Rough Carpentry" for wood framing and blocking, plywood sheathing, and air infiltration barrier.
  2. Division 7 Section "Flashing and Sheet Metal" for waterproofing underlayment, flashing, gutters, sheet metal work, and related work.
  3. Division 7 Section "Joint Sealers."
  4. Division 9 Section "Painting", for finish painting.

**1.3 SUBMITTALS**

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For siding, trim, and decorative accessories.
- C. Samples for Verification: For each type, color, texture, and pattern required.
1. 12-inch- (300-mm-) long-by-actual-width Sample of siding.
  2. 12-inch- (300-mm-) long-by-actual-width Sample of trim.
- D. Product Certificates: For each type of siding, signed by product manufacturer.
- E. Research/Evaluation Reports: For each type of siding required.

#### **1.4 QUALITY ASSURANCE**

- A. Source Limitations for Siding, Trim and Decorative Accessories: Obtain each type, color, texture, and pattern of siding and trim, including related accessories, through one source from a single manufacturer.
- B. Mockup: Build mockup to verify selections made under sample submittals and to demonstrate aesthetic effects.
  - 1. Build mockup approximately 48 inches (1200 mm) long by 60 inches (1800 mm) high. Include outside corner on one end of mockup and inside corner on other end.
- C. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section “Special Conditions.”

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Store materials off of ground, under cover, in a dry, well-ventilated, weathertight place.
- B. Refer to Division 1 Sections “Summary of Work” and “Special Conditions” for additional information and requirements regarding stored materials.

#### **1.6 PROJECT CONDITIONS**

- A. Weather Limitations: Proceed with siding installation only if substrate is completely dry and if existing and forecasted weather conditions permit siding to be installed according to manufacturer’s written instructions.

#### **1.7 SEQUENCING**

- A. Coordinate installation with flashings and other adjoining construction to ensure proper sequencing.

#### **1.8 WARRANTY**

- A. Special Warranty: Manufacturer’s standard form in which manufacturer agrees to repair or replace siding that does not comply with requirements or that fails within specified warranty period. Failures include, but are not limited to, cracking, deforming, or otherwise deteriorating beyond normal weathering.
  - 1. Warranty Period: **10** years from date of entire project’s Substantial Completion.
- B. The above warranty and guarantee shall be in addition to, shall be in effect simultaneously with, and shall not alter other project or product warranties or guarantees, nor shall they serve as limitations to other remedies available to the Owner.

## **1.9 EXTRA MATERIALS**

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Furnish full lengths of siding and trim in a quantity equal to 2 percent of amount installed.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
1. Acceptable Products: The design for each type of siding and trim is based on standard products of James Hardie, Inc. Subject to compliance with requirements, provide either the named product or an equivalent product by one of the other named manufacturers, subject to acceptance by and as judged solely by the Architect, based on submittal data provided by the Contractor and/or Supplier.
  2. Proof of equivalency of other products is the sole responsibility of the Contractor and/or Supplier.
  3. Refer to Division 1 Section "Special Conditions" for additional information and requirements for submittal and consideration of equivalent products.

### **2.2 SOFFIT**

- A. Fiber-Cement Non-perforated Soffit: Siding made from fiber-cement board that does not contain asbestos fibers; complies with ASTM C 1186, Type A, Grade II; is classified as noncombustible when tested according to ASTM E 136; and has a flame-spread index of 25 or less when tested according to ASTM E 84.
1. Basis-of-Design Product: Provide "Hardiplank", as manufactured by James Hardie, Inc. or an acceptable equivalent product by one of the following:
    - a. Cemplank, Inc.
    - b. CertainTeed Corp.
    - c. James Hardie, Inc.
    - d. MaxiTile, Inc.
  2. Horizontal Pattern: Boards 5-1/4 to 5-1/2 inches (184 to 190 mm) wide, with nominal 4-inches exposure, in plain-edge style.

- a. Texture: Smooth at soffits or ceilings and at siding and trim.
3. Factory Priming: Manufacturer's standard factory-applied acrylic primer on all surfaces.

### **2.3 ACCESSORIES**

- A. Decorative Accessories: Provide the following types of decorative accessories, and as otherwise indicated or required by project conditions; Provide manufacturer's standard factory-applied acrylic primer on all surfaces.
  1. Corner boards with same total width on each face, at interior and exterior corners, and corner posts (if any) only where specifically indicated.
  2. Door and window casings.
  3. Entrance and window head pediments (if any), only where indicated on the Drawings.
  4. Pilasters (if any), only where indicated on the Drawings.
  5. Fascia.
  6. Moldings and trim.
- B. Partially Exposed Prefinished Flashing: Provide prefinished 24-gauge "Galvalume" or G90 galvanized metal flashings, complying with requirements of Division 7 Section "Flashing and Sheet Metal" at exposed terminal edges of siding, and at heads of windows, doors, other openings, and where otherwise indicated or required by project conditions.
- C. Concealed Flashings: Provide "Elastic Flashing" (flexible flashing) complying with requirements of Division 7 Section "Flashing and Sheet Metal", at perimeter of all wall and other openings, at least 24-inches wide centered over all interior and exterior corners and any angled changes in direction of walls, and as base flashing, so as to facilitate evacuation of moisture from behind fiber-cement siding systems, and contiguous work.
- D. Elastomeric Joint Sealant: Single-component non-sag urethane joint sealant complying with requirements in Division 7 Section "Joint Sealers" for Use NT (nontraffic) and for Uses M, G, A, and, as applicable to joint substrates indicated, O joint substrates; Mold and mildew resistant, and paintable.
- E. Fasteners:
  1. General: Provide concealed fasteners wherever possible.
  2. For fastening to wood, use ribbed bugle-head screws of sufficient length to penetrate a minimum of 1 inch (25 mm) into substrate.
  3. For fastening to metal, use ribbed bugle-head screws of sufficient length to penetrate a minimum of 1/4 inch (6 mm) or 3 screw-threads into substrate.
  4. For fastening fiber-cement siding, use hot-dip galvanized or stainless-steel fasteners.

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Examine substrates for compliance with requirements for installation tolerances, completed and properly installed moisture barriers and flashings, and other conditions affecting performance of siding systems. Proceed with installation only after unsatisfactory conditions have been corrected.

**3.2 PREPARATION**

- A. Clean substrates of projections and substances detrimental to application.

**3.3 INSTALLATION**

- A. General: Comply with siding manufacturer's current written installation instructions applicable to products and applications indicated unless more stringent requirements apply. Center fasteners and nails in elongated nailing slots without binding siding to allow for thermal movement. Overlap joints to shed water away from direction of prevailing wind.
- B. Comply with sealant manufacturer's current written installation instructions applicable to products and applications indicated, and Division 7 section "Joint Sealers", unless more stringent requirements apply.

**3.4 ADJUSTING AND CLEANING**

- A. Remove damaged, improperly installed, or otherwise defective siding materials and siding related materials, and replace with new materials complying with specified requirements.
- B. Clean finished surfaces according to siding manufacturer's written instructions and maintain in a clean condition during construction.

**END OF FIBER-CEMENT SOFFIT SYSTEMS**

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**SECTION 074646**

**FIBER-CEMENT SIDING**

**PART 1 - GENERAL**

**1.1 SUMMARY**

A. Section Includes:

1. Fiber-cement siding.
2. Fiber-cement soffit.

B. Related Requirements:

1. Section 061000 "Rough Carpentry" for wood furring, grounds, nailers, and blocking.
2. Section 062013 "Exterior Finish Carpentry" for exterior **cellular PVC** [and] [foam-plastic] trim.
3. Section 072500 "Weather Barriers" for weather-resistive barriers.

**1.2 COORDINATION**

- A. Coordinate siding installation with flashings and other adjoining construction to ensure proper sequencing.

**1.3 PREINSTALLATION MEETINGS**

**1.4 ACTION SUBMITTALS**

A. Product Data:

1. Fiber cement siding
2. Fiber-cement soffit.

- B. Product Data Submittals: For each type of fiber-cement siding and soffit. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

- C. Samples for Initial Selection: For fiber-cement siding and soffit including related accessories.

- D. Samples for Verification: For each type, color, texture, and pattern required.

1. 12-inch (300mm) long by actual width (1/2" thick; 6"board) sample of siding.
2. 12-inch- (300-mm-) long-by-actual-width Sample of soffit.

3. 12-inch- (300-mm-) long-by-actual-width Samples of trim and accessories.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of fiber-cement soffit.
- B. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for fiber-cement siding.
- C. Research/Evaluation Reports: For each type of fiber-cement siding required, from ICC-ES.
- D. Sample Warranty: For special warranty.

## 1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each type of fiber-cement soffit, including related accessories, to include in maintenance manuals.

## 1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  1. Furnish full lengths of fiber-cement fascia and soffit including related accessories, in a quantity equal to 2 percent of amount installed.

## 1.8 MOCKUPS

- A. Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and to set quality standards for fabrication and installation.
  1. Build mockups for fiber-cement fascia and soffit including accessories.
    - a. Size: 48 inches (1200 mm) long by 60 inches (1800 mm) high]
    - b. Include outside corner on one end of mockup and inside corner on other end.
  2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

## 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with labels intact until time of use.
- B. Store materials on elevated platforms, under cover, and in a dry location.

## 1.10 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace products that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Structural failures including cracking and deforming.
    - b. Deterioration of materials beyond normal weathering.
  - 2. Warranty Period: 20 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 SOURCE LIMITATIONS

- A. Obtain products, including related accessories, from single source from single manufacturer.

### 2.2 FIBER CEMENT SIDING

- A. Fiber-Cement Siding: ASTM C1186, Type A, Grade II, fiber-cement board, noncombustible when tested in accordance with ASTM E136; with a flame-spread index of 25 or less when tested in accordance with ASTM E84.
- B. Labeling: Provide fiber-cement siding that is tested and labeled in accordance with ASTM C1186 by a qualified testing agency acceptable to authorities having jurisdiction.
- C. Nominal Thickness: Not less than 5/16 inch (8 mm).
- D. Horizontal Pattern: Boards 6-1/4 to 6-1/2 inches wide in plain.
  - 1. Texture: Smooth.
- E. Factory Priming: Manufacturer's standard acrylic primer.

## 2.3 FIBER-CEMENT SOFFIT

- A. Fiber-Cement Soffit: ASTM C1186, Type A, Grade II, fiber-cement board, noncombustible when tested in accordance with ASTM E136; with a flame-spread index of 25 or less when tested in accordance with ASTM E84.
- B. Nominal Thickness: Not less than **5/16 inch (8 mm)**.
- C. Pattern: **24-inch- (600-mm-)** wide sheets with smooth texture.
- D. Ventilation: Provide perforated soffit[ unless otherwise indicated].
- E. Factory Priming: Manufacturer's standard acrylic primer.

## 2.4 ACCESSORIES

- A. Siding Accessories, General: Provide starter strips, edge trim, outside and inside corner caps, and other items as recommended by siding manufacturer for building configuration.
  - 1. Provide accessories matching color and texture of adjacent siding unless otherwise indicated.
- B. Decorative Accessories: Provide the following fiber-cement decorative accessories as indicated:
  - 1. Corner posts.
  - 2. Door and window casings.
  - 3. Fasciae.
  - 4. Moldings and trim.
- C. Flashing: Provide aluminum flashing complying with Section 076200 "Sheet Metal Flashing and Trim" at window and door heads and where indicated.
  - 1. Finish for Aluminum Flashing: Factory-prime coating.
- D. Fasteners:
  - 1. For fastening to wood, use ribbed bugle-head screws of sufficient length to penetrate a minimum of **1 inch (25 mm)** into substrate.
  - 2. For fastening to metal, use ribbed bugle-head screws of sufficient length to penetrate a minimum of **1/4 inch (6 mm)**, or three screw-threads, into substrate.
  - 3. For fastening fiber cement, use hot-dip galvanized fasteners.
- E. Insect Screening for Soffit Vents: Aluminum, **18-by-16 (1.4-by-1.6-mm)** mesh].

- F. Continuous Soffit Vents: Aluminum, hat-channel shape, with perforations; 2 inches (51 mm) wide and not less than 96 inches (2438 mm) long.
  - 1. Net-Free Area: 4 sq. in./linear ft. (280 sq. cm/m).
  - 2. Finish: Mill finish.
- G. Round Soffit Vents: Stamped aluminum louvered vents, 4 inches (102 mm) in diameter, made to be inserted in round holes cut into soffit.
  - 1. Finish: Mill finish

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of fiber-cement soffit and related accessories.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### **3.2 PREPARATION**

- A. Clean substrates of projections and substances detrimental to application.

#### **3.3 INSTALLATION**

- A. General: Comply with manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
  - 1. Do not install damaged components.
  - 2. Install fasteners no more than 24 inches (600 mm) o.c.
- B. Install joint sealants as specified in Section 079200 "Joint Sealants" and to produce a weathertight installation.

#### **3.4 ADJUSTING AND CLEANING**

- A. Remove damaged, improperly installed, or otherwise defective materials and replace with new materials complying with specified requirements.
- B. Clean finished surfaces according to manufacturer's written instructions and maintain in a clean condition during construction.

**END OF SECTION 074646**

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**SECTION 07 6200**

**FLASHING AND SHEET METAL**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work of this Section.
- B. Related work specified elsewhere includes:
  - 1. Section 042000 - "Unit Masonry"
  - 2. Section 061053 - "Miscellaneous Rough Carpentry"
  - 3. Section 072413 - "Exterior Insulation and Finish Systems"
  - 5. Section 079000 - "Joint Sealers"
  - 6. Section 081213 - "Hollow Metal Doors and Frames"
  - 7. Section 084113 - "Aluminum Framed Entrances and Storefront"

**1.2 SUMMARY:**

- A. This Section includes the following, where indicated, and where required by project conditions, and which are not part of other Sections:
  - 1. Prefinished metal counter flashing and base flashing.
  - 2. Miscellaneous prefinished metal wall flashing, counterflashing, and reglets.
  - 3. Exposed prefinished metal trim/fascia units, parapet caps (copings), downspouts with connected to boots into storm drainage only where indicated on the Drawings (if any), and otherwise, onto precast concrete splashblocks at grade and onto corrugated splash pan at roofing, and other items as indicated on the Drawings.
  - 4. Elastic flashing at top of all curbs, top course of double wythe walls, at perimeters of all exterior wall openings (i.e.: doors, windows, louvers, etc.), through-wall flashing, and elsewhere as indicated.
  - 5. Miscellaneous sheet metal accessories as indicated and as required by project conditions.
  - 6. "Special Flashing" at locations indicated; Refer to Division 7 roofing and siding sections for additional information and requirements.
    - a. Where roofing planes intersect vertical walls and planes, turn edges up at least 8-inches.

7. Where different roofing systems meet, provide water-tight prefinished metal perimeter flashings/gravel guards at terminal edges and at juncture of roofing systems, and coordinated with other roofing systems.
- B. Exposed metal flashing is intended to be factory formed, prefinished baked enamel, as specified, in manufacturer's standard non-metallic color(s) selected by Architect after bidding.

### 1.3 SUBMITTALS:

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for Flashing, Sheet Metal and Accessories: Manufacturer's current technical product data, installation instructions and general recommendations for each specified sheet material, fabricated product, coating system, and color selection data.
- C. Samples of the following flashing, sheet metal, and accessory items:
  1. 12-inch-long samples of factory-fabricated products exposed as finished work. Provide complete with specified factory finish.
  2. Physical samples for color selections, where color selection is required.
- D. Shop drawings showing layout, profiles, methods of joining, and anchorages details, including major counterflashings, trim/fascia units, expansion joint systems, and other fabricated work. Provide layouts at 1/4-inch scale and details at 3-inch scale.
- E. Provide written assurance that each sheet metal product to be incorporated into a Roofing warranty is approved by the roof system manufacturer, and also code compliant per ANSI-SPRI ES-1.

### 1.4 QUALITY ASSURANCE

- A. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, to set quality standards for materials and execution, and to set quality standards for fabrication and installation.
  1. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
  2. Approval of integrated mock-up shall include EIFS system, flashing and the interface with adjacent construction.



1.5 PROJECT CONDITIONS:

- A. Coordinate work of this section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of work and protection of materials and finishes.

PART 2 - PRODUCTS

2.1 SHEET METAL, TRIM UNITS, FLASHING, COPING, GUTTERS AND DOWNSPOUTS, AND TRIM MATERIALS:

- A. Fabricate of minimum 24-gage metal, with minimum 50,000 p.s.i. yield, with 2-coat full strength (70-percent) Kynar 500 resin (20-year) finish. Provide one of the following base metals, to be the same base metal used for other sheet metal applications and systems:
  - 1. ASTM A 792 aluminum-zinc allow coated steel sheet ("Galvalume"), or
  - 2. ASTM A 653, G-90 (galvanized) zinc-coated steel sheet.
  - 3. Typical metal flashing, except where specifically indicated otherwise.
- B. Prefinished Metal Drip Edge: Brake-formed sheet metal with at least a 2-inch roof deck flange at shingles and at least 4-inch roof deck flange at any "flat" roofs; 1-inch flange extension to support any shingle roofing and 1/2" raised edge at single-ply roofing; with a 1-1/2-inch fascia flange with a 3/8-inch hemmed edge drip at lower edge at any shingle or metal roofing, which is not already included with metal roofing system. Furnish in lengths of at least 10 feet.
  - 1. Furnish for metal roofing systems and metal flashing systems over 6" wide, if indicated in addition to metal roofing trim.
- C. Prefinished Metal Flashing and 2-Inch High Diverter Strips:
  - 1. Install diverter strips 1'-0" above low roof edge(s) of sloped roofs, at all locations over exterior doors, and over exterior mechanical units where roof edge gutters or parapet walls do not occur.
- D. Prefinished Coping System: Provide prefinished aluminum coping system, including chairs, "drainable gutters" at joints, clips, trim and all necessary accessories for a complete and properly installed water-tight system.
  - 1. Product/Manufacturer: Manufactured or brake-metal system, equivalent to "AP Snap Tight Coping" system, as manufactured by Architectural Products Co.; Covington, Kentucky; Phone: 1-606-341-1171.

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- a. At curved parapet locations provide “AP Curved Snap-Tight Coping” system, as manufactured by Architectural Products Co., or equivalent manufactured or brake-metal system.
  - b. Baked enamel finish on minimum 0.063” (1.6 mm) smooth 5005-H34 alloy aluminum sheet or extrusion, with depths and widths indicated on the Drawings, including all necessary trim and accessories as recommended by manufacturer and required by project conditions.
2. At Contractor’s option, provide similar profile, but from brake-metal coping system, with continuous clip across top of and length of parapets (full secondary concealed wall cap), with 1-inch high standing seam joints - filled with sealant, double-folded, and corners turned down at 45-degrees.
- E. Finishes:
1. Finish for any exposed metal flashings, gutters, downspouts, coping systems, etc., shall be 2-coat 70% resin “Kynar 500” coating (i.e.: primer and color coats); and note that the finish system may be a traditional liquid or powder coat, complying with AAMA 2605, with a total dry film thickness of not less than 1.6-mils, and manufacturer’s standard 20-year minimum finish warranty; Manufacturer’s standard primer or washcoat on back side, and inside gutters.
  2. Colors: As selected by Architect after Bid Date, from manufacturer’s standard non-metallic colors; Minimum 15 colors to select from, including color(s) to match similar metal panel applications on the existing or new buildings, or window framing.
- 2.2 PRE-FINISHED ALUMINUM FLASHING (AT VENT STACKS):
- A. Pre-finished aluminum (.064” mill finish 1100-OT alloy aluminum) or stainless steel (.031” 22 ga. Type 304 stainless steel) vent stack flashing. (Basis of Design: Thaler)
1. For metal roofing, provide counterflashing over vent stacks, curbs, and other penetrations’ flashings in same material and color as metal roofing.
  2. Note that flashing at metal roofing shall also be as recommended by metal roof panel manufacturer and shall fully comply with applicable warranties.
- 2.3 SPECIAL FLASHING:
- A. Self-Adhering, Polyethylene-Faced Sheet: ASTM D 1970, 40 mils (1.0 mm) thick minimum, consisting of slip-resisting polyethylene-film reinforcing and top surface laminated to SBS-modified asphalt adhesive, with release-paper backing; cold applied.

- B. Products - Metal Siding Over Solid Substrates: Provide equivalent to "Ice and Water Shield" waterproofing underlayment, with self adhesive and self-sealing property, which will not crack, dry out, or rot and is resistant to fungus and bacteria, as manufactured by W.R. Grace & Company - Conn; Atlanta, Georgia, by one of the following:
1. Grace, W. R. & Co.; Grace Ice and Water Shield (*basis of design*).
  2. Henry Company; Perma-Seal PE.
  3. Johns Manville International, Inc.; Roof Defender.
  4. Polyguard Products, Inc.; Polyguard Deck Guard.
- C. Products - Metal Roofs, and Horizontal or Sloped Metal Flashings Over 6" Wide, Occurring Over Solid Substrates: Provide continuous, equivalent to "Ultra" high temperature resistant waterproofing roofing underlayment, as manufactured by W.R. Grace & Company - Conn; Atlanta, Georgia.
1. Self-Adhering, High-Temperature Sheet: 30 to 40 mils (0.76 to 1.0 mm) thick minimum, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.
  2. Thermal Stability: Stable after testing at 240 deg F (116 deg C); ASTM D 1970.
  3. Low Temperature Flexibility: Passes after testing at minus 20 deg F (29 deg C); ASTM D 1970.
  4. Products:
    - a. Grace, W. R. & Co.; Ultra (*basis of design*).
    - b. Henry Company; Perma-Seal PE.
    - c. As recommended in writing by Johns Manville International, Inc.
    - d. As recommending in writing by Polyguard Products, Inc..
- D. Products - Entire faces of below grade exterior retaining walls and footings acting as retaining walls, and where foundation drains are indicated, exterior side of below grade elevator pits and similar pit structures within building lines, and back side of all retaining walls (whether or not foundation drains are indicated), including in part, cleaning and preparation of substrate, detailing coats at all corners and perimeters of any penetrations and openings prior to coating applications, and extending up to just below finished grade elevation(s): Provide continuous, equivalent to "Bituthene Low Temperature" membrane, as manufactured by W.R. Grace & Company - Conn; Atlanta, Georgia.
- E. Install 1-layer over entire substrates indicated above. Where roofing planes intersect vertical walls and planes, turn edges up at least 8-inches.

- F. Coordinate with, and refer to Division 7 Roofing and Siding Sections for additional information and requirements.

2.4 MISCELLANEOUS MATERIALS AND ACCESSORIES:

- A. Solder:
  - 1. For use with steel or copper: Provide 50 - 50 tin/lead solder (ASTM B 32), with rosin flux.
  - 2. For use with stainless steel: Provide 60 - 40 tin/lead solder (ASTM B 32), with acid-chloride type flux, except use rosin flux over tinned surfaces.
- B. Fasteners: Same metal as flashing/sheet metal or other non-corrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened.
- C. Bituminous Coating: SSPC - Paint 12, solvent-type bituminous mastic, nominally free of sulfur, compounded for 15-mil dry film thickness per coat.
- D. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, non-drying, nonmigrating sealant.
- E. Elastomeric Sealant: Generic type recommended by manufacturer of metal and fabricator of components being sealed and complying with requirements for joint sealants as specified in Section 07900 - "Joint Sealers."
- G. Counterflashing and Reglets: Metal units of type and profile indicated, or if not indicated, as required for the intended use, compatible with flashing indicated, noncorrosive.
  - 1. At surface-mounted parapet and wall flashing conditions, equivalent to 2-piece "Springlok" Flashing Systems, as manufactured by Fry Reglet; Norcross, Georgia; Phone: 1-770-441-2337, except where brake-formed metal is specifically indicated.
- H. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of work, matching or compatible with material being installed, noncorrosive, size and gage required for performance.
- J. Provide precast concrete splashblock sloped away from building, approximately 12-inches wide x 24-inches long x 2-inches thick x 3-inches high, with 3-raised edges and one "open" end turned toward building - at locations where downspouts would otherwise drain on grade.

1. Provide 1-precast concrete splashblock at each downspout which drains onto grade or paving;
2. Provide 1-preformed metal pan with corrugated bottom and properly hemmed edges (minimum 12" x 24") at each downspout which drains onto a roof below.

2.5 FABRICATED UNITS:

- A. General Metal Fabrication: Shop-fabricate work to greatest extent possible. Comply with details shown and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate for waterproof and weather-resistant performance, with expansion provisions for running work, sufficient to permanently prevent leakage, damage, or deterioration of the work. Form work to fit substrates. Comply with material manufacturer instructions and recommendations for forming material. Form exposed sheet metal work without excessive oil-canning, buckling, and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.
  1. At metal roofing and horizontal or sloped metal flashings over 6-inches wide, provide custom configurations and continuous brake-metal roofing system, with continuous concealed clip anchors rated for I-90 uplift conditions, with 1-inch high standing seam Pittsburgh lock-seam joints - filled with sealant, double-folded, and corners turned down at 45-degrees.
  2. Provide matching materials and finish for fascia metal covering, flashing, counterflashing and trim.
- B. Seams: Fabricate nonmoving seams in sheet metal with standing seam at exposed tops and lapped side or edge seams. For metal other than aluminum, tin edges to be seamed, form seams, and solder. Form aluminum seams with epoxy seam sealer. Pop-rivet joints for additional strength where required and at vertical faces.
- C. Separations: Provide for separation of metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.
- D. Gutters: Form in "continuous" sections with the least number of joints, unless otherwise indicated, complete with end pieces, outlet tubes and other special pieces as required. Size as indicated on the Drawings, or if not indicated, size in accordance with SMACNA and submit for approval prior to fabrication. Join sections with riveted and soldered or sealed joints, concealed wherever possible. Provide expansion-type slip joint at locations indicated, or if not indicated, as recommended by SMACNA for the metal being used.

1. Furnish gutter supports spaced 36-inches on center, or 32-inches on center at 16" metal roofing panels, or 48-inches on center at 24" metal roofing panels, constructed of same metal as gutters.
  2. Provide bronze, copper, or aluminum wire ball strainers at outlets, which are slightly below front edge of gutters and not visible from normal view.
  3. Finish shall be as indicated, or if not indicated, to match roofing, roof edge fascia and rake, or as selected by Architect.
- E. Downspouts: Form in 10-foot-long sections, complete with elbows, offsets and other special pieces as required. Join sections with 1-1/2-inch telescoping joints. Provide off-set anchor straps / supports designed to hold downspouts securely 1-inch away from walls; locate anchor straps / supports at top and bottom and equally spaced at approximately 5-feet on center in between. Finish shall be as indicated, or if not indicated, to match gutters, roof edge fascia and rake, or as selected by Architect.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION REQUIREMENTS:

- A. General: Except as otherwise indicated, comply with manufacturer's current written installation instructions and recommendations, with SMACNA "Architectural Sheet Metal Manual," and reviewed submittals and shop drawings.
1. Install manufactured, bought-out items in accordance with manufacturer's current written instructions and recommendations.
  2. Anchor units of work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weatherproof.
- B. Underlayment: Where stainless steel or aluminum is to be installed directly on cementitious or wood substrates, install a slip sheet of red rosin paper and a course of polyethylene underlayment.
- C. Bed flanges of work in a thick coat of bituminous roofing cement where required for waterproof performance.
- D. Install reglets to receive counterflashing in manner and by methods indicated, in a straight line and single elevation.
- E. Install counterflashing in reglets, by snap-in seal arrangement for anchorage and filling reglet with mastic or elastomeric sealant, as indicated and depending on degree of sealant exposure, or if not indicated, as recommended by referenced standards, flashing and roofing manufacturers, and otherwise as required for the intended application.

- F. Nail or anchor flanges of expansion joint units to curb nailers, at maximum spacing of 6 inches o.c. Fabricate seams at joints between units with minimum 3-inch overlap, to form a continuous, waterproof system.
- G. Flashing:
  - 1. Comply with manufacturer's current written instructions and recommendations for installation of all systems components in all applications indicated on the Drawings, and as otherwise required by project conditions.
    - a. Provide minimum 3" lap joint between sections of flashing fully bed in sealant.
  - 2. At any parapet wall and roof curbs applications, extend flashing continuous, over top of wall or curb, and turn down two inches (2") minimum on exterior side of wall below the wood blocking and mechanically anchor in place at side of top of wall, below and concealed by continuous metal clip anchor (acting as termination bar) and metal cap flashing or coping, and down over top edge of roofing flashing material at roof side.
- H. Provide 1-precaster concrete splashblock at each downspout which drains onto grade, and 1-preformed metal pan at each downspout which drains onto roof below.

### 3.2 CLEANING AND PROTECTION:

- A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.
  - 1. After cleaning, repair and restore damaged metal and metal finishes with prefinished paint manufacturer's special air-drying touch-up paint, in manner such that touch-up is not apparent.
  - 2. Replace damaged flashing and sheet metal work which cannot be repaired and when finish repair and restoration is not acceptable to Architect.
- B. Protection: Advise Contractor of required procedures for surveillance and protection of flashings and sheet metal work during construction to ensure that work will be without damage or deterioration other than natural weathering at time of Substantial Completion.

END OF FLASHING AND SHEET METAL

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SECTION **07 7100**

**ROOF SPECIALTIES**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

- 1. Copings.
- 2. Roof-edge specialties.
- 3. Roof-edge drainage systems.
- 4. Reglets and counterflashings.

B. Related Requirements:

- 1. Section 061053 "Miscellaneous Rough Carpentry" for wood nailers, curbs, and blocking.
- 2. Section 075552 "Modified Bituminous Protected Membrane Roofing" for roof warranty requirements.
- 3. Section 076200 "Sheet Metal Flashing and Trim" for custom- and site-fabricated sheet metal flashing and trim.
- 4. Section 079200 "Joint Sealants" for field-applied sealants between roof specialties and adjacent materials.

C. Preinstallation Conference: Conduct conference at Project site.

- 1. Meet with Owner, Architect, Owner's insurer if applicable, roofing-system testing and inspecting agency representative, roofing Installer, roofing-system manufacturer's representative, Installer, structural-support Installer, and installers

whose work interfaces with or affects roof specialties, including installers of roofing materials and accessories.

2. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
3. Review special roof details, roof drainage, and condition of other construction that will affect roof specialties.

### 1.3 ACTION SUBMITTALS

#### A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

#### B. Shop Drawings: For roof specialties.

1. Include plans, elevations, expansion-joint locations, keyed details, and attachments to other work. Distinguish between plant- and field-assembled work.
2. Include details for expansion and contraction; locations of expansion joints, including direction of expansion and contraction.
3. Indicate profile and pattern of seams and layout of fasteners, cleats, clips, and other attachments.
4. Detail termination points and assemblies, including fixed points.
5. Include details of special conditions.

#### C. Samples: For each type of roof specialty and for each color and texture specified.

#### D. Samples for Initial Selection: For each type of roof specialty indicated with factory-applied color finishes.

#### E. Samples for Verification:

1. Include Samples of each type of roof specialty to verify finish and color selection, in manufacturer's standard sizes.

### 1.4 INFORMATIONAL SUBMITTALS

#### A. Qualification Data: For manufacturer.

- B. Product Certificates: For each type of roof specialty.
- C. Product Test Reports: For copings and roof-edge flashings, for tests performed by a qualified testing agency.
- D. Sample Warranty: For manufacturer's special warranty.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For roofing specialties to include in maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer offering products meeting requirements that are FM Approvals listed for specified class.
- B. Source Limitations: Obtain roof specialties approved by manufacturer providing roofing-system warranty specified in Section 075552 "Modified Bituminous Protected Membrane Roofing".
- C. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and set quality standards for fabrication and installation.
  - 1. Build mockup of typical roof edge as shown on Drawings.
  - 2. Build mockup of typical roof edge as part of Integrated Exterior Mockup specified in Section 014000 "Quality Requirements"
  - 3. Build mockup of typical roof edge, including fascia gutter and downspout, approximately 10 feet long, including supporting construction, seams, attachments, and accessories.
  - 4. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  - 5. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Do not store roof specialties in contact with other materials that might cause staining, denting, or other surface damage. Store roof specialties away from uncured concrete and masonry.
- B. Protect strippable protective covering on roof specialties from exposure to sunlight and high humidity, except to extent necessary for the period of roof-specialty installation.

1.8 FIELD CONDITIONS

- A. Field Measurements: Verify profiles and tolerances of roof-specialty substrates by field measurements before fabrication, and indicate measurements on Shop Drawings.
- B. Coordination: Coordinate roof specialties with flashing, trim, and construction of parapets, roof deck, roof and wall panels, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.9 WARRANTY

- A. Roofing-System Warranty: Roof specialties are included in warranty provisions in Section 075552 "Modified Bituminous Protected Membrane Roofing"
- B. Special Warranty on Painted Finishes: Manufacturer agrees to repair finish or replace roof specialties that show evidence of deterioration of factory-applied finishes within specified warranty period.
  - 1. Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
    - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
    - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
  - 2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Roof specialties shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.

- B. FM Approvals' Listing: Manufacture and install copings and roof-edge specialties that are listed in FM Approvals' "RoofNav" and approved for windstorm classification, Class 1-120. Identify materials with FM Approvals' markings.
- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of thermal movements. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
  - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

## 2.2 MANUFACTURER

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Metal-Era, Inc
  - 2. Hickman Company, W.P.
  - 3. Pac-Clad Petersen
  - 4. Architectural Products Co.
- B. Source Limitations: To the greatest extent possible, obtain all roof specialties products from single source from single manufacturer.

## 2.3 COPINGS

- A. Metal Copings: Manufactured coping system consisting of metal coping cap in section lengths not exceeding 12 feet, concealed anchorage; with corner units, end cap units, and concealed splice plates with finish matching coping caps.
  - 1. All rooftop metals to be minimum 040 kynar finish aluminum including fascia/gravel stop and gutters.
  - 2. Formed Aluminum Sheet Coping Caps: Aluminum sheet, 0.050-inch-thick or, as required to meet performance requirements.
    - a. Surface: Smooth, flat finish.
    - b. Finish: Three-coat fluoropolymer.
    - c. Color: As selected by Architect from Manufacturer's full range of colors..

## 2.4 ROOF-EDGE SPECIALTIES

- A. Canted Roof-Edge Fascia and Gravel Stop: Manufactured, two-piece, roof-edge fascia consisting of snap-on or compression-clamped metal fascia cover in section lengths not exceeding 12 feet and a continuous formed galvanized-steel sheet cant, 0.028 inch thick, minimum, with extended vertical leg terminating in a drip-edge cleat. Provide matching corner units. Aluminum fascia/gravel stop to have a continuous cleat with hidden fasteners.
1. Metallic-Coated Steel Sheet Fascia Covers: Zinc-coated (galvanized) steel, nominal 0.034-inch thickness or, as required to meet performance requirements.
    - a. Surface: Smooth, flat finish.
    - b. Finish: Three-coat fluoropolymer.
    - c. Color: As selected by Architect from Manufacturer's full range of colors..
  2. Formed Aluminum Sheet Fascia Covers: Aluminum sheet, 0.050-inch-thick or, as required to meet performance requirements.
    - a. Surface: Smooth, flat finish.
    - b. Finish: Three-coat fluoropolymer.
    - c. Color: As selected by Architect from Manufacturer's full range of colors..
- B. One-Piece Gravel Stops: Manufactured, one-piece, metal gravel stop in section lengths not exceeding 12 feet, with a horizontal flange and vertical leg, drain-through fascia terminating in a drip edge, and concealed splice plates of same material, finish, and shape as gravel stop. Provide matching corner units.
1. Metallic-Coated Steel Sheet Gravel Stops: Zinc-coated (galvanized) steel, nominal 0.034-inch thickness or, as required to meet performance requirements.
    - a. Surface: Smooth, flat finish.
    - b. Finish: Three-coat fluoropolymer.
    - c. Color: As selected by Architect from Manufacturer's full range of colors..
  2. Formed Aluminum Sheet Gravel Stops: Aluminum sheet, 0.050-inch-thick or, as required to meet performance requirements.
    - a. Surface: Smooth, flat finish.
    - b. Finish: Three-coat fluoropolymer.
    - c. Color: As selected by Architect from Manufacturer's full range of colors..
  3. Corners: Factory mitered and continuously welded.

## 2.5 ROOF-EDGE DRAINAGE SYSTEMS

- A. Gutters: Manufactured in uniform section lengths not exceeding 12 feet, with matching corner units, ends, outlet tubes, and other accessories. Elevate back edge at least 1 inch

above front edge. Furnish flat-stock gutter straps, gutter brackets, expansion joints, and expansion-joint covers fabricated from same metal as gutters.

1. Metallic-Coated Steel Sheet Gutters: Zinc-coated (galvanized) steel, nominal 0.034-inch thickness or, as required to meet performance requirements.
    - a. Surface: Smooth, flat finish.
    - b. Finish: Three-coat fluoropolymer.
    - c. Color: As selected by Architect from Manufacturer's full range of colors..
  2. Formed Aluminum Sheet Gutters: Aluminum sheet, 0.050-inch-thick or, as required to meet performance requirements.
    - a. Surface: Smooth, flat finish.
    - b. Finish: Three-coat fluoropolymer.
    - c. Color: As selected by Architect from Manufacturer's full range of colors..
  3. Gutter Profile: Match Existing.
  4. Gutter Supports: Match Existing
  5. Gutter Accessories: Wire ball downspout strainer.
- B. Downspouts: Plain rectangular complete with mitered elbows, manufactured from the following exposed metal. Furnish with metal hangers, from same material as downspouts, and anchors.
1. Metallic-Coated Steel Sheet Downspouts: Zinc-coated (galvanized) steel, nominal 0.034-inch thickness or, as required to meet performance requirements.
    - a. Surface: Smooth, flat finish.
    - b. Finish: Three-coat fluoropolymer.
    - c. Color: As selected by Architect from Manufacturer's full range of colors..
  2. Formed Aluminum Sheet Downspouts: Aluminum sheet, 0.050-inch-thick or, as required to meet performance requirements.
    - a. Surface: Smooth, flat finish.
    - b. Finish: Three-coat fluoropolymer.
    - c. Color: As selected by Architect from Manufacturer's full range of colors..
- C. Parapet Scuppers: Manufactured with closure flange trim to exterior, 4-inch-wide wall flanges to interior, and base extending 4 inches beyond cant or tapered strip into field of roof.
1. Zinc-Coated Steel: Nominal 0.028-inch thickness.
    - a. Finish: Three-coat fluoropolymer.
    - b. Color: As selected by Architect from Manufacturer's full range of colors..

- D. Conductor Heads: Manufactured conductor heads, each with flanged back and stiffened top edge, and of dimensions and shape indicated, complete with outlet tube that nests into upper end of downspout, exterior flange trim, and built-in overflow.
  - 1. Zinc-Coated Steel: Nominal 0.028-inch thickness.
    - a. Finish: Three-coat fluoropolymer.
- E. Splash Pans: Fabricate from the following exposed metal:
  - 1. Zinc-Coated Steel: Nominal 0.028-inch thickness.
    - a. Finish: Three-coat fluoropolymer.
    - b. Color: As selected by Architect from Manufacturer's full range of colors..

## 2.6 REGLETS AND COUNTERFLASHINGS

- A. Reglets: Manufactured units formed to provide secure interlocking of separate reglet and counterflashing pieces, from the following exposed metal:
  - 1. Stainless Steel: 0.025 inch thick.
  - 2. Corners: Factory mitered and continuously welded.
  - 3. Surface-Mounted Type: Provide reglets with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.
- B. Counterflashings: Manufactured units of heights to overlap top edges of base flashings by 4 inches and in lengths not exceeding 12 feet designed to snap into reglets and compress against base flashings with joints lapped, from the following exposed metal:
  - 1. Stainless Steel: 0.025 inch thick.
- C. Accessories:
  - 1. Flexible-Flashing Retainer: Provide resilient plastic or rubber accessory to secure flexible flashing in reglet where clearance does not permit use of standard metal counterflashing or where reglet is provided separate from metal counterflashing.
  - 2. Counterflashing Wind-Restraint Clips: Provide clips to be installed before counterflashing to prevent wind uplift of counterflashing lower edge.
- D. Stainless-Steel Finish: No. 2B (bright, cold rolled, unpolished).



2.7 MATERIALS

- A. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 coating designation.
- B. Aluminum Sheet: ASTM B 209, alloy as standard with manufacturer for finish required, with temper to suit forming operations and performance required.
- C. Aluminum Extrusions: ASTM B 221, alloy and temper recommended by manufacturer for type of use and finish indicated, finished as follows:
- D. Stainless-Steel Sheet: ASTM A 240/A 240M or ASTM A 666, Type 304.
- E. Copper Sheet: ASTM B 370, cold-rolled copper sheet, H00 or H01 temper.

2.8 UNDERLAYMENT MATERIALS

- A. Self-Adhering, High-Temperature Sheet: Minimum 30 to 40 mils thick, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.
  - 1. Thermal Stability: ASTM D 1970/D 1970M; stable after testing at 240 deg F.
  - 2. Low-Temperature Flexibility: ASTM D 1970/D 1970M; passes after testing at minus 20 deg F.
- B. Felt: ASTM D 226/D 226M, Type II (No. 30), asphalt-saturated organic felt, nonperforated.
- C. Slip Sheet: Rosin-sized building paper, 3-lb/100 sq. ft. minimum.

2.9 MISCELLANEOUS MATERIALS

- A. Fasteners: Manufacturer's recommended fasteners, suitable for application and designed to meet performance requirements. Furnish the following unless otherwise indicated:
  - 1. Exposed Penetrating Fasteners: Gasketed screws with hex washer heads matching color of sheet metal.
  - 2. Fasteners for Aluminum: Aluminum or Series 300 stainless steel.
  - 3. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.
  - 4. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Series 300 stainless steel or hot-dip zinc-coated steel according to ASTM A 153/A 153M or ASTM F 2329.

- B. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane polymer sealant of type, grade, class, and use classifications required by roofing-specialty manufacturer for each application.
- C. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type joints with limited movement.
- D. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.
- E. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

## 2.10 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. Coil-Coated Galvanized-Steel Sheet Finishes:
  - 1. High-Performance Organic Finish: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with ASTM A 755/A 755M and coating and resin manufacturers' written instructions.
    - a. Three-coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
    - b. Concealed Surface Finish: Apply pretreatment and manufacturer's standard acrylic or polyester backer finish consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.
- E. Coil-Coated Aluminum Sheet Finishes:
  - 1. High-Performance Organic Finish: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

- a. Three-coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
  - b. Concealed Surface Finish: Apply pretreatment and manufacturer's standard acrylic or polyester backer finish consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.
2. Color Anodic Finish: AAMA 611, AA-M12C22A42/A44, Class I, 0.018 mm or thicker.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of the Work.
- B. Examine walls, roof edges, and parapets for suitable conditions for roof specialties.
- C. Verify that substrate is sound, dry, smooth, clean, sloped for drainage where applicable, and securely anchored.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 UNDERLAYMENT INSTALLATION

- A. Self-Adhering Sheet Underlayment: Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Apply wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Roll laps with roller. Cover underlayment within 14 days.
  1. Apply continuously under copings roof-edge specialties and reglets and counterflashings.
  2. Coordinate application of self-adhering sheet underlayment under roof specialties with requirements for continuity with adjacent air barrier materials.
- B. Slip Sheet: Install with tape or adhesive for temporary anchorage to minimize use of mechanical fasteners under roof specialties. Apply in shingle fashion to shed water, with lapped joints of not less than 2 inches.

### 3.3 INSTALLATION, GENERAL

- A. General: Install roof specialties according to manufacturer's written instructions. Anchor roof specialties securely in place, with provisions for thermal and structural movement. Use fasteners, solder, protective coatings, separators, underlayments, sealants, and other miscellaneous items as required to complete roof-specialty systems.
  - 1. Install roof specialties level, plumb, true to line and elevation; with limited oil-canning and without warping, jogs in alignment, buckling, or tool marks.
  - 2. Provide uniform, neat seams with minimum exposure of solder and sealant.
  - 3. Install roof specialties to fit substrates and to result in weathertight performance. Verify shapes and dimensions of surfaces to be covered before manufacture.
  - 4. Torch cutting of roof specialties is not permitted.
  - 5. Do not use graphite pencils to mark metal surfaces.
- B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.
  - 1. Coat concealed side of uncoated aluminum and stainless-steel roof specialties with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.
  - 2. Bed flanges in thick coat of asphalt roofing cement where required by manufacturers of roof specialties for waterproof performance.
- C. Expansion Provisions: Allow for thermal expansion of exposed roof specialties.
  - 1. Space movement joints at a maximum of 12 feet with no joints within 18 inches of corners or intersections unless otherwise indicated on Drawings.
  - 2. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures.
- D. Fastener Sizes: Use fasteners of sizes that penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.
- E. Seal concealed joints with butyl sealant as required by roofing-specialty manufacturer.

- F. Seal joints as required for weathertight construction. Place sealant to be completely concealed in joint. Do not install sealants at temperatures below 40 deg F.
- G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of 1-1/2 inches; however, reduce pre-tinning where pre-tinned surface would show in completed Work. Tin edges of uncoated copper sheets using solder for copper. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.

### 3.4 COPING INSTALLATION

- A. Install cleats, anchor plates, and other anchoring and attachment accessories and devices with concealed fasteners.
- B. Anchor copings with manufacturer's required devices, fasteners, and fastener spacing to meet performance requirements.
  - 1. Interlock face-leg drip edge into continuous cleat anchored to substrate at 24-inch centers. Anchor back leg of coping with screw fasteners and elastomeric washers at 24-inch centers.

### 3.5 ROOF-EDGE SPECIALITIES INSTALLATION

- A. Install cleats, cants, and other anchoring and attachment accessories and devices with concealed fasteners.
- B. Anchor roof edgings with manufacturer's required devices, fasteners, and fastener spacing to meet performance requirements.

### 3.6 ROOF-EDGE DRAINAGE-SYSTEM INSTALLATION

- A. General: Install components to produce a complete roof-edge drainage system according to manufacturer's written instructions. Coordinate installation of roof perimeter flashing with installation of roof-edge drainage system.
- B. Gutters: Join and seal gutter lengths. Allow for thermal expansion. Attach gutters to firmly anchored gutter supports spaced not more than 24 inches apart. Attach ends with rivets and seal with sealant to make watertight. Slope to downspouts.
  - 1. Install gutter with expansion joints at locations indicated but not exceeding 50 feet apart. Install expansion-joint caps.

- C. Downspouts: Join sections with manufacturer's standard telescoping joints. Provide hangers with fasteners designed to hold downspouts securely to walls and 1 inch away from walls; locate fasteners at top and bottom and at approximately 60 inches o.c.
  - 1. Provide elbows at base of downspouts at grade to direct water away from building.
- D. Splash Pans: Install where downspouts discharge on low-slope roofs. Set in asphalt roofing cement.
- E. Parapet Scuppers: Install scuppers through parapet where indicated. Continuously support scupper, set to correct elevation, and seal flanges to interior wall face, over cants or tapered edge strips, and under roofing membrane.
  - 1. Anchor scupper closure trim flange to exterior wall and seal or solder to scupper.
  - 2. Loosely lock front edge of scupper with conductor head.
  - 3. Seal or solder exterior wall scupper flanges into back of conductor head.
- F. Conductor Heads: Anchor securely to wall with elevation of conductor top edge 1 inch below scupper discharge.

### 3.7 REGLET AND COUNTERFLASHING INSTALLATION

- A. General: Coordinate installation of reglets and counterflashings with installation of base flashings.
- B. Surface-Mounted Reglets: Install reglets to receive flashings where flashing without embedded reglets is indicated on Drawings. Install at height so that inserted counterflashings overlap 4 inches over top edge of base flashings.
- C. Counterflashings: Insert counterflashings into reglets or other indicated receivers; ensure that counterflashings overlap 4 inches over top edge of base flashings. Lap counterflashing joints a minimum of 4 inches and bed with butyl sealant. Fit counterflashings tightly to base flashings.

### 3.8 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder and sealants.

- C. Remove temporary protective coverings and strippable films as roof specialties are installed. On completion of installation, clean finished surfaces, including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain roof specialties in a clean condition during construction.
- D. Replace roof specialties that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

END OF SECTION 07 7100

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**SECTION 07 9200**

**JOINT SEALERS**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related work specified elsewhere includes:
  - 1. Section 32 1313 – “Curbs and Gutters”
  - 2. Section 03 3000 - “Concrete Work”
  - 3. Section 04 2200 - “Unit Masonry”
  - 4. Division 6 - “Wood And Plastics”
  - 5. Division 8 - “Doors and Windows”
  - 6. Division 9 - “Finishes”

**1.2 DESCRIPTION OF WORK:**

- A. Work described in this section includes joint sealer systems.

**1.3 SYSTEM PERFORMANCES:**

- A. Provide joint sealers that have been produced and installed to establish and maintain watertight and airtight continuous seals.

**1.4 QUALITY ASSURANCE:**

- A. Installer Qualifications: Engage an Installer who has successfully completed within the last three years at least 3 joint sealer applications similar in type and size to that of this project and who will assign mechanics from these earlier applications to this project, of which one will serve as lead mechanic.
- B. Single Source Responsibility for Joint Sealer Materials: Obtain joint sealer materials from a single manufacturer for each different product required.

- C. Refer to Division 1 Section “Special Conditions”, for additional information and minimum experience requirements.

**1.5 SUBMITTALS:**

- A. Product Data: Submit manufacturer’s complete product specifications, handling/installation/curing instructions, color charts and performance tested data sheets for each product required.

**1.6 DELIVER, STORAGE AND HANDLING:**

- A. Deliver materials to project site in original unopened containers or bundles with labels informing about manufacturer, product name and designation, color, expiration period for use, pot life, curing time and mixing instructions for multi-component materials.
- B. Store and handle materials to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.
- C. Refer to Division 1 Sections “Summary of Work” and “Special Conditions” for additional information and requirements regarding stored materials.

**1.7 PROJECT CONDITIONS:**

- A. Environmental Conditions: Do not proceed with installation of joint sealers under the following conditions:
  - 1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealer manufacturer or below 40° F.
  - 2. When joint substrates are wet due to rain, frost, condensation or other causes.
- B. Joint Width Conditions: Do not proceed with installation of joint sealers when joint widths are less than allowed by joint sealer manufacturer for application indicated.
- C. Asbestos Prohibited: Refer to Section 01015 - “Special Conditions”.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS, GENERAL:**

- A. Compatibility: Provide joint sealers, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by testing and field experience.
- B. Colors: Provide color of exposed joint sealers indicated, or if not indicated, as selected by Architect from manufacturer's standard colors.

### **2.2 URETHANE SEALANT**

- A. Urethane Sealant – MasterSeal NP-2 or Equivalent. Provide manufacturer's standard chemically curing, urethane sealant of base polymer indicated which complies with ASTM C 920 requirements, including those for Type, Grade, Class and Uses.
- B. Multi-Part Nonsag Urethane Sealant: Type M, Grade NS, Class 25, Uses NR, M, A and, as applicable to joint substrates indicated, O.
  - 1. Products: Subject to compliance with requirements, provide one of the following:
    - a. BASF Building Systems, "MasterSeal NP 2"
    - b. Pecora Corp., "Dynatrol II"
    - c. Sika Corporation, "Sikaflex 2CNS"
    - d. Tremco, Inc., "Dymeric 240FC"
  - 2. Locations for Use: Exterior joints and penetrations in vertical surfaces of concrete, and between metal and concrete, mortar of stone; overhead or ceiling joints; perimeters of metal frames in exterior walls; vertical expansion and control joints in masonry and concrete; and at all miscellaneous locations requiring a joint sealant.
  - 3. Equivalent 1-part sealants will be acceptable for interior surfaces only, by one of the above named manufacturers.
  - 4. Where used in conjunction with stucco or EIFS, provide 1-part non-yellowing aliphatic polyurethane, equivalent to one of the following:
    - a. BASF Building Systems, "MasterSeal CR 195"
    - b. Pecora Corp., "Dynatrol I-XL Tru-White"

- C. Two-Part Pourable Urethane Sealant: Type M, Grade P, Class 25; Uses T, M, A and, as applicable to joint substrates indicated, O.
1. Products: Subject to compliance with requirements, provide one of the following:
    - a. BASF Building Systems, "MasterSeal SL 2"
    - b. Bostik Findley, "Chem-Calk 550".
    - c. Pecora Corporation, "NR-200 Urexpan".
    - d. Sika Corporation, "Sikaflex 2CSL"
    - e. Tremco, Inc., "THC-900/901".
    - f. Tremco, Inc., "Vulkem 45SSL".
    - g. W. R. Meadows, Inc., "Pourthane".
  2. Locations for Use: Exterior and interior expansion, control and construction joints in horizontal surfaces; and joints subject to pedestrian and light vehicular traffic.
- D. One-Part Mildew-Resistant Silicone Sealant: Type S, Grade NS; Class 25, Uses NT, G, A and, as applicable to nonporous joint substrates indicated, O; formulated with fungicide for sealing interior joints with nonporous substrates around ceramic tile, showers, sinks and plumbing fixtures.
1. Products: Subject to compliance with requirements, provide one of the following:
    - a. Dow Corning Corp., "Dow-Corning 786"
    - b. General Electric, "SCS 1702".
    - c. Pecora Corp., "863 #345 White"
    - d. Sika Corporation, Sikasil GP
    - e. Tremco, Inc., "Tremsil 200"; White, Clear.
  2. Locations for Use: Interior joints in vertical surfaces and terminal edges of tile; and joints at damp areas, such as around sinks and plumbing fixtures and pipe penetrations; and exposed terminal edges of vinyl flooring, such as around door frames and terminations at concrete.

### **2.3 LATEX JOINT SEALERS:**

- A. Acrylic-Emulsion Sealant: Manufacturer's standard, one part nonsag, acrylic, mildew resistant, acrylic emulsion sealant complying with ASTM C 834, formulated to be paintable and recommended for exposed applications on interior and on protected exterior exposures involving joint movement of not more than +7.5%.

1. Products: Subject to compliance with requirements, provide with one of the following:
  - a. Bostik Construction Products Div.; "Chem-Calk 600";
  - b. Pecora Corp.; "AC-20";
  - c. Tremco Inc.; "Tremflex 834";
2. Locations for Use: Interior joints in field-painted vertical and overhead surfaces at perimeter of metal door frames, gypsum drywall, plaster and concrete or concrete masonry; and all other interior locations not indicated otherwise.

#### **2.4 FIRE-RESISTANT JOINT SEALERS:**

- A. Refer to Section 07270 - "Firestopping," for additional information and detailed requirements.

#### **2.5 JOINT SEALANT BACKING:**

- A. General: Provide sealant backings of material and type which are non-staining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Plastic Foam Joint-Fillers:
  1. Preformed, compressible, resilient, non-waxing, non-extruding strips of plastic foam of material indicated below, and of size, shape and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
  2. Backer Rod: Premium grade, closed cell polyethylene foam rod; Sealtight Backer Rod, as manufactured by W.R. Meadows, Inc., or approved equivalent.
  3. Joint Filler: "Ceramar" flexible foam expansion joint filler, as manufactured by W.R. Meadows, Inc., or approved equivalent.
- C. Bond Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing bond between sealant and joint filler or other materials at back (3rd) surface of joint. Provide self-adhesive tape where applicable.

**2.6 MISCELLANEOUS MATERIALS:**

- A. Primer: Provide type recommended by joint sealer manufacturer where required for adhesion of sealant to joint substrates indicated.
- B. Cleaners for Nonporous Surfaces: Provide non-staining, chemical cleaner of type acceptable to manufacturer of sealant and sealant backing materials which are not harmful to substrates and adjacent nonporous materials.
- C. Masking Tape: Provide non-staining, non-absorbent type compatible with joint sealants and to surface adjacent to joints.

**PART 3 - EXECUTION**

**3.1 INSPECTION:**

- A. Require Installer to inspect joints indicated to receive joint sealers for compliance with requirements for joint configuration, installation tolerances and other conditions affecting joint sealer performance. Obtain Installer's written report listing any conditions detrimental to performance of joint sealer work. Do not allow joint sealer work to proceed until unsatisfactory conditions have been corrected.

**3.2 PREPARATION:**

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers and the following requirements:
  - 1. Remove all foreign material from joint substrates which could interfere with adhesion of joint sealer, including dust; paints, except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer; oil; grease; waterproofing; water repellents; water; surface dirt and frost.
  - 2. Clean concrete, masonry, unglazed surfaces of ceramic tile and similar porous joint substrate surfaces, by brushing, grinding, blast cleaning, mechanical abrading, acid washing or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealers. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
  - 3. Remove latex and form release agents from concrete.

4. Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile and other non-porous surfaces by chemical cleaners or other means which are not harmful to substrates or leave residues capable of interfering with adhesion of joint sealers.
- B. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealer manufacturer based on preconstruction joint sealer-substrate tests or prior experience. Apply primer to comply with joint sealer manufacturer's recommendations. Confine primers to areas of joint sealer bond, do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces which otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

### **3.3 INSTALLATION OF JOINT SEALERS:**

- A. General: Comply with joint sealer manufacturer's printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.
- B. Elastomeric Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications and conditions indicated.
- C. Latex Sealant Installation Standard: Comply with requirements of ASTM C 790 for use of latex sealants.
- D. Installation of Sealant Backings:
  1. Install sealant backings to comply with the following requirements:
  2. Install joint-fillers of type indicated or recommended by sealant manufacturer to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths which allow optimum sealant movement capability.
    - a. Do not leave gaps between ends of joint-fillers.
    - b. Do not stretch, twist, puncture or tear joint-fillers.

- c. Remove absorbent joint-fillers which have become wet prior to sealant application and replace with dry material.
  3. Install bond breaker tape between sealants and joint-fillers, compression seals or back of joints where required to prevent third-side adhesion of sealant to back of joint.
- E. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration and providing uniform, cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants:
  1. Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents which discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.
  2. Concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

### **3.4 PROTECTION AND CLEANING:**

- A. Protect joint sealers during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of substantial completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealers immediately and reseal joints with new materials to produce joint sealer installations with repaired areas indistinguishable from original work.
- B. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealers and of products in which joints occur.

### **3.5 SCHEDULE OF ACOUSTICAL JOINT SEALANTS:**

- A. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.



- B. Manufacturers/Products: Subject to compliance with requirements, provide preapproved equivalent to one of the following:
1. Pecora Corporation; AC-20 FTR or AIS-919.
  2. USG Corporation; SHEETROCK Acoustical Sealant.
- C. Locations for Use: At locations indicated for various materials and systems, including in part, both sides of stud tracks for interior stud wall assemblies, top flange of lay-in ceiling grids and gypsum ceiling supporting grid systems and other locations so indicated.

**3.6 JOINT SEALANT ADHESION TESTING:**

- A. Provide Air Barrier to transition membrane to fenestration adhesion testing in accordance with ASTM C1521, Method A and Section 01 91 80 "Building Envelope Commissioning Requirements".
- B. Adhesion Testing per ASTM C1521-19

During three (3) phases of the project and after curing time has passed, three (3) adhesion test should be conducted at 25%, 50% and 75% of the project. Adhesion testing should be conducted by an approved representative of the sealant company. These tests should be submitted in writing on the Sealant Company's Letterhead. Failure could result in the removal of all sealant install and a full replacement at no cost to the Owner.

**END OF SECTION 07 9200**

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**SECTION 08 1213**

**HOLLOW METAL FRAMES**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes hollow-metal frames.
- B. Related Requirements:
  - 1. Section 081416 "Flush Wood Doors" for wood doors installed in hollow metal frames.
  - 2. Section 087100 "Door Hardware" for door hardware for wood doors in hollow metal frames.

1.3 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

1.4 COORDINATION

- A. Coordinate anchorage installation for hollow-metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

1.5 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1. Include construction details, material descriptions, fire-resistance ratings, and finishes.

B. Shop Drawings: Include the following:

1. Elevations of each frame type.
2. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
3. Locations of reinforcement and preparations for hardware.
4. Details of each different wall opening condition.
5. Details of anchorages, joints, field splices, and connections.
6. Details of moldings, removable stops, and glazing.
7. Details of conduit and preparations for power, signal, and control systems.

C. Schedule: Provide a schedule of hollow-metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final Door Hardware Schedule.

#### 1.7 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: For each type of frame assembly, for tests performed by a qualified testing agency.
- B. Oversize Construction Certification: For assemblies required to be fire rated and exceeding limitations of labeled assemblies.

#### 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver hollow-metal work palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use non-vented plastic.
- B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Store hollow-metal work vertically under cover at Project site with head up. Place on minimum 4-inch-gh wood blocking. Provide minimum 1/4-inchspace between each unit to permit air circulation.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Ceco Door Products; an Assa Abloy Group company.
2. Amweld International, LLC.
3. Concept Frames, Inc.
4. Curries Company; an Assa Abloy Group company.
5. Deansteel.
6. Karpen Steel Custom Doors & Frames.
7. Mesker Door Inc.
8. Republic Doors and Frames.
9. Steelcraft; an Ingersoll-Rand company.

- B. Source Limitations: Obtain hollow-metal work from single source from single manufacturer.

## 2.2 REGULATORY REQUIREMENTS

- A. Fire-Rated Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
- B. Fire-Rated, Borrowed-Light Assemblies: Complying with NFPA 80 and listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing according to NFPA 257 or UL 9.

## 2.3 INTERIOR FRAMES

- A. Construct interior frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.
- B. Comply with NAAMM-HMMA 861 "Guide Specifications for Commercial Hollow Metal Doors and Frames".

## 2.4 WELDED FRAMES

- A. Standard-Duty Frames: SDI A250.8, Level 1. Not Applicable.
- B. Heavy-Duty Frames: SDI A250.8, Level 2. Typical unless noted otherwise.
1. Physical Performance: Level B according to SDI A250.4.
  2. Materials: Uncoated steel sheet, minimum thickness of 0.053 inch
  3. Construction: Face welded.
  4. Exposed Finish: Prime.

2.5 DRYWALL FRAMES

- A. Not Applicable.

2.6 FRAME ANCHORS

- A. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.
3. Compression Type for Drywall Slip-on Frames: Adjustable compression anchors.
4. Postinstalled Expansion Type for In-Place Concrete or Masonry: Minimum 3/8-inch-diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.

- B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at finish floor surface.

2.7 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.
- D. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Zcoating designation; mill phosphatized.
- E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- F. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.

- G. Grout: ASTM C 476, except with a maximum slump of 4 inches as measured according to ASTM C 143/C 143M.
- H. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool with 6- to 12-lb/cu. ft. density; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.
- I. Glazing: Comply with requirements in Section 088000 "Glazing."
- J. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mildry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

## 2.8 FABRICATION

- A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
  - 1. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
  - 2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
  - 3. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
  - 4. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
  - 5. Jamb Anchors: Provide number and spacing of anchors as follows:
    - a. Masonry Type: Locate anchors not more than 16 inches from top and bottom of frame. Space anchors not more than 32 inches o.c., to match coursing, and as follows:
      - 1) Two anchors per jamb up to 60 inches high.
      - 2) Three anchors per jamb from 60 to 90 inches high.
      - 3) Four anchors per jamb from 90 to 120 inches high.

- 
- 4) Four anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 120 inches high.
  - b. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
    - 1) Three anchors per jamb up to 60 inches high.
    - 2) Four anchors per jamb from 60 to 90 inches high.
    - 3) Five anchors per jamb from 90 to 96 inches high.
    - 4) Five anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
  - c. Compression Type: Not less than two anchors in each frame.
  - d. Postinstalled Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.
  6. Head Anchors: Two anchors per head for frames more than 42 inches wide and mounted in metal-stud partitions.
  7. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.
    - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
    - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
  - C. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
    1. Reinforce frames to receive non-templated, mortised, and surface-mounted hardware.
    2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.
  - D. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with mitered hairline joints.
    1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow-metal work.
    2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
    3. Provide fixed frame moldings on outside of exterior and on secure side of interior frames.
    4. Provide loose stops and moldings on inside of hollow-metal work.
    5. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.



2.9 STEEL FINISHES

- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
  - 1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

2.10 ACCESSORIES

- A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.
- B. Grout Guards: Formed from same material as frames, not less than 0.016 inch thick.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.
- C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
- B. Drill and tap frames to receive non-templated, mortised, and surface-mounted hardware.

3.3 INSTALLATION

- A. General: Install hollow-metal work plumb, rigid, properly aligned, and securely fastened in place. Comply with Drawings and manufacturer's written instructions.

- 
- B. Hollow-Metal Frames: Install hollow-metal frames of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.
1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
    - a. At fire-rated openings, install frames according to NFPA 80.
    - b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
    - c. Install frames with removable stops located on secure side of opening.
    - d. Install door silencers in frames before grouting.
    - e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
    - f. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
    - g. Field apply bituminous coating to backs of frames that will be filled with grout containing anti-freezing agents.
  2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
    - a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
  3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation inside frames.
  4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
  5. Concrete Walls: Solidly fill space between frames and concrete with mineral-fiber insulation.
  6. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
  7. In-Place Metal or Wood-Stud Partitions: Secure slip-on drywall frames in place according to manufacturer's written instructions.
  8. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
    - a. Squareness: Plus or minus 1/16 inch measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    - b. Alignment: Plus or minus 1/16 inch measured at jambs on a horizontal line parallel to plane of wall.
    - c. Twist: Plus or minus 1/16 inch measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.

- d. Plumbness: Plus or minus 1/16 inch measured at jambs at floor.
  - C. Glazing: Comply with installation requirements in Section 088000 "Glazing" and with hollow-metal manufacturer's written instructions.
    - 1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c. and not more than 2 inches o.c. from each corner.
- 3.4 ADJUSTING AND CLEANING
- A. Final Adjustments: Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.
  - B. Remove grout and other bonding material from hollow-metal work immediately after installation.
  - C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
  - D. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.
  - E. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION 081213

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**SECTION 08331**

**OVERHEAD COILING DOORS**

**PART I - GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related work specified elsewhere includes:
  - 1. Section 07900 - "Joint Sealers"
  - 2. Section 09900 - "Painting"
  - 3. Division 16 - Electrical

**1.2 SUMMARY:**

- A. This Section includes the following types of overhead coiling doors:
  - 1. Manually operated, galvanized, factory powder coated, non-rated, insulated overhead doors, with complete weatherstripping, hood with internal baffle, and all standard accessories, controls, and as indicated on the Drawings, and all related work.

**1.3 DEFINITIONS:**

- A. Operation Cycle: One complete cycle of a door begins with the door in the closed position. The door is then moved to the open position and back to the closed position.

**1.4 PERFORMANCE REQUIREMENTS:**

- A. Structural Performance: Provide overhead coiling doors capable of withstanding the effects of gravity loads and the following loads and stresses without evidencing permanent deformation of door components, and as otherwise required by applicable codes and actual project conditions:
  - 1. Wind Load (minimum): Wind Speed of **110 MPH** unless higher wind speed is indicated on Structural Drawings or otherwise required by applicable codes and authorities having jurisdiction; Uniform pressure (velocity pressure) of not less than 20 lbf/sq. ft., acting inward and outward for exterior conditions.
- B. Operation-Cycle Requirements: Design overhead coiling door components and operator assembly to operate for not less than 20,000 cycles and for 10 cycles per day.
  - 1. Include tamperproof cycle counter.

**1.5 SUBMITTALS:**

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product Data: For each type and size of overhead coiling door and accessory. Include details of construction relative to materials, dimensions of individual components, profiles, and finishes. Provide roughing-in diagrams, operating instructions, and maintenance information. Include the following:
  - 1. Setting drawings, templates, and installation instructions for built-in or embedded anchor devices.
  - 2. Summary of forces and loads on walls and jambs.
- C. Shop Drawings: For special components and installations not dimensioned or detailed in manufacturer's data sheets.
- D. Samples of each type of exposed finish required, prepared on Samples of size indicated below and of same thickness and material indicated for Work.
  - 1. Curtain Slats: 12-inch300-mm length.
  - 2. Bottom Bar: 6-inch150-mm length.
  - 3. Other Components: Each type of exposed finish.
- E. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.
- F. Sample of written warranties and guarantees.

**1.6 QUALITY ASSURANCE:**

- A. Installer Qualifications: Engage an experienced installer who is an authorized representative of the overhead coiling door manufacturer for both installation and maintenance of units required for this Project.
- B. Source Limitations: Obtain overhead coiling doors through one source from a single manufacturer.

**1.7 WARRANTIES AND GUARANTEES:**

- A. Manufacturer's Warranty: Manufacturer's standard guarantees and warranties for products, components, finishes, labor and materials, and total overhead coiling door assemblies. Signed by an authorized representative of overhead coiling doors manufacturers, on form published with current product literature as of date of Contract Documents.

- B. The Guarantees and Warranties shall be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents, and shall not deprive or limit the Owner of any other rights the Owner may have for remedy.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS:**

- A. Manufacturer: Subject to compliance with requirements, provide products by one of the following:
1. Alpine Overhead Doors, Inc.
  2. Atlas Door Corp.; Div. of Clopay Building Products Co.
  3. The Cookson Company.
  4. Cornell Iron Works Inc.
  5. Overhead Door Corporation (*Basis of Design, materials, quality and warranty*).
  6. Wayne-Dalton Corp.

### **2.2 COMMERCIAL SERVICE DOORS:-**

- A. Manually Operated Overhead Coiling Door - Non-Rated: Provide Series No. 625 (Basis of Design), insulated, galvanized steel assembly and construction, as manufactured by Overhead Door Corporation, and as specified, or equivalent by one of the above named manufacturers, complete with all standard features and accessories, and as follows:
1. Flat profile 24-gauge galvanized steel slats; Steel Door Curtain Slats: Zinc-coated (galvanized), cold-rolled structural steel sheet; complying with ASTM A 653/A 653M, with G90 (Z275) zinc coating; nominal sheet thickness (coated) of 0.028 inch (0.71 mm) and as required to meet requirements.
  2. Finish: Manufacturer's standard factory powder coated, color as selected.
  3. Galvanized structural steel angles at bottom bar with astragal, with combination bottom weatherseal.
  4. Roll-formed galvanized steel guides, with weatherstripping, end-locks and wind-locks.
  5. Torsion springs counterbalance mechanism.
  6. Galvanized steel hood, box-shaped, 24-gauge, with internal weather / wind baffle.
  7. Manual operation, with interior slide bolt locking bars equipped to accept padlocks. Adaptable for the addition of a future motorized operator.
  8. Designed for face-of-wall mounting, unless between jambs mounting is indicated on the Drawings.
  9. Weatherseals: Bottom, exterior guides, interior hood, and interior guides.
  10. Push/Pull Handles: For manual push-up- operation of doors, provide galvanized steel lifting handles on each side of door and chain hoist operator.
    - a. Provide pull-down straps or pole hooks for doors more than 84-inches high.

11. Manufacturer's standard guarantees and warranties for products, components, finishes, labor and materials, and total overhead coiling door assemblies.

### **2.3 FINISHES, GENERAL**

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION:**

- A. General: Install doors and operating equipment complete with necessary hardware, jamb and head mold strips, anchors, inserts, hangers, and equipment supports according to reviewed Shop Drawings, manufacturer's current written instructions, and as specified.
- B. Provide complete installation with all standard and listed optional accessories and features, so as to provide complete, properly operating and fully functional installations.
- C. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.
- D. Securely and rigidly brace components suspended from structure. Secure guides to structural members only.
- E. Fit and align assembly including hardware; level and plumb, to provide smooth operation.
- F. Coordinate installation of electrical service with Division 16. Complete wiring from disconnect to unit components.
- G. Coordinate installation of sealants and backing materials at frame perimeter as specified in Section 07900.
- H. Install perimeter trim and closures.

### **3.2 ADJUSTING:**

- A. Lubricate bearings and sliding parts; adjust doors to operate easily, free from warp, twist, and/or distortion, and fitting weathertight for entire perimeter.



- B. Repair damaged components and restore damaged finishes, to original and unnoticeable condition, or replace.

**3.3 DEMONSTRATION:**

- A. Startup Services: Engage a factory-authorized service representative to perform startup services and to train Owner's maintenance personnel as specified below:
  - 1. Test and adjust controls and safeties. Replace damaged and malfunctioning equipment.
  - 2. Train Owner's maintenance personnel on procedures and schedules related to startup and shutdown, troubleshooting, servicing, preventive maintenance, and procedures for testing and resetting release devices.
  - 3. Review data in the maintenance manuals. Refer to Division 1 Section "Contract Closeout."
  - 4. Schedule training with Owner with at least 7 days' advance notice.

**END OF OVERHEAD COILING DOORS**

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**SECTION 08710**

**DOOR HARDWARE**

**PART 1 GENERAL**

1.1 **SECTION INCLUDES**

- A. All items known commercially as Finish or Door Hardware.
- B. Thresholds and Weather-Stripping/Door Seals.

1.1 **RELATED SECTIONS**

- A. Section 08100 – Steel Doors and Frames.
- B. Section 08200 – Wood and Plastic Doors.
- C. Section 08400 – Entrances and Storefronts.

1.1 **REFERENCES**

- A. BHMA (Builders Hardware Manufacturers Association) A156 series.
- B. ANSI/DHI A115.IG – 1994 Installation Guide for Doors and Hardware.
- C. ANSI A250.6 – 1997 Recommended Practice for Hardware Reinforcing on Steel Doors and Frames.
- D. NFPA – 80 – Fire Doors and Windows.
- E. NFPA – 101-2000 - Life Safety Code.
- F. ADA – Americans with Disabilities Act.
- G. ANSI A250.13 – Wind Resistant Building Component Testing.
- H. All Applicable Local and State Codes.

1.1 **SUBMITTALS**

- A. Procedures of Division 1, Section 01330 – Submittal procedures apply to this section.
- B. Product Data – Submit two (2) copies of manufacturer’s catalog sheets describing each item of hardware to be supplied.

- C. Schedules – Submit six (6) copies of hardware schedules for Architect’s approval. Schedules are to include quantity, type, location, finish and manufacturer of each item of hardware for each opening. Schedule may be horizontal or vertical format. No material is to be ordered until the submittal is approved. After approval, no substitutions will be allowed without the written approval of the Architect.
- D. Samples – If requested by the Architect, submit a sample of each hardware item in the design and finish to be used on the project. Samples may be used on the project provided they are undamaged during the submittal process.
- E. Templates – Furnish template information to the General Contractor for use by other trades in fabricating related materials.
- F. Project Closeout – On completion of the project, furnish one (1) copy of the “as furnished” hardware schedule along with one (1) copy each of the keying schedule, manufacturer’s maintenance instructions and any special tools which may be required to maintain or adjust the hardware. In addition, furnish copies of all manufacturer’s warranties for the owner’s records.

1.1 QUALITY ASSURANCE

- A. Manufacturers and model numbers listed in the hardware sets portion of this specification are for the purpose of establishing a standard of quality. Similar products by approved manufacturers that are equal in design, function and quality will be acceptable upon prior approval of the Architect provided the required physical samples and data are submitted in accordance with Section 01600.
- B. Supplier: A recognized builders hardware supplier whose principal office and place of business is located within 150 miles of the project site, who has been furnishing hardware in the project’s vicinity for a period of not less than five (5) years; and who is, or has in full time employment an Architectural Hardware Consultant (AHC) in good standing as certified by the American Society of Architectural Hardware Consultants, or equivalent, and who is a direct distributor of the products approved, for warranty purposes. This paragraph will be strictly enforced. All schedules shall be signed by an AHC.

The supplier must have demonstrated willingness to coordinate field problems, and (upon reasonable compensation) to assist the Owner in re-keying and service operations. He must have a reputation for supplying quality material. Pre-bid approval is required via addendum; the following are accorded such approval in advance:

- 1. Brabner & Hollon; Mobile, AL
- 2. Kelley Bros; Daphne, AL
- 3. Ladd Architectural Door; Mobile, AL

4. Mullins Building Products; Birmingham, AL
5. Mullins Building Products; Montgomery, AL
6. Rayford & Associates, Inc.; Mobile, AL
7. Warren Hollow Metal, Pensacola, FL
8. Slone Door, Pensacola, FL

- C. The hardware manufacturer shall be a recognized firm regularly engaged in the manufacture and sale of finished hardware items.
- D. If required, the hardware supplier shall furnish certification and documentation that his materials meet all physical and environmental requirements of the project.
- E. As near as possible, obtain each type of hardware (hinges, locks, closers, etc.) from a single manufacturer.
- F. Provide hardware for fire rated openings that complies with the requirements of NFPA 80 and authorities having jurisdiction. Provide only items of door hardware that have been tested and listed by UL, FM, Warnock-Hersey or other testing organizations acceptable to the authorities having jurisdiction.
- G. All hardware shall meet the requirements set forth in the Americans with Disabilities Act (ADA) and state and local handicapped codes.

1.1 DELIVERY, STORAGE AND PROTECTION

- A. Section 01600 pertaining to transportation, handling and storage of project materials applies to this section.
- B. Package each item individually. Label and clearly identify each package with item nomenclature and door opening. Correlate all making and opening numbers to match the hardware schedule.
- C. The General Contractor is to provide a secure, locked storage area for all items delivered to the jobsite.
- D. The General Contractor shall inventory all items delivered to the jobsite within forty-eight hours and advise the supplier immediately of any shortages.

1.1 PROJECT CONDITIONS

- A. The General Contractor will coordinate the work between this supplier and other related sections such as hollow metal and wood door suppliers to insure proper manufacturer and fabrication of doors to receive the approved hardware.

1.1 WARRANTY

- A. All hardware items are to be warranted for a period of one (1) year from date of substantial project completion. Door closers are to be warranted for five (5) years.
- B. Warranty is to cover failure due to manufacturing defects or material failure only. It shall not cover abuse, vandalism, improper installation or maintenance. Defective materials are to be replaced at no cost to the owner.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable products and their manufacturers are listed below. Specific information regarding functions, sizes, mounting and types is found in the hardware sets at the end of the section.

1. Continuous Gear Hinges

	MFG'R	FINISH	TYPE/SERIES
a.	Ives	628	AS SPECIFIED
b.	McKinney	628	EQUAL
c.	Select	628	EQUAL

2. Exit Devices & Mullions

	MFG'R	FINISH	SERIES/DESIGN
a.	Von Duprin	US26D	HH-98 Series*
b.	Detex	630	10 Series
c.	Exit devices shall be same manufacturer for all doors.		

3. Locks, Latches

	MFG'R	FINISH	SERIES/DESIGN
a.	Schlage	626	L9000 Series*
b.	Sargent	626	8200 Series
b.	Lever design shall be Schlage "06A" design.		

4. Cylinders

	MFG'R	FINISH	SERIES/DESIGN
a.	Sargent combined	626	Typically #65-73-7P Un- for field master keying by owner.

5. Closers

	MFG'R	FINISH	SERIES/DESIGN
a.	Sargent	689	281 Series
b.	LCN	689	4000 Series *
c.	All closers bodies are to be cast iron construction. Closer piston diameter shall be minimum 1 1/2". All surface door closers are to be through-bolt mounted.		

6. Push/Pulls/Kickplates

	MFG'R	FINISH	TYPE/SERIES
a.	Ives	32DDMS	AS SPECIFIED *
b.	McKinney	32DDMS	EQUAL
c.	Trimco	32DDMS	EQUAL

7. Overhead Stops

	MFG'R	FINISH	TYPE/SERIES
a.	G-J	32D	90/450 Series
b.	ABH	32D	9000/4400 Series

8. Stops and Miscellaneous Items

	MFG'R	FINISH	ITEM
a.	Ives	32D	AS SPECIFIED *
b.	McKinney	32D	Equal
c.	Trimco	32D	Equal

9. Thresholds and Weather stripping

	MFG'R	FINISH	TYPE/ITEM
a.	Zero	AL	AS SPECIFIED
b.	National Guard Products	AL	EQUAL
c.	K N Crowder	AL	EQUAL

10. Butt Hinges

	MFG'R	FINISH	TYPE/SERIES
a.	Ives	*652	AS SPECIFIED
b.	McKinney	*652	EQUAL
c.	Stanley	*652	EQUAL

\* Hinges at the Pool Building shall be satin stainless steel, 630 finish.

- B. Substitutions – Substitutions from the listed manufacturers and products without prior approval of the architect are not permitted. Suppliers desiring to bid products not listed must make written application to the architect no less than seven (7) working days prior to the bid date. Applications must be accompanied by manufacturers complete literature and/or samples to allow the Architect to make an informed decision. Verbal requests will not be considered. Approval of alternate manufacturers products will be by addendum at least two (2) days prior to bid date to insure an equitable competitive situation for all bidders.

2.02 MATERIALS AND FABRICATION

- A. Base Metals – Produce hardware units of basic metal and forming method indicated using manufacturer’s standard metal alloy, composition, temper and hardness, but in no case of lesser (commercially recognized) quality than specified for applicable hardware units for finish designations indicated.

- B. Fasteners – Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.
- C. Furnish screws for installation with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Furnish exposed (exposed under any condition) screws to match hardware finish or if exposed in surfaces of other work, to match finish of this other work as closely as possible including “prepared for paint” surfaces to receive painted finish.
- D. Provide concealed fasteners for hardware units that are exposed when door is closed except to the extent no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt heads or nuts are exposed on opposite face unless their use is the only means of adequately securing the hardware or where required on labeled doors. In no case are thru-bolts to be used as a substitute for proper reinforcement of doors or frames.

#### 2.02.1 FINISHES

- A. Finish designations are as listed in ANSI/BHMA A156.18 “American Standards for Materials and Finishes: and are the industry recognized standard commercial finishes. Reference Part 2 Products for specific finishes for each hardware type.

#### 2.03 KEYING

- A. All Sargent small format interchangeable core cylinders are to be delivered zero bitted for keying by owner. All permanent cylinder cores shall be Sargent 7-pin, small format interchangeable core, typically part number 65-73-7P.
- B. Hardware supplier and/or cylinder manufacturer’s keying representative shall meet with the owner to determine exact keying requirements for the project.
- C. Furnish temporary brass keyed construction cores for all locks and exit devices. At the completion of the project, the general contractor shall be responsible for the removal of all construction cores and for the installation of all permanent cores. General contractor shall return construction cores to the door hardware distributor.
- D. Supplier shall deliver un-combinated permanent cores and key blanks direct from factory to Owner via certified method, return receipt requested. Notify the Architect when permanent cores and keys are shipped.
- E. Furnish keys as follows:
  - 15 Construction Master Keys
  - 2 Construction Control Keys
  - 250 key blanks
- F. Furnish one wall mounted key cabinet for each City park (except omit at Azalea City Park), Lund Deluxe 1200 series, two tag key system. Cabinet capacity to be 150% of quantity keys required. Cabinet is to be surface wall mounted by the general contractor in location to be determined by the architect.



### PART 3 EXECUTION

#### 3.01 INSTALLATION

- A. Mount hardware units at heights indicated in following applicable publications, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by architect.
  - 1. "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the DOOR AND HARDWARE INSTITUTE.
    - a. WDMA Industry Standard I.S. 1.A-97, "Hardware Locations for Wood Flush Doors."
- G. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware on to or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation or application of surface protection with finishing work specified in the Division 9. Do not install surface-mounted items until finishes have been completed on the substrates involved.
- H. Set units level, plumb, and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- I. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- J. Set thresholds in sealant complying with requirements specified in Section 07100 – Dampproofing and Waterproofing.
- K. Weatherstripping and Seals: Comply with manufacturer's instructions and recommendations to the extent installation requirements are not otherwise indicated.

#### 3.02.1 ADJUSTING AND CLEANING

- A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.
- B. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper functions and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- C. Clean adjacent surfaces soiled by hardware applications.

3.03 HARDWARE SCHEDULE

AZEALA CITY GOLF COURSE RANGE HOUSE

HARDWARE SET: A01

DOOR NUMBER:  
G102A

EACH TO HAVE:

1	CONT. HINGE	224XY	IVE
1	MORTISE LOCKSET	L9456HD 06A	SCH
1	UNCOMBINATED SFIC INTERCHANGEABLE CORE	65-73-7P UNCOMBINATED	SAR
1	SURFACE CLOSER	4040XP SCUSH TBSRT	LCN
1	ARMOR PLATE	8400 34" X 1 1/2" LDW B-CS	IVE
1	RAIN DRIP	142	ZER
1	GASKETING	8144S-BK	ZER
1	DOOR SWEEP	8198	ZER
1	THRESHOLD	65A-224	ZER

DOOR, FRAME AND HARDWARE MUST BE IN COMPLIANCE WITH HURRICANE CODE REQUIREMENTS, AS TESTED AND APPROVED. COORDINATE HARDWARE WITH DOOR/FRAME MANUFACTURER/SUPPLIER.

HARDWARE SET: A02

DOOR NUMBER:  
G101A            G101B            G102B

ALL HARWARE PROVIDED BY OVERHEAD DOOR SUPPLIER/MFG

END OF DOOR HARDWARE

**SECTION 09 2216**

**NON-STRUCTURAL METAL FRAMING**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

- 1. Non-load-bearing steel framing systems for interior gypsum board assemblies.
- 2. Suspension systems for interior gypsum ceilings, soffits, and grid systems.

B. Related Requirements:

- 1. Section 061053 "Miscellaneous Rough Carpentry" for wood blocking.
- 2. Section 092000 "Gypsum Board" for board panels attached to metal framing.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1.4 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of code-compliance certification for studs and tracks.
- B. Evaluation Reports: For embossed steel studs and tracks firestop tracks post-installed anchors and power-actuated fasteners, from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.

1.5 QUALITY ASSURANCE

- A. Code-Compliance Certification of Studs and Tracks: Provide documentation that framing members are certified according to the product-certification program of the Certified Steel Stud Association the Steel Framing Industry Association or the Steel Stud Manufacturers Association.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated on Drawings, according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.
- C. Horizontal Deflection: For wall assemblies, limited to 1/240 of the wall height based on horizontal loading of 5 lbf/sq. ft.

### 2.2 FRAMING SYSTEMS

- A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
  - 1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.
  - 2. Protective Coating: ASTM A 653/A 653M, G40, hot-dip galvanized unless otherwise indicated.
- B. Studs and Tracks: ASTM C 645. Use either steel studs and tracks or embossed steel studs and tracks.
  - 1. Steel Studs and Tracks:
    - a. Minimum Base-Metal Thickness: 0.033 inch.
    - b. Depth: As indicated on Drawings.
  - 2. Embossed Steel Studs and Tracks: Roll-formed and embossed with surface deformations to stiffen the framing members so that they are structurally equivalent to conventional ASTM C 645 steel studs and tracks.
    - a. Products: Subject to compliance with requirements, provide one of the following:
      - 1) Clark Dietrich Building Systems; ProSTUD
      - 2) Marino\WARE; ViperStud Drywall Framing
      - 3) Or, a comparable product from an SFIA member manufacturer.
    - b. Minimum Base-Metal Thickness: 0.019 inch.
    - c. Depth: As indicated on Drawings.

- C. Slip-Type Head Joints: Where indicated, provide one of the following:
1. Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch- deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 12 inches of the top of studs to provide lateral bracing.
  2. Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch- deep flanges in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.
  3. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.
    - a. Products: Subject to compliance with requirements, provide one of the following:
      - 1) Clark Dietrich Building Systems; SLP-TRK Slotted Deflection Track
      - 2) Marino\WARE; SLT Track
      - 3) MBA Building Supplies; Slotted Deflecto Track
      - 4) Superior Metal Trim; Superior Flex Track System (SFT)
      - 5) Telling Industries; Vertical Slip Track
      - 6) The Steel Network Inc.; VertiClip SLD Series
- D. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of the structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.
  - a. Products: Subject to compliance with requirements, provide one of the following:
    - 1) Fire Trak Corp; Fire Trak System attached to studs with Fire Trak Posi Klip.
    - 2) Grace Construction Products; FlameSafe Flow Trak System.
    - 3) Metal-Lite, Inc.; The System.
- E. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
  1. Minimum Base-Metal Thickness: 0.018 inch.
- F. Cold-Rolled Channel Bridging: Steel, 0.053-inch minimum base-metal thickness, with minimum 1/2-inch-wide flanges.
  1. Depth: 1-1/2 inches.
  2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch- thick, galvanized steel.

- G. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
  - 1. Minimum Base-Metal Thickness: 0.018 inch.
  - 2. Depth: 7/8 inch.
- H. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
  - 1. Minimum Base-Metal Thickness: 0.033 inch.
  - 2. Depth: 7/8 inch.
- I. Resilient Furring Channels: 1/2-inch- deep, steel sheet members designed to reduce sound transmission.
  - 1. Configuration: Asymmetrical or hat shaped.
- J. Cold-Rolled Furring Channels: 0.053-inch uncoated-steel thickness, with minimum 1/2-inch- wide flanges.
  - 1. Depth: 3/4 inch.
  - 2. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum uncoated-steel thickness of 0.033 inch.
  - 3. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch- diameter wire, or double strand of 0.048-inch- diameter wire.
- K. Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4 inches, wall attachment flange of 7/8 inch, minimum uncoated-metal thickness of 0.018 inch, and depth required to fit insulation thickness indicated.

## 2.3 SUSPENSION SYSTEMS

- A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch- diameter wire, or double strand of 0.048-inch- diameter wire.
- B. Hanger Attachments to Concrete:
  - 1. Anchors: Fabricated from corrosion-resistant materials with holes or loops for attaching wire hangers and capable of sustaining, without failure, a load equal to 5 times that imposed by construction as determined by testing according to ASTM E 488 by an independent testing agency.
    - a. Type: Postinstalled, chemical anchor or Postinstalled, expansion anchor.
  - 2. Powder-Actuated Fasteners: Suitable for application indicated, fabricated from corrosion-resistant materials with clips or other devices for attaching hangers of type indicated, and capable of sustaining, without failure, a load equal to 10 times that imposed by construction as determined by testing according to ASTM E 1190 by an independent testing agency.

- C. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.16 inch in diameter.
- D. Flat Hangers: Steel sheet, 1 by 3/16 inch by length required plus 1 inch.
- E. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.053 inch and minimum 1/2-inch- wide flanges.
  - 1. Depth: 2-1/2 inches.
- F. Furring Channels (Furring Members):
  - 1. Cold-Rolled Channels: 0.053-inch uncoated-steel thickness, with minimum 1/2-inch- wide flanges, 3/4 inch deep.
  - 2. Steel Studs and Runners: ASTM C 645.
    - a. Minimum Base-Metal Thickness: 0.033 inch.
    - b. Depth: 1-5/8 inches.
  - 3. Dimpled Steel Studs and Runners: ASTM C 645.
    - a. Minimum Base-Metal Thickness: 0.019 inch.
    - b. Depth: 2-1/2 inches or as indicated on drawings.
  - 4. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch deep.
    - a. Minimum Base-Metal Thickness: 0.033 inch.
  - 5. Resilient Furring Channels: 1/2-inch-deep members designed to reduce sound transmission.
    - a. Configuration: Asymmetrical or hat shaped.
- G. Grid Suspension System for Gypsum Board Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.
  - 1. Products: Subject to compliance with requirements, provide one of the following:
    - a. Armstrong World Industries, Inc.; Drywall Grid Systems.
    - b. Chicago Metallic Corporation; Drywall Grid System.
    - c. USG Corporation; Drywall Suspension System.

## 2.4 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
  - 1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Isolation Strip at Exterior Walls: Provide one of the following:
  - 1. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), nonperforated.
  - 2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.
  - 1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.
- B. Coordination with Sprayed Fire-Resistive Materials:
  - 1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling runners (tracks) to surfaces indicated to receive sprayed fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches o.c.
  - 2. After sprayed fire-resistive materials are applied, remove them only to extent necessary for installation of non-load-bearing steel framing. Do not reduce thickness of fire-resistive materials below that required for fire-resistance ratings indicated. Protect adjacent fire-resistive materials from damage.

#### 3.3 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754.
  - 1. Gypsum Plaster Assemblies: Also comply with requirements in ASTM C 841 that apply to framing installation.
  - 2. Portland Cement Plaster Assemblies: Also comply with requirements in ASTM C 1063 that apply to framing installation.
  - 3. Gypsum Veneer Plaster Assemblies: Also comply with requirements in ASTM C 844 that apply to framing installation.
  - 4. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.
- B. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.



- C. Install bracing at terminations in assemblies.
- D. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

### 3.4 INSTALLING FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
  - 1. Single-Layer Application: 16 inches o.c. unless otherwise indicated.
  - 2. Multilayer Application: 16 inches o.c. unless otherwise indicated.
  - 3. Tile Backing Panels: 16 inches o.c. unless otherwise indicated.
- B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- C. Install studs so flanges within framing system point in same direction.
- D. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.
  - 1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
  - 2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
    - a. Install two full-height studs at each jamb unless otherwise indicated. Tack weld together @ 36" O.C. vertical, each face.
    - b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2 inch clearance from jamb stud to allow for installation of control joint in finished assembly.
    - c. Extend jamb studs through suspended ceilings and attach to underside of structure above.
  - 3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
  - 4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
    - a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.

5. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
6. Curved Partitions:
  - a. Bend track to uniform curve and locate straight lengths so they are tangent to arcs.
  - b. Begin and end each arc with a stud, and space intermediate studs equally along arcs. On straight lengths of no fewer than two studs at ends of arcs, place studs 6 inches o.c.
- E. Direct Furring:
  1. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
- F. Z-Furring Members:
  1. Erect insulation, specified in Section 072100 "Thermal Insulation," vertically and hold in place with Z-furring members spaced 24 inches o.c.
  2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
  3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches from corner and cut insulation to fit.
- G. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

### 3.5 INSTALLING SUSPENSION SYSTEMS

- A. Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
  1. Hangers: 48 inches o.c.
  2. Carrying Channels (Main Runners): 48 inches o.c.
  3. Furring Channels (Furring Members): 16 inches o.c.
- B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.
- C. Suspend hangers from building structure as follows:
  1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.

- a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, counter-splaying, or other equally effective means.
  2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
    - a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.
  3. Wire Hangers: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.
  4. Flat Hangers: Secure to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or otherwise fail.
  5. Do not attach hangers to steel roof deck.
  6. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
  7. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
  8. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- D. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.
- E. Seismic Bracing: Sway-brace suspension systems with hangers used for support.
- F. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.
- G. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

END OF SECTION 092216

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**SECTION 09 2900**

**GYPSUM BOARD**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
  - 1. Interior gypsum board.
  - 2. Tile backing panels.
- B. Related Requirements:
  - 1. Section 092216 "Non-Structural Metal Framing" for non-structural framing and suspension systems that support gypsum board panels.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For the following products:
  - 1. Trim Accessories: Full-size Sample in 12-inch-long length for each trim accessory indicated.

1.4 QUALITY ASSURANCE

- A. Mockups: Build mockups of at least 100 sq. ft. in surface area to demonstrate aesthetic effects and to set quality standards for materials and execution.
  - 1. Build mockups for the following:
    - a. Each level of gypsum board finish indicated for use in exposed locations.
    - b. Each texture finish indicated.
  - 2. Apply or install final decoration indicated, including painting and wallcoverings, on exposed surfaces for review of mockups.
  - 3. Simulate finished lighting conditions for review of mockups.
  - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.6 FIELD CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
- B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

2.2 GYPSUM BOARD, GENERAL

- A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. American Gypsum.

2. CertainTeed Corp.
3. Continental Building Products, LLC
4. Georgia-Pacific Gypsum, LLC.
5. Lafarge North America, Inc.
6. National Gypsum Company.
7. PABCO Gypsum.
8. Temple-Inland.
9. USG Corporation.

B. Gypsum Board, Type X: ASTM C 1396/C 1396M.

1. Thickness: 5/8 inch.
2. Long Edges: Tapered.

C. Mold-Resistant Gypsum Board: ASTM C 1396/C 1396M. With moisture- and mold-resistant core and paper surfaces.

1. Core: 5/8 inch, Type X.
2. Long Edges: Tapered.
3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

## 2.4 SPECIALTY GYPSUM BOARD

A. Glass-Mat Interior Gypsum Board: ASTM C 1658/C 1658M. With fiberglass mat laminated to both sides. Specifically designed for interior use.

1. Products: Subject to compliance with requirements, provide the following:
  - a. Georgia-Pacific Gypsum LLC; DensArmour Plus.
2. Core: As indicated.
3. Core: 5/8 inch, Type X.
4. Core: 5/8 inch, abuse resistant.
5. Long Edges: Tapered.

## 2.5 TILE BACKING PANELS

A. Glass-Mat, Water-Resistant Backing Board: ASTM C 1178/C 1178M, with manufacturer's standard edges.

1. Products: Subject to compliance with requirements, provide the following:
  - a. Georgia-Pacific Gypsum LLC. "DensShield Tile Backer".
2. Core: 5/8 inch, Type X.
3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

2.6 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
  - 1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
  - 2. Shapes:
    - a. Cornerbead.
    - b. LC-Bead: J-shaped; exposed long flange receives joint compound.
    - c. L-Bead: L-shaped; exposed long flange receives joint compound.
    - d. Expansion (control) joint.
    - e. Curved-Edge Cornerbead: With notched or flexible flanges.
  
- A. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
    - a. Fry Reglet Corp.
    - b. Gordon, Inc.
    - c. Pittcon Industries.
  - 2. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B 221Alloy 6063-T5.
  - 3. Finish: Clear Anodized.
  - 4. Profiles: As indicated on the drawings.

2.7 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.
  
- B. Joint Tape:
  - 1. Interior Gypsum Board: Paper.
  - 2. Exterior Gypsum Soffit Board: Paper.
  - 3. Glass-Mat Gypsum Sheathing Board: 10-by-10 glass mesh.
  - 4. Tile Backing Panels: As recommended by panel manufacturer.
  
- C. Joint Compound for Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
  - 1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
  - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use drying-type, all-purpose compound.
  - 3. Fill Coat: For second coat, use drying-type, all-purpose compound.
  - 4. Finish Coat: For third coat, use drying-type, all-purpose compound.
  - 5. Skim Coat: For final coat of Level 5 finish, use high-build interior coating product designed for application by airless sprayer and to be used instead of skim coat to produce Level 5 finish.



- D. Joint Compound for Tile Backing Panels:
  - 1. Glass-Mat, Water-Resistant Backing Panel: As recommended by backing panel manufacturer.
  - 2. Cementitious Backer Units: As recommended by backer unit manufacturer.
  - 3. Water-Resistant Gypsum Backing Board: Use setting-type taping compound and setting-type, sandable topping compound.

## 2.8 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
- C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
  - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
  - 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- D. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Owens Corning, "Sound Attenuation Batts"
    - b. CertainTeed Corporation, "Noise Reducer" Sound Attenuation Batts
  - 2. Thickness: Full cavity width.
  - 3. Fire-Resistance-Rated Assemblies: Provide SAB's that will provide up to a 2 hour rating when tested according to ASTM E119.
- E. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
  - 1. Products: Subject to compliance with requirements, provide one of the following:
    - a. Accumetric LLC; BOSS 824 Acoustical Sound Sealant.
    - b. Grabber Construction Products; Acoustical Sealant GSC.
    - c. Pecora Corporation; AC-20 FTR.
    - d. Specified Technologies, Inc.; Smoke N Sound Acoustical Sealant.
    - e. USG Corporation; SHEETROCK Acoustical Sealant.

- F. Thermal Insulation: As specified in Section 072100 "Thermal Insulation."
- G. Vapor Retarder: As specified in Section 072100 "Thermal Insulation."

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine areas and substrates including welded hollow-metal frames and framing, with Installer present, for compliance with requirements and other conditions affecting performance.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C 840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
  - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
  - 2. Fit gypsum panels around ducts, pipes, and conduits.

3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch-wide joints to install sealant.
- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch-wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- I. Wood Framing: Install gypsum panels over wood framing, with floating internal corner construction. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members or provide control joints to counteract wood shrinkage.
- J. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.
- K. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

### 3.3 APPLYING INTERIOR GYPSUM BOARD

- A. Install interior gypsum board in the following locations:
  1. Type X: At all vertical surfaces unless otherwise indicated.
  2. Mold-Resistant Type: At wet areas and at exterior soffits.
  3. Glass-Mat Interior Type: At any installation of gypsum board before the building envelope is fully enclosed.
  4. Glass-Mat Backing Board Type: At walls scheduled to receive tile finish.
- B. Single-Layer Application:
  1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
  2. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
    - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
    - b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.

3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

C. Multilayer Application:

1. On ceilings, apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints one framing member, 16 inches minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.
2. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
3. On Z-furring members, apply base layer vertically (parallel to framing) and face layer either vertically (parallel to framing) or horizontally (perpendicular to framing) with vertical joints offset at least one furring member. Locate edge joints of base layer over furring members.
4. Fastening Methods: Fasten base layers and face layers separately to supports with screws.

- D. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written recommendations and temporarily brace or fasten gypsum panels until fastening adhesive has set.

### 3.4 APPLYING TILE BACKING PANELS

- A. Glass-Mat, Water-Resistant Backing Panels: Comply with manufacturer's written installation instructions and install at locations indicated to receive tile. Install with 1/4-inch gap where panels abut other construction or penetrations.
- B. Where tile backing panels abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.

### 3.5 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.

- C. Interior Trim: Install in the following locations:
  - 1. Cornerbead: Use at outside corners unless otherwise indicated.
  - 2. LC-Bead: Use at exposed panel edges.
  - 3. L-Bead: Use where indicated.
  - 4. Curved-Edge Cornerbead: Use at curved openings.
- D. Aluminum Trim: Install in locations indicated on Drawings.

### 3.6 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints, rounded or beveled edges, and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
  - 1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
  - 2. Level 2: Panels that are substrate for tile.
  - 3. Level 3: Panels that are scheduled to receive Wallcoverings.
    - a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."
  - 4. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.
    - a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."
  - 5. Level 5: N/A
    - a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."
- E. Glass-Mat Faced Panels: Finish according to manufacturer's written instructions.

### 3.7 PROTECTION

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

- C. Remove and replace panels that are wet, moisture damaged, and mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900

**SECTION 09 3000**

**TILE**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. Related work specified elsewhere includes:
  - 1. Section 03310 - "Concrete"
  - 2. Section 07900 - "Joint Sealers" (sealing expansion joints in tile work)

**1.2 DESCRIPTION OF WORK:**

- A. Definition: Tile includes natural stone tile in modular, mosaic shapes and sizes.
- B. Extent of tile and stone work, product selections, sizes and colors as indicated on drawings and schedules.
- C. Types of tile work in this section include the following:
  - 1. Porcelain wall tile.
    - a. Patterns as indicated.
  - 2. Colored grouts.
- D. Chemical Resistant Epoxy grout installation system is required at areas within Toilet and Shower Rooms, at Janitor's Rooms, at rooms where food is stored, prepared, and/or cooked, where tile is scheduled to occur, and at all exterior tile work.
- E. Note that all tile flooring, base, and wall tile specified herein shall be installed with grouted joints, also as specified.

**1.3 QUALITY ASSURANCE:**

- A. Source of Materials: Provide materials obtained from one source for each type and color of tile, grout, and setting materials.
- B. Installer Qualifications: Engage an experienced installer who has successfully completed tile installations similar in material, design, and extent to that indicated for this Project.

1. Refer to Division 1 Section “Special Conditions”, for additional information and minimum experience requirements.

**1.4 SUBMITTALS:**

- A. Product Data: Submit manufacturer’s technical information and installation instructions for materials required, except bulk materials.
- B. Shop Drawings: Submit shop drawings indicating tile patterns and locations and widths of control, isolation, contraction and expansion joints in tile surfaces.
- C. Samples for Initial Selection Purposes: Submit manufacturer’s color charts consisting of actual stone and tiles or sections of tile showing full range of colors, textures and patterns available for each type of tile indicated. Include samples of grout and accessories involving color selection.
- D. Samples for Verification Purposes, submit the following upon request by Architect:
  1. Samples for each type of stone and tile and for each color and texture required, not less than 12-inches square, on plywood or hardboard backing and grouted.
  2. Full size samples for each type of trim, accessory and for each color.
  3. 6-inch long samples of stone thresholds.
- E. Certification: Furnish Master Grade Certificates for each shipment and type of tile, signed by manufacturer and Installer.

**1.5 DELIVERY, STORAGE, AND HANDLING:**

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Prevent damage or contamination to materials by water, freezing, foreign matter or other causes.
  1. Comply with requirements of ANSI A137.1 for labeling sealed tile packages.
- B. Refer to Division 1 Sections “Summary of Work” and “Special Conditions” for additional information and requirements regarding stored materials.



**1.6 PROJECT CONDITIONS:**

- A. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.
- B. Vent temporary heaters to exterior to prevent damage to tile work from carbon dioxide buildup.
- C. Maintain temperatures at not less than 50 degrees F (10 degrees C) in tiled areas during installation and for 7-days after completion, unless higher temperatures are required by referenced installation standard and/or tile and grout manufacturers' current written instructions and recommendations.

**PART 2 - PRODUCTS**

**2.1 ACCEPTABLE MANUFACTURERS:**

- A. Manufacturers: Subject to compliance with requirements, provide products of one of the following manufacturers:
  - 1. Manufacturers of Porcelain Tile:
    - a. American Olean Tile Co., Inc.
    - b. Crossville Ceramics
    - c. Dal-Tile Corp
    - d. Storaka
  - 2. Manufacturers of Latex-Portland Cement Mortars:
    - a. Custom Building Products.
    - b. C-Cure Chemical Co., Inc.
    - c. Jamo, Inc.
    - d. Laticrete International, Inc.
    - e. Southern Grouts & Mortars, Inc.
    - f. W. R. Bonsal Co.
  - 3. Manufacturers of Organic Adhesives, Type I:
    - a. Custom Building Products.
    - b. C-Cure Chemical Co., Inc.
    - c. DAP Adhesives
    - d. Jamo, Inc.
    - e. Southern Grouts & Mortars, Inc.

5. Manufacturers of Latex-Portland Cement Grouts:
  - a. Custom Building Products.
  - b. C-Cure Chemical Co., Inc.
  - c. Jamo, Inc.
  - d. Southern Grouts & Mortars, Inc.
  - e. W. R. Bonsal Co.
4. Manufacturers of Chemical Resistant Epoxy Grouts:
  - a. C-Cure Chemical Co., Inc.
  - b. Laticrete International, Inc.
  - c. Southern Grouts & Mortars, Inc.
5. Manufacturers of Chemical-Resistant Joint Sealants:
  - a. Atlas Minerals and Chemical Co.
  - b. Pennwalt Corporation.
6. Manufacturers of Tile Cleaners:
  - a. Hillyard Chemical Co.
  - b. Miracle Sealants

## **2.2 PRODUCTS - GENERAL:**

- A. ANSI Standard for Tile Installation Materials: Comply with ANSI standard referenced with products and materials indicated for setting and grouting.
- B. Colors, Textures and Patterns: For tile, grout and other products requiring selection of colors, surface textures or other appearance characteristics, provide products to match characteristics indicated or, if not otherwise indicated, as selected by Architect from manufacturer's standards.
  1. Provide tile trim and accessories which match color and finish of adjoining flat tile, unless otherwise indicated.
- C. Mounting: Where factory-mounted tile is required provide back or edge-mounted tile assemblies as standard with manufacturer unless another mounting method is indicated.
  1. Where tile is indicated for installation, on exteriors or in wet areas, do not use back or edge-mounted tile assemblies unless tile manufacturer specifies that this type of mounting is suitable for these kinds of use and has been successfully used on other projects.

**2.3 TILE PRODUCTS:**

- A. Porcelain wall tile: Refer to Schedules.
- B. Trim Units: Provide tile trim units, if indicated, to match characteristics of adjoining flat tile and to comply with following requirements:
  - 1. Size: As indicated, coordinated with sizes and coursing of adjoining flat tile, where applicable.
  - 2. Shapes (if any): As follows, selected from manufacturer's standard shapes:
    - a. Base for Portland Cement Mortar and Thinset Mortar Installations: Bullnose.
    - b. Wainscot Cap for Portland Cement Mortar Installations: Bullnose cap.
    - c. Wainscot Cap for Thinset Mortar Installations: Surface bullnose.
    - d. External Corners for Portland Cement Mortar Installations: Bullnose shape with a radius of not less than 3/4-inch unless otherwise indicated.
    - e. External Corners for Thinset Installations: Surface bullnose.
  - 3. Colors: Colors shall be as indicated on the Schedules, or if not indicated, as selected by Architect from manufacturer's full line of standard colors, after Bid Date.

**2.4 SETTING MATERIALS:**

- A. Portland Cement Mortar Installation Materials: Provide materials to comply with ANSI A108.1 as required for installation method designated, unless otherwise indicated.
- B. Latex-Portland Cement Mortar: Provide product complying with ANSI A118.4 and the following requirement for composition:
  - 1. Latex additive (water emulsion) of type described below, serving as a replacement for part or all of gauging water, added at job site to prepackaged dry mortar mix supplied or specified by latex manufacturer.
    - a. Latex Type: Acrylic resin.
- C. Organic Adhesive: Provide product complying with ANSI A136.1 for Type I.

**2.5 GROUTING MATERIALS:**

- A. Latex-Portland Cement Grout: Provide product complying with ANSI A118.6 for the following composition and of color indicated:
  - 1. Latex additive (water emulsion) serving as a replacement for part or all of gauging water, added at job site to prepackaged dry grout mix, with type of latex and dry grout mix complying with requirements indicated below:
    - a. Latex Type: Acrylic resin.
    - b. Grout Type: Commercial portland cement grout specified or supplied by latex manufacturer.
- B. Chemical Resistant Epoxy Grout: Provide product complying with ANSI A118.3 of color indicated.
  - 1. Provide product with resistance to temperatures up to 300 degrees F (149 degrees C), certified by grout manufacturer for intended use.
  - 2. Locations: All floor, base, and wall tile work within Toilet Rooms, at Janitor's Rooms, at rooms where food is stored, prepared and/or cooked, and at exterior tile work.

**2.6 MISCELLANEOUS MATERIALS:**

- A. Tile Cleaner: Product specifically acceptable to manufacturer of tile and grout manufacturer for application indicated and as recommended by National Tile Promotion Federation, 112 North Alfred Street, Alexandria, VA 22134 or Ceramic Tile Institute, 700 North Virgil Avenue, Los Angeles, CA 90029.
- B. Waterproofing Membrane: Equivalent to "ECB Anti-Fracture Membrane" (Basis of design), as manufactured by NAC Products, Inc.; Cuyahoga Falls, Ohio (Phone: 1-800-633-4622); OR "Dietra" by Schluter Systems (Phone: 1-888-472-4588).
  - 1. Provide complete system, including substrate primer/sealer, 40-mil, two component, self-adhering membrane, and appropriate top-coat primer for the material(s) to be placed over the ECB system.
  - 2. Locations for Use: Below all tile and stone tile flooring, turned up 1-inch at all edges and concealed by base material, and turned down at least 2-inches into floor drains.

3. Completed membrane system is intended for waterproofing, and to bridge substrate joints within the limitations stated in manufacturer's current written product data.
- C. Metal Edge Strips for Epoxy Floor: Angle or L-shape, height to match tile and setting- bed thickness; metallic or combination of metal and PVC or neoprene base, designed specifically for flooring applications, and stainless steel; ASTM A 666, 300 Series exposed-edge material with satin or dull finish.

## **2.7 MIXING MORTARS AND GROUT:**

- A. Mix mortars and grouts to comply with requirements of referenced standards and manufacturers for accurately proportioning of materials, water or additive content, mixing equipment and mixer speeds, mixing containers, mixing time, and other procedures needed to produce mortars and grouts of uniform quality with optimum performance characteristics for application indicated.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION:**

- A. Examine surfaces to receive tile work and conditions under which tile will be installed. Do not proceed with tile work until surfaces and conditions comply with requirements indicated in referenced tile installation standard.
1. Verify that substrates for setting tile are firm, dry, clean, and free from oil or waxy films and curing or cleaning compounds.
  2. Verify that installation of all required grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.
- B. Do not proceed with installation until unsatisfactory conditions and incomplete work have been corrected.

### **3.2 INSTALLATION, GENERAL:**

- A. ANSI Tile Installation Standard: Comply with applicable parts of ANSI 108 series of tile installation standards included under "American National Standard Specifications for the Installation of Ceramic Tile."
- B. TCA Installation Guidelines: TCA "Handbook for Ceramic Tile Installation"; comply with TCA installation methods indicated or, if not otherwise indicated, as applicable to installation conditions shown.

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- C. Extend tile work into recesses and under or behind equipment and fixtures, to form a complete covering without interruptions, except as otherwise shown. Terminate work neatly at obstructions, edges and corners without disrupting pattern or joint alignments.
- D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures and other penetrations so that plates, collars, or covers overlap tile.
- E. Jointing Pattern: Unless otherwise shown, lay tile in grid pattern. Align joints when adjoining tiles on floor, base, walls and trim are same size. Layout tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise shown.
1. For tile mounted in sheets make joints between tile sheets same width as joints within tile sheets so that extent of each sheet is not apparent in finished work.
- F. Expansion Joints: Locate expansion joints and other sealant filled joints, including control, contraction and isolation joints, where indicated, or if not indicated, at spacings and locations recommended in TCA "Handbook for Ceramic Tile Installation," and approved by Architect. Do not saw cut joints.
1. Sealing of joints is specified in Section 07900 - "Joint Sealers."
  2. Provide expansion joints in tile and setting beds directly above all unsealed and unbridged expansion joints, control joints, construction joints, cold joints and saw-cut control joints in the building structure; and where tile work abuts restraining surfaces such as perimeter walls, dissimilar floors, curbs, columns, pipes, ceilings, and where changes occur in backing materials. Expansion joints shall be provided as follows:
    - a. Wall Tile: Minimum 1/8-inch joint width; joints 36-feet o.c. maximum.
  3. Joints in tile and setting materials directly over any unsealed and unbridged structural joints shall never be narrower than the width of the structural joint. Joints over saw-cut control joints shall never be less than the width of the saw-cut joint width. Preparation and installation shall be as required for expansion joints.

4. To insure that locations of any unsealed and unbridged joints in tile work align with existing joints in substrates, joints in tile work shall be constructed during installation of mortar beds and/or tile, rather than saw-cutting joints after installation.
  5. Keep expansion joint cavities open and free of dirt, debris, grout, mortar and setting materials.
  6. Set compressible back-up strip when mortar is placed or utilize removable wood strip to provide space for back-up after mortar has cured.
  7. Install sealant after tile work and grout are dry.
- G. Grout tile to comply with the requirements of the following installation standards:
1. For ceramic tile grouts (sand-portland cement, dry-set, commercial portland cement, and latex-portland cement grouts) comply with ANSI A108.10.
  2. For chemical resistant epoxy grouts comply with ANSI A108.6.

### **3.3 WALL TILE AND TRIM INSTALLATION METHODS:**

- A. Install types of tile designated for wall application to comply with requirements indicated below for setting bed methods, TCA installation methods related to subsurface wall conditions, and grout types:
1. Portland Cement Mortar: ANSI A108.1.
    - a. Masonry or Concrete, Interior: TCA W211 (bonded).
    - b. Grout: Sand-portland cement (ANSI 108.10), except chemical resistant epoxy (ANSI 118.3) at toilet rooms.
    - c. Location: At locations indicated on Drawings, or if not applicable, at conditions required by project conditions.
  2. Organic Adhesive: ANSI A108.4.
    - a. Solid Backing, Interior: TCA W223.
    - b. Grout: Latex-portland cement, (ANSI 108.10), except chemical resistant epoxy (ANSI 118.3) at toilet rooms.

**3.4 CLEANING AND PROTECTION - TILE WORK:**

- A. Cleaning: Upon completion of placement and grouting, clean all new and adjacent existing tile surfaces so they are free of foreign matter.
  - 1. Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer's printed instructions, but no sooner than 14-days after installation. Protect metal surfaces, cast iron and vitreous plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.
  - 2. Clean stone tiles after setting and grouting is complete, in accordance with producer's and manufacturer's current written instructions and recommendations. Apply clear, non-yellowing, slip resistant sealer to cleaned stone flooring, as recommended in writing by manufacturer / fabricator of stone and by manufacturer of slip-resistant sealer - to all stone flooring.
- B. Remove and replace material that is stained or otherwise damaged or that does not match adjoining tile. Provide new matching units, installed as specified and in a manner to eliminate evidence of replacement.
- C. Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, or otherwise defective tile work.
- D. Protection: When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage and wear.
  - 1. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

**3.5 EXTRA MATERIALS:**

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Ceramic and Porcelain Tile: Furnish quantity of full-size units equal to 3 percent of amount installed, for each type, composition, color, pattern, and size indicated.

END OF TILE



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**SECTION 09 5123**  
**ACOUSTICAL TILE CEILINGS**

**PART 1 – GENERAL**

**1.1 SCOPE OF WORK**

- A. This work includes all suspended acoustical ceilings, ceiling suspension systems and acoustical ceiling tiles. Refer to reflected ceiling plan.

**1.1 QUALITY ASSURANCE**

- A. Fire Hazard Classification: Flame Spread Index of 25 or less per ASTM E-84.
- B. All ceiling tile shall have a limited 10-year warranty against visible sag. This warranty shall be based on a maximum of 120 Degrees F.

**1.1 MAINTENANCE MATERIAL**

- A. Acoustical Ceiling Units: Full-size tiles equal to 5 percent of quantity installed.
- B. Suspension-System Components: Quantity of each concealed grid and exposed component equal to 5 percent of quantity installed.

**1.1 DELIVERY, STORAGE, & HANDLING**

- A. Deliver acoustical tiles, suspension-system components, and accessories to Project site and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical tiles, permit them to reach room temperature and a stabilized moisture content.
- C. Deliver materials in original, unopened, protective packaging, with manufacturer's labels, indicating brand name, pattern, size and thickness. Store cartons open at each end.

**1.1 FIELD CONDITIONS**

- A. Environmental Limitations: Do not install acoustical tile ceilings until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

**PART 2 - PRODUCTS**

**2.01 MATERIALS**

- A. Suspension Systems: Armstrong Prelude. 15/16" face exposed "T", Intermediate Duty. White. If plans call for a seismic ceiling provide: Seismic Suspension System - Armstrong Prelude. 15/16" face exposed "T", Heavy Duty #7301. White.

- B. Main Tees, Cross Tees, Edge Molding and Concealed Members: Double web design, cold-rolled steel, Hot dipped galvanized coated and factory painted low sheen satin white.
- C. Rough Suspension: Wire ties shall be 12-gauge, galvanized annealed steel wire. Hanger clips shall be prefabricated metal clamps for fastening to steel joists. Carrying channels shall be 16 gage, 1-1/2", cold-rolled steel.
- D. Acoustical Ceiling: Armstrong "Ceramaguard Fine Fissured Perforated" #608 – 24" x 24" Color - White

### PART 3 – EXECUTION

#### **3.01 INSTALLATION**

- A. Suspension Systems: ASTM C636.
- B. Rough Suspension:
  - 1. Hanger clips shall be installed as recommended by manufacturer. Space hanger wires 4' o.c., each direction. Install additional hangers at ends of each suspension member at light fixtures, 6" from vertical surfaces. Do not splay wires more than 5" in a 4' vertical drop. Wrap wire a minimum of three (3) times horizontally turning ends upward.
  - 2. Carrying Channels: shall be installed with leveling clips to main structure for indirect hung suspension system.
  - 3. Space main runners at 48" o.c., at right angle to carrying channel. Space cross runners at 24" o.c., depending on system used.
  - 4. Install wall molding at intersection of suspended ceiling and vertical surfaces where suspension grid is exposed. Miter corners where wall moldings intersect or install corner caps. Attach to vertical surface with mechanical fasteners.
- C. Acoustical Units: Install in level plane, except where shown, in straight line courses. Place materials to bear all around on suspension members. Measure each ceiling area and establish layout of acoustical tiles to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width tiles at borders unless otherwise indicated, and comply with layout shown on reflected ceiling plan.

#### **3.02 CLEANING**

- A. Clean soiled or discolored unit surfaces after installation. Touch-up scratches, abrasions, voids and other defects in painted surfaces. Remove and replace damaged or improperly installed units.

END OF SECTION

SECTION 096519

RESILIENT TILE FLOORING

PART 1 – GENERAL

1.1 SUMMARY

- A. Related Documents: Drawings and general provisions of the Contract.
- B. As part of the organization's sustainability strategy, the owner intends to create a circular economy for as much of its facilities supply chain as possible. A key part of that circular economic model includes the owner's aim to recycle 100% of their existing and future flooring inventory as it becomes available for replacement. Depending on the deferred maintenance cycle (10-15 years), the effort will ideally result in the institution moving the physical footprint to a carbon neutral and landfill and incineration-free flooring program.
- C. The owner recognizes the embodied carbon impact of the building material supply chain and is intent on working to lower those Scope 3 (purchased goods) emissions whenever possible.
- D. The successful manufacturer will have implemented a focused and systematic effort to reduce their overall environmental footprint. In order to eliminate greenwash, the manufacturer must be able to clearly articulate their company-wide goals and achievements with specific performance against historical benchmarks.
- E. This is a *non-proprietary* specification. However, owner reserves the right to analyze all products using criteria that align with their sustainability goals, and ultimately use the most appropriate option submitted that still meets performance requirements.

1.2 SUBMITTALS

- A. 3rd party verified, product-specific Environmental Product Declarations (EPDs) for all specified products.
- B. Shop drawings shall be submitted to Architect/Owner for approval prior to installation of floor. Copy of approved shop drawings to be available on job site during installation.
- C. Floor schedule using same room designations indicated on drawings.
- D. Product Data: Provide data on specified products, describing physical and performance characteristics, sizes, patterns, colors available, method of installation and sustainability attributes.

- E. Verification Samples: Submit samples illustrating color and pattern for each resilient tile specified.
- F. Manufacturer's Installation Instructions
- G. Maintenance Data: Include maintenance procedures, recommendations for maintenance materials, equipment, and suggested schedule for cleaning.
- H. Manufacturer's Product Warranty
- I. Carbon Neutral Impact Estimate stating how many tons of greenhouse gas emissions will be offset (high quality verified carbon offsets to be purchased by manufacturer).

### 1.3 QUALITY ASSURANCE

#### A. Manufacturer Qualifications

1. Company shall have no less than ten (10) years' experience manufacturing LVT.
2. Manufacturer must provide verification of management systems in compliance with ISO 9001 Quality Management System and ISO 14001 Environmental Management System.

#### B. Installer Qualifications

1. Flooring contractor to be a specialty contractor normally engaged in this type of work and shall have prior experience in the installation of LVT.
2. Flooring contractor possessing Contract for the product installation shall not sub-contract the labor without written approval of the Project Manager.
3. Flooring contractor will be responsible for proper product installation, including floor testing and preparation as specified by the manufacturer.
4. Flooring contractor to provide Owner a report of all recycling activity prior to final payment.

### 1.4 DELIVERY, STORAGE, & HANDLING

- A. Deliver materials to the site in manufacturer's original packaging listing manufacturer's name, product name, identification number, and related information.

- B. Store cartons of tile or plank products flat and squarely on top of one another. Preferably, locate material in the “center” of the installation area (i.e. away from vents, direct sunlight, etc.). Storing cartons in direct sunlight may affect proper acclimation by inducing thermal expansion/contraction.
- C. When palletizing on a jobsite, vinyl tiles (squares or planks) need to be stacked two (2) rows high side by side with no airspace between and then quarter turned for two (2) rows side by side, not to exceed 12 boxes high. A 5/8” or thicker plywood must also be placed on the pallet first. Do not stack pallets two (2) high unless utilizing a 3/4” thick plywood cap between pallets.
- D. Store in a dry location, between 60 degrees F and 85 degrees F and a relative humidity below 65%. Protect from damage and soiling.
- E. Make stored materials available for inspection by the Owner’s representative.
- F. Store materials in area of installation for minimum period of 48 hours prior to installation.

1.5 PROJECT CONDITIONS for third party installer

- A. Sub-floor preparation is to include all required work to prepare the existing floor for installation of the product as specified in this document and Manufacturer’s installation instructions.
- B. The installer shall ensure that all material used in sub-floor preparation and repair is as provided in the manufacturer’s installation instructions.
- C. New concrete needs at least 90 days to dry under ideal conditions. Lightweight concrete and concrete poured above grade in metal pans take a considerably longer time to dry. Installation cannot begin until it is fully dried and in compliance with moisture and alkalinity requirements.
- D. Areas to receive resilient flooring should be adequately illuminated during all phases of the installation process.
- E. Controlled environments are critical. Fully functional HVAC systems are the best way to ensure temperature and humidity control.
- F. DO NOT install resilient flooring products until the work area can be temperature controlled.

- G. The installation area must be fully enclosed, weather tight, and climate controlled between 60°F and 85°F with 40% to 60% relative humidity (RH) for at least 48-72 hours prior, during and 48-72 hours after installation.
- H. Do not install flooring until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete, and ambient temperature and humidity conditions are and will be continuously maintained at values near those indicated for final occupancy.

## PART 2 – PRODUCTS

### 2.1 ACCEPTABLE MANUFACTURERS:

- A. Manufacturer: Subject to compliance with requirements, provided products of one of the following:
  - 1. Interface, Atlanta, GA, USA/ Telephone 800-336-0225 (Basis of Design)
  - 2. Or Approved Equal

### 2.2 LUXURY VINYL TILES (LVT):

- A. Location: Clubhouse Men's Locker Room
  - 1. Product: Steady Stride Woodgrains (LVT-1)
  - 2. Color: Refer to Finish Schedule; Architect to confirm color based on manufacturer's full spectrum of color options.
  - 3. Size: 4.923 inches by 39.38 inches by 20 mil
  - 4. Installation: Refer to Finish Schedule

### 2.3 RECYCLED CONTENT

- A. Must have a minimum of 30% recycled content; the highest post-consumer recycled and/or bio-based content is preferred.
- B. Manufacturer must clearly itemize the amount of post-consumer/pre-consumer/bio-based content.

### 2.4 RECYCLABILITY & RECYCLING PROGRAM

- A. Product should be closed-loop recyclable back into flooring.
- B. For products installed with non-permanent adhesive, manufacturer must maintain and operate a recycling effort capable of reclaiming installed LVT. Manufacturers with 3<sup>rd</sup> party verified recyclable products preferred. A written plan must be approved by owner in writing prior to award.

**2.5 CERTIFICATION**

- A. Product must be certified to at least the Silver level of NSF/ANSI-332, the Sustainability Assessment for Resilient Floor Coverings. Product certification must be conducted by an independent, third party organization with documentation.

**2.6 PRODUCT WARRANTY**

- A. Wear warranty Period will be 15 years from date of invoice.

**2.7 PERFORMANCE CHARACTERISTICS**

- A. Test reports for the following performance assurance testing to be submitted upon request. Requirements listed below must be met by all products.

Characteristic	Test Method	Requirement
IIC Sound Rating	ASTM E492-09 / EN ISO 140	≥ 57IIC / 16dB
Slip Resistance	ASTM D2047	≥ 0.55 wet/dry (ADA compliant)
Static Load Limit	ASTM F970	250 psi
Flexibility	ASTM F137	Passes
Resistance to Heat	ASTM F1514	Passes
Resistance to Light	ASTM F1515	Passes
Radiant Flux	ASTM E648	Class I
Smoke Density	ASTM E 662	≤ 450
Size & Squareness	ASTM F2055	Passes, +/- 0.016 in/lf
Thickness	ASTM F386	Passes
Dimensional Stability	ASTM F2199	Passes
Residual Indentation	ASTM F1914	Passes
Resistance to Chemicals	ASTM F925	Passes

**2.8 PRODUCT MANUFACTURING SPECIFICATIONS**

- A. LVT Type: LVT shall be commercial grade and first quality.
- B. Lamination Type: Continuous
- C. Wear Layer thickness shall be ≥ 22mil
- D. Total thickness shall be ≥ 4.5mm
- E. Finish Type shall be ceramic bead for durability and cleanability
- F. Use Area Classification: Class III Commercial (ASTM F1700) / Class 33/42 Heavy Commercial/General Light Industrial (EN/ISO)

G. Carbon Footprint: Neutral, as certified by 3rd party, across the full product life cycle

H. Substitutes/Alternates

Subject to compliance with all requirements, "or equal" must have similar sustainability and performance characteristics. Substitution sample and submittals must be submitted for written approval of quality and color at least ten days prior to bid to be considered.

## 2.9 PRODUCT EMBODIED CARBON SPECIFICATIONS

A. Third party verified product-specific Environmental Product Declaration (EPD) required.

B. Substitutes/Alternates

Subject to compliance with all requirements, "or equal" must have similar sustainability and performance characteristics. Substitution sample and submittals must be submitted for written approval of quality and color at least ten days prior to bid to be considered.

## 2.10 ACCESSORIES

A. Materials recommended by Manufacturer for patching, priming, etc.

B. Transition strip free installation desired. Carpet and hard surface of comparable total thickness should be installed adjacent to each other free of transition strips.

## PART 3 EXECUTION

### 3.1 EXAMINATION / PREPARATION

A. Prepare sub-floor to comply with criteria established in Manufacturer's installation instructions. Use only preparation materials that are acceptable to the Manufacturer.

1. Remove all substances from sub-floor that would interfere with or be harmful to the installation.
2. Remove sub-floor ridges and bumps. Fill cracks, joints, holes, and other defects.

B. Verify that sub-floor is smooth, level, and flat within specified tolerances and ready to receive LVT.

C. Verify that substrate surface is dust-free.



- D. Verify that concrete surfaces are ready for installation by conducting moisture and pH testing. Results must be within limits recommended by Manufacturer.
- E. There will be no exceptions to the provisions stated in the Manufacturer's installation instructions.

### 3.2 INSTALLATION - GENERAL

- A. Install product in accordance with Manufacturer's installation instructions.
- B. Adhesive must be third party certified in compliance with California Department of Public Health (CDPH) Standard Method v1.1-2010. Provide documentation using one of the following certifications: FloorScore, Green Label Plus, Greenguard Gold.
- C. Installation methodology will be VOC friendly for both installers & occupants of the building.
- D. Trim flooring neatly at walls and around interruptions.

### 3.3 PROTECTION & CLEANING

**A. After each area is installed, protect from soiling and damage by other trades.**

- B. Clean the floor after 48 hours from the completion of installation.
- C. Start with dry sweeping or dust mopping to remove as much dry soil as possible.
- D. Follow this with wet mopping using a neutral cleaning solution (pH of 6 - 8) and a microfiber mop. Make sure to use a liquid cleaning solution that is Ready-to-Use or dilute the cleaner with the proper amount of water.
- E. Rinse mop often with clean water while mopping to remove contaminants from mop.
- F. After mopping with cleaning solution, rinse floor with clean hot water and microfiber mop.
- G. Allow floor to completely dry before foot traffic is resumed.
- H. Always use a damp mop. Do not pour water directly on the floor and do not allow puddles of water to remain on the floor.

### 3.4 RECYCLING

- A. Scope of Work

- 
- B. Owner requires that existing flooring being removed and trim waste from new installations be recycled in the best possible manner. A reclamation plan will be submitted to owner for approval at start of work. Said plan will provide directions for the reclamation of recyclable flooring at the job site.
1. First choice is repurposing, provided LVT is in usable condition
  2. Second choice is closed loop recycling turning LVT into flooring
- C. Description of Services Collection (Labor): Flooring must be removed from the existing installation and prepared for pickup based on the type of material and reclamation option selected. Specifications for removal from the job site are as follows:
1. LVT must be palletized and secured for shipping; shrink wrapped, banded, strapped.
  2. Pallets must be a minimum size of 40"x40" and material stacked approximately 54" high.
  3. Pallets cannot be double stacked in the trailer.
  4. Tile must be kept dry and free of any moisture damage.
  5. Trailers must be free of any non-LVT debris, construction waste, cardboard boxes, trash.
  6. Material must not contain mold or mildew.
  7. Wet LVT will not be accepted.
  8. Material must not contain vinyl asbestos or adhesives containing asbestos.
- D. Material Loading: Shipper must load material on the carrier; drivers will not assist. Notification must be given prior to quote submittal of any special requirements such as liftgate, small trucks, etc. Additional fees will apply. Processing: All possible recycling options must be clearly presented and/or submitted on paper subsequent to job start. The accepted reclamation option must be approved in writing by the party requesting the services.
- E. Certification: A certificate verifying the reclamation of the LVT and the pounds of material diverted from the landfill will be furnished upon request.

END OF SECTION

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**SECTION 09 6723**

**RESINOUS FLOORING**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. This Section includes:
  - 1. High-performance resinous flooring systems.

**1.2 SUBMITTALS**

- A. Product Data: For each type of product indicated.
- B. Installer Certificates for Qualification: Signed by manufacturer stating that installers comply with specified requirements.
- C. Material Certificates: For each resinous flooring component, from manufacturer.
- D. Maintenance Data: For maintenance manuals.
- E. Samples: Submit two 6" X 6" samples of each resinous flooring system applied to a rigid backing. Provide sample which is a true representation of proposed field applied finish. Provide sample color and texture for approval from Owner in writing or approved by General Contractor prior to installation.
- F. Product Schedule: For resinous flooring.

**1.3 QUALITY ASSURANCE**

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of flooring systems required for this Project.
  - 1. Engage an installer who is approved in writing by resinous flooring manufacturer as qualified to apply resinous flooring systems indicated.
  - 2. Installer Letter of Qualification: Installer to provide letter stating that they have been in business for at least 5 years and listing 5 projects in the last 2 years of similar scope. For each project provide: project name, location, date of installation, contact information, size of project, and manufacturer of materials with system information.
- B. Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats, and topcoats, from single source from single manufacturer. Provide secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from source recommended by manufacturer of primary materials.
- C. Pre-installation Conference: Conduct conference at Project site before work and mockups begin.
- D. Mockups: Apply mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution. Do not cover up mockup area.
  - 1. Apply full-thickness mockups on 16 square foot floor area selected by Architect.
  - 2. Finish surfaces for verification of products, color, texture, and sheen.
  - 3. Simulate finished lighting conditions for Architect's review of mockups.

4. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
5. Mockup shall demonstrate desired slip resistance for review and approval by Owner's representative in writing.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.
  1. Maintain containers in clean condition, free of foreign materials and residue.
  2. Remove rags and waste from storage areas daily.

#### 1.5 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring application.
- B. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.
- C. Close spaces to traffic during resinous flooring application and for not less than 24 hours after application unless manufacturer recommends a longer period.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by, or approved equal:
  1. The Sherwin Williams Company, Cleveland, OH. [swflooring@sherwin.com](mailto:swflooring@sherwin.com)
  2. Durabond
  3. Dur-A-Flex
- B. **Durabond Epoxy Floor (No Aggregate) EF-1** – Basis of Design
  1. Basalt Grey and flash cove up the wall 8”.

#### 2.2 MATERIALS

- A. VOC Content of Resinous Flooring: Provide resinous flooring systems, for use inside the weatherproofing system, that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24)].
  1. Resinous Flooring: 100 g/L.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Inspection: Prior to commencing Work, thoroughly examine all underlying and adjoining work, surfaces and conditions upon which Work is in any way dependent for perfect results. Report all conditions which affect Work. No "waiver of responsibility" for incomplete, inadequate or defective underlaying and adjoining work, surfaces and conditions will be considered, unless notice of such unsatisfactory conditions has been filed and agreed to in writing before Work begins. Commencement of Work constitutes acceptance of surfaces.
- B. Surface Preparation: Remove all surface contamination, loose or weakly adherent particles, laitance, grease, oil, curing compounds, paint, dust and debris by blast track method or approved mechanical means (acid etch not allowed). If surface is questionable, try a test patch. Create a minimum surface profile for the system specified in accordance with the methods described in ICRI No. 03732 to achieve profile numbers as follows:
- |   |                       |
|---|-----------------------|
| 1. Thin film, to 10 mils                  | CSP-1 to CSP-3        |
| 2. Thin and medium films, 10 to 40 mils   | CSP-3 to CSP-5        |
| 3. <b>Self-leveling mortars, to 3/16"</b> | <b>CSP-4 to CSP-6</b> |
| 4. Mortars and laminates, to 1/4" or more | CSP-5 to CSP-10       |
- C. Verify that concrete substrates are dry and moisture-vapor emissions are within acceptable levels according to manufacturer's written instructions.
1. Moisture Testing: Perform tests indicated below.
  1. Calcium Chloride Test: Perform anhydrous calcium chloride test per ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lbs. of water/1000 sq. ft. in 24 hours. Perform tests so that each test area does not exceed 1000 sq. ft. and perform 3 tests for the first 1000 sq. ft. and one additional test for every additional 1000 sq ft.
  2. In-Situ Probe Test: Perform relative-humidity test using in-situ probes per ASTM F 2170. Proceed with installation only after substrates have a maximum 75 percent relative-humidity-level measurement.

### 3.2 ENVIRONMENTAL CONDITIONS

- A. All applicators and all other personnel in the area of the RF installation shall take all required and necessary safety precautions. All manufacturers' installation instructions shall be implicitly instructions shall be implicitly followed.
- B. Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written instructions.
- C. Alkalinity and Adhesion Testing: Verify that concrete substrates have pH within acceptable range. Perform tests recommended by manufacturer. Proceed with application only after substrates pass testing.
- D. Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions.

- E. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.
- F. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written instructions.

### 3.3 APPLICATIONS

- A. Install resinous floor over properly prepared concrete surface in strict accordance with the manufacturer's directions.
  - 1. Install the primer and/or base coats over thoroughly cleaned and prepared concrete.
  - 2. Install topcoat over flooring after excess aggregate has been removed.
  - 3. Maintain a slab temperature of 60°F to 80°F for 24 hours minimum before applying floor topping, or as instructed by manufacturer.
- B. Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.
  - 1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion.
  - 2. Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.
  - 3. At substrate expansion and isolation joints, comply with resinous flooring manufacturer's written instructions.
- C. Sealant: Saw cut resinous floor topping at expansion joints in concrete slab. Fill sawcuts with sealant prior to final seal coat application. Follow manufacturer's written recommendations.
- D. Apply primer over prepared substrate at manufacturer's recommended spreading rate.
- E. Slip Resistant Finish: Provide grit for slip resistance.
- F. Apply topcoats in number indicated for flooring system and at spreading rates recommended in writing by manufacturer.

### 3.4 COMPLETED WORK

- A. Cleaning: Upon completion of the Work, clean up and remove from the premises surplus materials, tools, appliances, empty cans, cartons and rubbish resulting from the Work. Clean off all spattering and drippings, and all resulting stains.
- B. Protection: **Protect Work in accordance with manufacturer's directions from damage and wear during the remainder of the construction period. Use protective methods and materials, including temporary covering, recommended in writing by resinous flooring manufacturer.**
- C. Contractor shall insure that coating is protected from any traffic until it is fully cured to the satisfaction of the coating manufacturer.

END OF SECTION 09 6723

SECTION 09 9113  
EXTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Primers.
2. Finish coatings.
3. Floor sealers and paints.

B. Related Requirements:

1. Section 05 12 00 "Structural Steel Framing" for shop priming of metal substrates.
2. Section 05 50 00 "Metal Fabrications" for shop priming metal fabrications.
3. Section 05 52 00 "Handrails and Railings" for shop priming handrails and railings.
4. Section 09 96 00 "High-Performance Coatings" for tilelike coatings.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include preparation requirements and application instructions.
2. Indicate VOC content.

B. Samples: For each type of topcoat product.

C. Samples for Initial Selection: For each type of topcoat product.

D. Samples for Verification: For each type of paint system and each color and gloss of topcoat.

1. Submit Samples on rigid backing, **8 inches** square.
2. Apply coats on Samples in steps to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

- E. Product Schedule: Use same designations indicated on Drawings and in the Exterior Painting Schedule to cross-reference paint systems specified in this Section. Include color designations.

#### 1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Paint Products: **5** percent, but not less than **1 gal.** of each material and color applied.

#### 1.5 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
  - 1. Architect will select one surface to represent surfaces and conditions for application of each paint system.
    - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft..
    - b. Other Items: Architect will designate items or areas required.
  - 2. Final approval of color selections will be based on mockups.
    - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
  - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
  - 1. Maintain containers in clean condition, free of foreign materials and residue.
  - 2. Remove rags and waste from storage areas daily.

#### 1.7 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.



- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. The Sherwin Williams Company (Basis of Design)
- B. Source Limitations: Obtain each paint product from single source from single manufacturer.

### 2.2 PAINT PRODUCTS, GENERAL

- A. Material Compatibility:
  - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer based on testing and field experience.
  - 2. For each coat in a paint system, provide products recommended in writing by topcoat manufacturer for use in paint system and on substrate indicated.
- B. Colors: As selected by Architect from manufacturer's full range of color.
  - 1. 10 percent of surface area will be painted with deep tones.
  - 2. Full range of colors is not the manufacturer's full range of standard colors. Every color that is available from the manufacturer is the manufacturer's full range, including specialty and other colors that are available from the manufacturer per their color charts.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
  - 1. Concrete: 12 percent.

2. Fiber-Cement Board: 12 percent.
  3. Masonry (Clay and Concrete Masonry Units): 12 percent.
  4. Wood: 15 percent.
  5. Portland Cement Plaster: 12 percent.
  6. Gypsum Board: 12 percent.
- C. Portland Cement Plaster Substrates: Verify that plaster is fully cured.
- D. Exterior Gypsum Board Substrates: Verify that finishing compound is dry and sanded smooth.
- E. Verify suitability of substrates, including surface conditions and compatibility, with finishes and primers.
- F. Proceed with coating application only after unsatisfactory conditions have been corrected.
1. Application of coating indicates acceptance of surfaces and conditions.

### 3.2 PREPARATION

- A. Comply with manufacturer's written instructions applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems specified in this Section.
- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- E. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.

- F. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer, **but not less than the following**:
  - 1. SSPC-SP 2.
  - 2. SSPC-SP 3.
  - 3. SSPC-SP 7/NACE No. 4.
  - 4. SSPC-SP 11.
- G. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- H. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- I. Aluminum Substrates: Remove loose surface oxidation.
- J. Wood Substrates:
  - 1. Scrape and clean knots. Before applying primer, apply coat of knot sealer recommended in writing by topcoat manufacturer for exterior use in paint system indicated.
  - 2. Sand surfaces that will be exposed to view, and remove sanding dust.
  - 3. Prime edges, ends, faces, undersides, and backsides of wood.
  - 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- K. Plastic Trim Fabrication Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

### 3.3 INSTALLATION

- A. Apply paints in accordance with manufacturer's written instructions.
  - 1. Use applicators and techniques suited for paint and substrate indicated.
  - 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
  - 3. Paint **both sides** and edges of exterior doors and entire exposed surface of exterior door frames.
  - 4. Paint entire exposed surface of window frames and sashes.
  - 5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

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6. Primers specified in the Exterior Painting Schedule may be omitted on items that are factory primed or factory finished if compatible with intermediate and topcoat coatings and acceptable to intermediate and topcoat paint manufacturers.
  - B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.
  - C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
  - D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
  - E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
    1. Paint the following work where exposed to view:
      - a. Equipment, including panelboards, **and switch gear**.
      - b. Uninsulated metal piping.
      - c. Uninsulated plastic piping.
      - d. Pipe hangers and supports.
      - e. Metal conduit.
      - f. Plastic conduit.
      - g. Tanks that do not have factory-applied final finishes.

### 3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
  1. Contractor shall touch up and restore painted surfaces damaged by testing.
  2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written instructions, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written instructions.

### 3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

1. Do not clean equipment with free-draining water and prevent solvents, thinners, cleaners, and other contaminants from entering into waterways, sanitary and storm drain systems, and ground.
  2. Dispose of contaminants in accordance with requirements of authorities having jurisdiction.
  3. Allow empty paint cans to dry before disposal.
  4. Collect waste paint by type and deliver to recycling or collection facility.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

### 3.6 EXTERIOR PAINTING SCHEDULE

A. Concrete Substrates, Nontraffic Surfaces:

1. Latex System
  - a. Prime Coat: S-W Loxon Concrete & Masonry Primer, LX2W50
  - b. Intermediate Coat: Matching topcoat.
  - c. Topcoat: S-W Superpaint Exterior Latex, Flat (A80 Series) or Satin (A89 Series) or Gloss (A84 Series)
2. Self-Cleaning Acrylic System
  - a. Prime Coat: S-W Loxon Concrete & Masonry Primer, LX2W50
  - b. Intermediate Coat: Matching topcoat.
  - c. Topcoat: S-W Loxon Self-Cleaning Acrylic, Flat (LX13 Series) or Satin (LX14 Series)

B. Concrete Substrates, Traffic Surfaces:

1. Acrylic Floor Paint System
  - a. Prime Coat: Matching topcoat.
  - b. Intermediate Coat: Matching topcoat.
  - c. Topcoat: S-W Armorseal Tread-Plex Waterbased Acrylic Floor Coating, B90 Series)
2. Solvent-Based Pigmented Sealer System

- a. Prime Coat: Matching topcoat.
- b. Intermediate Coat: Matching topcoat.
- c. Topcoat: S-W H&C Colortop Solvent Based Solid Color Concrete Sealer.

C. Brick and Stucco Substrates:

1. Latex System

- a. Prime Coat: S-W Loxon Concrete & Masonry Primer, LX2W50
- b. Intermediate Coat: Matching topcoat.
- c. Topcoat: S-W Superpaint Exterior Latex, Flat (A80 Series) or Satin (A89 Series) or Gloss (A84 Series)

2. Self-Cleaning Acrylic System

- a. Prime Coat: S-W Loxon Concrete & Masonry Primer, LX2W50
- b. Intermediate Coat: As recommended in writing by topcoat manufacturer.
- c. Topcoat: S-W Loxon Self-Cleaning Acrylic, Flat (LX13 Series) or Satin (LX14 Series)

D. Concrete Masonry Unit Substrates:

1. Light Industrial Acrylic System:

- a. Prime Coat: S-W Pro Industrial Heavy Duty Block Filler, B42W150
- b. Intermediate Coat: Matching topcoat.
- c. Topcoat: S-W Pro Industrial Acrylic Coating, EgShel B66-660, or Semi Gloss B66-650, or Gloss B66-600

2. High-Build Acrylic Waterproofing System: Dry film thickness of not less than **10 mils (0.25 mm)**.

- a. Prime Coat: S-W Pro Industrial Heavy Duty Block Filler, B42W150
- b. Intermediate Coat: As recommended in writing by topcoat manufacturer.
- c. Topcoat: S-W Loxon XP Waterproofing Masonry Coating, Flat (LX11 Series) or Satin (LX21 Series)

E. Steel and Iron Substrates:

1. Water-Based, Light Industrial Coating System

- a. Prime Coat: S-W ProCryl Universal Metal Primer, B66-300
- b. Intermediate Coat: Matching topcoat.
- c. Topcoat: S-W Pro Industrial Acrylic Coating, EgShel B66-660, or Semi Gloss B66-650, or Gloss B66-600

2. Urethane Modified Alkyd System, Waterbased

- a. Prime Coat: S-W ProCryl Universal Metal Primer, B66-300
- b. Intermediate Coat: High-build epoxy paint, low gloss.
- c. Topcoat: S-W Pro Industrial Waterbased Alkyd Urethane, Gloss B53-1050, SemiGloss B53-1150 or Low Gloss B53-1250

F. Galvanized-Metal Substrates:

1. Water-Based, Light Industrial Coating System

- a. Prime Coat: S-W ProCryl Universal Metal Primer, B66-300
- b. Intermediate Coat: Matching topcoat.
- c. Topcoat: S-W Pro Industrial Acrylic Coating, EgShel B66-660, or Semi Gloss B66-650, or Gloss B66-600

2. Urethane Modified Alkyd System, Waterbased

- a. Prime Coat: S-W ProCryl Universal Metal Primer, B66-300
- b. Intermediate Coat: Matching topcoat.
- c. Topcoat: S-W Pro Industrial Waterbased Alkyd Urethane, Gloss B53-1050, SemiGloss B53-1150 or Low Gloss B53-1250

G. Aluminum Substrates:

1. Water-Based, Light Industrial Coating System

- a. Prime Coat: S-W ProCryl Universal Metal Primer, B66-300
- b. Intermediate Coat: Matching topcoat.
- c. Topcoat: S-W Pro Industrial Acrylic Coating, EgShel B66-660, or Semi Gloss B66-650, or Gloss B66-600

2. Urethane Modified Alkyd System, Waterbased

- a. Prime Coat: S-W ProCryl Universal Metal Primer, B66-300
- b. Intermediate Coat: Matching topcoat.
- c. Topcoat: S-W Pro Industrial Waterbased Alkyd Urethane, Gloss B53-1050, SemiGloss B53-1150 or Low Gloss B53-1250.

H. Dressed-Lumber Substrates: **Trim, Architectural woodwork, Doors, Windows, Board siding, Railings, Fences**

1. Acrylic over Latex Primer System

- a. Prime Coat: S-W Exterior Latex Wood Primer, B42W8141
- b. Intermediate Coat: Matching topcoat.
- c. Topcoat: S-W Superpaint Exterior Latex, Flat (A80 Series) or Satin (A89 Series) or Gloss (A84 Series)

2. Water-Based, Light Industrial Coating System
    - a. Prime Coat: S-W Exterior Latex Wood Primer, B42W8141
    - b. Intermediate Coat: Matching topcoat.
    - c. Topcoat: S-W Pro Industrial Acrylic Coating, EgShel B66-660, or Semi Gloss B66-650, or Gloss B66-600
- I. Wood Shingle and Shake Siding Substrates:
1. Acrylic over Latex Primer System
    - a. Prime Coat: S-W Exterior Latex Wood Primer, B42W8141
    - b. Intermediate Coat: Matching topcoat.
    - c. Topcoat: S-W Superpaint Exterior Latex, Flat (A80 Series) or Satin (A89 Series) or Gloss (A84 Series)
  2. Solid Color Stain System
    - a. First Coat: Matching topcoat.
    - b. Topcoat: S-W WoodScapes Exterior Acrylic Solid Color Stain, A15-50 Series
- J. Wood-Board, Traffic-Surface Substrates:
1. Acrylic Floor Paint System
    - a. First Coat: Matching topcoat.
    - b. Topcoat: Tread-Plex Acrylic Waterbased Floor Coating, B90 Series.
  2. Deck Stain System
    - a. First Coat: Matching topcoat.
    - b. Topcoat: S-W SuperDeck Exterior Waterborne Solic Color Stain, SD7-150 Series
- K. Cementitious Composition Board Substrates: **Siding, Trim, Panels**
1. Latex System
    - a. Prime Coat: S-W Loxon Concrete and Masonry Coating, LX2W50
    - b. Intermediate Coat: Matching topcoat.
    - c. Topcoat: S-W Superpaint Exterior Latex, Flat (A80 Series) or Satin (A89 Series) or Gloss (A84 Series)
  2. Self-Cleaning Acrylic System
    - a. Prime Coat: S-W Loxon Concrete and Masonry Coating, LX2W50  
Intermediate Coat: Matching topcoat.



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- b. Topcoat: S-W Loxon Self-Cleaning Acrylic, Flat (LX13 Series) or Satin (LX14 Series)
  - 3. Water-Based Light-Industrial Coating System
    - a. Prime Coat: S-W Loxon Concrete and Masonry Coating, LX2W50
    - b. Intermediate Coat: Matching topcoat.
    - c. Topcoat: S-W Pro Industrial Acrylic Coating, EgShel B66-660, or Semi Gloss B66-650, or Gloss B66-600
  - L. Portland Cement Plaster Substrates:
    - 1. Latex System
      - a. Prime Coat: S-W Loxon Concrete and Masonry Coating, LX2W50
      - b. Intermediate Coat: Matching topcoat.
      - c. Topcoat: S-W Superpaint Exterior Latex, Flat (A80 Series) or Satin (A89 Series) or Gloss (A84 Series)
    - 2. High-Build Acrylic Waterproofing System: Dry film thickness of not less than **10 mils**.
      - a. Prime Coat: S-W Loxon Concrete and Masonry Coating, LX2W50
      - b. Intermediate Coat: Matching topcoat.
      - c. Intermediate Coat: As recommended in writing by topcoat manufacturer.
      - c. Topcoat: S-W Loxon XP Waterproofing Masonry Coating, Flat (LX11 Series) or Satin (LX21 Series)
    - 3. Water-Based, Light Industrial Coating System
      - a. Prime Coat: S-W Loxon Concrete and Masonry Coating, LX2W50
      - b. Intermediate Coat: Matching topcoat.
      - c. Topcoat: S-W Pro Industrial Acrylic Coating, EgShel B66-660, or Semi Gloss B66-650, or Gloss B66-600

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SECTION 09 9123

INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Primers.
2. Water-based finish coatings.
3. Solvent-based finish coatings.
4. Floor sealers and paints.
5. Dry fall coatings.

B. Related Requirements:

1. **Section 051 200 "Structural Steel Framing", Section 05 1213 "Architecturally Exposed Structural Steel Framing"** for shop priming structural steel.
2. Section 055000 "Metal Fabrications" for shop priming metal fabrications.
3. Section 055113 "Metal Pan Stairs" for shop priming metal pan stairs.
4. Section 055116 "Metal Floor Plate Stairs" for shop priming metal floor plate stairs.
5. Section 055119 "Metal Grating Stairs" for shop priming metal grating stairs.
6. Section 055213 "Pipe and Tube Railings" for shop **priming & painting** pipe and tube railings.
7. **Section 05 5313 "Bar Gratings", Section 05 5316 "Plank Gratings", Section 05 5319 "Expanded Metal Gratings"** for shop priming metal gratings.
8. Section 09 9300 "Staining and Transparent Finishing" for surface preparation and the application of wood stains and transparent finishes on interior wood substrates.
9. Section 09 9600 "High-Performance Coatings" for tile-like coatings.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.

1. Include preparation requirements and application instructions.

2. Indicate VOC content.
- B. Samples: For each type of topcoat product.
  - C. Samples for Initial Selection: For each type of topcoat product.
  - D. Samples for Verification: For each type of paint system and each color and gloss of topcoat.
    1. Submit Samples on rigid backing, **8 inches** square.
    2. Apply coats on Samples in steps to show each coat required for system.
    3. Label each coat of each Sample.
    4. Label each Sample for location and application area.
  - E. Product Schedule: Use same designations indicated on Drawings and in the Interior Painting Schedule to cross-reference paint systems specified in this Section. Include color designations.

#### 1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  1. Paint Products: **5** percent, but not less than **1 gal.** of each material and color applied.

#### 1.5 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  1. Architect will select one surface to represent surfaces and conditions for application of each paint system.
    - a. Vertical and Horizontal Surfaces: Provide samples of at least **100 sq. ft.**
    - b. Other Items: Architect will designate items or areas required.
  2. Final approval of color selections will be based on mockups.
    - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
  3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
  1. Maintain containers in clean condition, free of foreign materials and residue.
  2. Remove rags and waste from storage areas daily.

#### 1.7 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures of less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. The Sherwin Williams Company (Basis of Design)
- B. Source Limitations: Obtain each paint product from single source from single manufacturer.

#### 2.2 PAINT PRODUCTS, GENERAL

- A. Material Compatibility:
  1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
  2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
- B. Colors: **As indicated in a color schedule.**
  1. **Ten** percent of surface area will be painted with deep tones.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
  - 1. Concrete: 12 percent.
  - 2. Fiber-Cement Board: 12 percent.
  - 3. Masonry (Clay and CMUs): 12 percent.
  - 4. Wood: 15 percent.
  - 5. Gypsum Board: 12 percent.
  - 6. Plaster: 12 percent.
- C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- D. Plaster Substrates: Verify that plaster is fully cured.
- E. Spray-Textured Ceiling Substrates: Verify that surfaces are dry.
- F. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- G. Proceed with coating application only after unsatisfactory conditions have been corrected.
  - 1. Application of coating indicates acceptance of surfaces and conditions.

#### 3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
  - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- E. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.
- F. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer **but not less than the following:**
  1. SSPC-SP 2.
  2. SSPC-SP 3.
  3. SSPC-SP 7/NACE No. 4.
  4. SSPC-SP 11.
- G. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- H. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- I. Aluminum Substrates: Remove loose surface oxidation.
- J. Wood Substrates:
  1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
  2. Sand surfaces that will be exposed to view, and dust off.
  3. Prime edges, ends, faces, undersides, and backsides of wood.
  4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- K. Cotton or Canvas Insulation Covering Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

### 3.3 INSTALLATION

- A. Apply paints according to manufacturer's written instructions.
  1. Use applicators and techniques suited for paint and substrate indicated.

2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
  4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
  5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Painting Fire-Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
1. Paint the following work where exposed in equipment rooms:
    - a. Equipment, including panelboards **and switch gear**.
    - b. Uninsulated metal piping.
    - c. Uninsulated plastic piping.
    - d. Pipe hangers and supports.
    - e. Metal conduit.
    - f. Plastic conduit.
    - g. Tanks that do not have factory-applied final finishes.
    - h. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
  2. Paint the following work where exposed in occupied spaces:
    - a. Equipment, including panelboards.
    - b. Uninsulated metal piping.
    - c. Uninsulated plastic piping.
    - d. Pipe hangers and supports.
    - e. Metal conduit.
    - f. Plastic conduit.
    - g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
    - h. Other items as directed by Architect.



3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

### 3.4 FIELD QUALITY CONTROL

- A. Dry-Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry-film thickness.
  1. Contractor shall touch up and restore painted surfaces damaged by testing.
  2. If test results show that dry-film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry-film thickness that complies with paint manufacturer's written recommendations.

### 3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
  1. Do not clean equipment with free-draining water and prevent solvents, thinners, cleaners, and other contaminants from entering into waterways, sanitary and storm drain systems, and ground.
  2. Dispose of contaminants in accordance with requirements of authorities having jurisdiction.
  3. Allow empty paint cans to dry before disposal.
  4. Collect waste paint by type and deliver to recycling or collection facility.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

### 3.6 INTERIOR PAINTING SCHEDULE

- A. Concrete Substrates, Nontraffic Surfaces:
  1. Latex System
    - a. Prime Coat: S-W Loxon Concrete and Masonry Coating, LX2W50
    - b. Intermediate Coat: Matching topcoat.

- 
- c. Topcoat: S-W ProMar 200 HP EgShel, B20-1950 or Semi Gloss B31-1950
    - 2. Water-Based Light-Industrial Coating System
      - a. Prime Coat: S-W Loxon Concrete and Masonry Coating, LX2W50
      - b. Intermediate Coat: Matching topcoat.
      - c. Topcoat: S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy, EgShel, K45 Series or Semi Gloss K46 Series.
  
  - B. Concrete Substrates, Traffic Surfaces:
    - 1. Latex Floor Enamel System
      - a. Intermediate Coat: Matching topcoat.
      - b. Topcoat: S-W Armorseal Tread-Plex, B90 Series Semi-Gloss
    - 2. Concrete Stain System
      - a. First Coat: Matching topcoat.
      - b. Topcoat: S-W H&C Colortop Waterbased Sealer.
  
  - C. Cement Board Substrates:
    - 1. Latex System
      - a. Prime Coat: S-W Loxon Concrete and Masonry Coating, LX2W50
      - b. Intermediate Coat: Matching topcoat.
      - c. Topcoat: S-W ProMar 200 HP EgShel, B20-1950 or Semi Gloss B31-1950
    - 2. Water-Based Light-Industrial Coating System (**Preferred system for cement board ceiling**)
      - a. Prime Coat: S-W Loxon Concrete and Masonry Coating, LX2W50
      - b. Intermediate Coat: Matching topcoat.
      - c. Topcoat: S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy, EgShel, K45 Series or Semi Gloss K46 Series.
  
  - D. Clay Masonry Substrates:
    - 1. Latex System
      - a. Prime Coat: S-W Loxon Concrete and Masonry Coating, LX2W50
      - b. Intermediate Coat: Matching topcoat.
      - c. Topcoat: S-W ProMar 200 HP EgShel, B20-1950 or Semi Gloss B31-1950
    - 2. Water-Based Light-Industrial Coating System

- a. Prime Coat: S-W Loxon Concrete and Masonry Coating, LX2W50
- b. Intermediate Coat: Matching topcoat.
- c. Topcoat: S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy, EgShel, K45 Series or Semi Gloss K46 Series.

E. CMU Substrates:

1. Latex System

- a. Block Filler: S-W Pro Industrial Heavy Duty Block Filler, B42W150
- b. Intermediate Coat: Matching topcoat.
- c. Topcoat: S-W ProMar 200 HP EgShel, B20-1950 or Semi Gloss B31-1950

2. Water-Based Light-Industrial Coating System (**HIGH TRAFFIC AREAS**)

- a. Block Filler: S-W Pro Industrial Heavy Duty Block Filler, B42W150
- b. Intermediate Coat: Matching topcoat.
- c. Topcoat: S-W Pro Industrial Catalyzed Waterbased Epoxy, EgShel B73-360 Series or Gloss B73-300 Series.

3. Solvent-Based Industrial Coating System (**WET AREAS**)

- a. Block Filler: S-W Kem Cati-Coat HS Epoxy Filler/Sealer, B42V401/B42W400
- b. Intermediate Coat: Matching topcoat.
- c. Topcoat: S-W Tile Clad HS Epoxy, B62Z100 Series

4. Latex Aggregate System

- a. Prime Coat: As recommended in writing by topcoat manufacturer.
- b. Intermediate Coat: As recommended in writing by topcoat manufacturer.
- c. Topcoat: S-W Tuff Surface Premium Texture Finish, Flat A44-1050 or EgShel A44-1350.

F. Steel Substrates:

1. Urethane Modified Alkyd System, Waterbased

- a. Prime Coat: S-W ProCryl Universal Metal Primer, B66-300
- b. Intermediate Coat: Matching topcoat.
- c. Topcoat: S-W Pro Industrial Waterbased Alkyd Urethane, Gloss B53-1050, SemiGloss B53-1150 or Low Gloss B53-1250

2. Acrylic System

- a. Prime Coat: S-W ProCryl Universal Metal Primer, B66-300
- b. Intermediate Coat: Matching topcoat.
- c. Topcoat: S-W Pro Industrial Acrylic Coating, EgShel B66-660, or Semi Gloss B66-650, or Gloss B66-600

G. Galvanized-Metal Substrates:

1. Urethane Modified Alkyd System, Waterbased
  - a. Prime Coat: S-W ProCryl Universal Metal Primer, B66-300
  - b. Intermediate Coat: Matching topcoat.
  - c. Topcoat: S-W Pro Industrial Waterbased Alkyd Urethane, Gloss B53-1050, SemiGloss B53-1150 or Low Gloss B53-1250
2. Acrylic System
  - a. Prime Coat: S-W ProCryl Universal Metal Primer, B66-300
  - b. Intermediate Coat: Matching topcoat.
  - c. Topcoat: S-W Pro Industrial Acrylic Coating, EgShel B66-660, or Semi Gloss B66-650, or Gloss B66-600

H. Aluminum (Not Anodized or Otherwise Coated) Substrates:

1. Urethane Modified Alkyd System, Waterbased
  - a. Prime Coat: S-W ProCryl Universal Metal Primer, B66-300
  - b. Intermediate Coat: Matching topcoat.
  - c. Topcoat: S-W Pro Industrial Waterbased Alkyd Urethane, Gloss B53-1050, SemiGloss B53-1150 or Low Gloss B53-1250
2. Acrylic System
  - a. Prime Coat: S-W ProCryl Universal Metal Primer, B66-300
  - b. Intermediate Coat: Matching topcoat.
  - c. Topcoat: S-W Pro Industrial Acrylic Coating, EgShel B66-660, or Semi Gloss B66-650, or Gloss B66-600

I. Finish Carpentry: **Wood trim, Doors, Windows, and Wood board paneling.**

1. Acrylic Alkyd System, Waterbased
  - a. Prime Coat: S-W Premium Wall and Wood Primer, B28W8111
  - b. Intermediate Coat: Matching topcoat.
  - c. Topcoat: S-W ProMar 200 Interior Waterbased Acrylic Alkyd, EgShel B33-8250 or Semi Gloss B34-8250 or Gloss B35-8250
2. Alkyd System
  - a. Prime Coat: S-W Premium Wall and Wood Primer, B28W8111
  - b. Intermediate Coat: Matching topcoat.
  - c. Topcoat: S-W ProMar 200 Alkyd EgShel B33-250 or Semi Gloss B34-250 or Gloss B35-250.

J. **Gypsum Board and Plaster** Substrates:

1. Latex over Latex Sealer System
  - a. Prime Coat: S-W ProMar 200 Zero VOC Primer, B28W2600
  - b. Intermediate Coat: Matching topcoat.
  - c. Topcoat: S-W ProMar 200 HP EgShel, B20-1950 or Semi Gloss B31-1950
  
2. Latex over Latex Sealer System
  - a. Prime Coat: S-W ProMar 200 Zero VOC Primer, B28W2600
  - b. Intermediate Coat: Matching topcoat.
  - c. Topcoat: S-W ProMar 200 Flat, B30 Series
  
3. Water-Based Light-Industrial Coating System
  - a. Prime Coat: S-W ProMar 200 Zero VOC Primer, B28W2600
  - b. Intermediate Coat: Matching topcoat.
  - c. Topcoat: S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy, EgShel, K45 Series or Semi Gloss K46 Series.

K. **Wood (STAIN):** Teak Bench Tops (possibly) and crown molding.

1. Stain and Varnish System:
  - a. Satin Finish:
    - 1) 1st Coat: SW Minwax Performance Series Tintable Wood Stain 250 VOC.
    - 2) 2nd Coat: S-W Minwax Helmsman Spar Urethane..
    - 3) 3rd Coat: S-W Minwax Helmsman Spar Urethane. (4 mils wet, 1.0 mil dry per coat).

**END OF SECTION 09 9123**

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**SECTION 10 2113**

**SOLID-PHENOLIC TOILET COMPARTMENTS**

**PART 1 - GENERAL**

**1.1 SUMMARY**

A. This Section includes solid-phenolic units as follows:

1. Toilet Enclosures: Overhead Braced.

B. Related Sections include the following:

1. Division 10 "Toilet and Bath Accessories" for toilet tissue dispensers, grab bars, purse shelves, and similar accessories.

**1.2 SUBMITTALS**

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Show locations of cutouts for compartment-mounted toilet accessories.

C. Samples for Initial Selection: For each type of unit indicated.

**1.3 QUALITY ASSURANCE**

A. Comply with requirements in CID-A-A-60003, "Partitions, Toilets, Complete."

**1.4 PROJECT CONDITIONS**

A. Field Measurements: Verify actual locations of walls, columns, ceilings, and other construction contiguous with toilet compartments by field measurements before fabrication and indicate measurements on Shop Drawings.

1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating toilet compartments without field measurements. Coordinate wall, floor, ceilings, and other contiguous construction to ensure that actual dimensions correspond to established dimensions.

**PART 2 - PRODUCTS**

**2.1 SOLID-PHENOLIC UNITS – Scranton - Hiny Hiders- Shale- Basis of Design**

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Scranton Products

2. Ampco.

3. Bradley Corporation; Mills Partitions.

4. Capitol Partitions, Inc.
5. Metpar Corp.
6. Sanymetal; a Crane Plumbing Company.

B. Door, Panel, and Pilaster Construction: Solid phenolic Panels: Solid phenolic core of multiple layers of phenolic resin impregnated kraft paper compressed under heat and pressure. Face with high pressure melamine sheet fusion welded to surface of core. Resistant to delamination, water, steam, corrosion, soap. Edges: Solid phenolic resin, to match face sheets radiused and polished. Fire resistant ASTM E84: 025 max flame spread and 100 man smoke development.

1. Color and Pattern: To be selected from manufacturer's standard continuous, extruded-aluminum strip fastened to exposed bottom edges of solid-phenolic components to prevent burning.

## 2.2 ACCESSORIES

A. Hardware and Accessories: Manufacturer's standard design, heavy-duty operating hardware and accessories.

1. Material: Stainless steel.

B. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel or chrome-plated steel or brass, finished to match hardware, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use hot-dip galvanized or other rust-resistant, protective-coated steel.

## 2.3 FABRICATION

A. Floor-Anchored Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies complete with threaded rods, lock washers, and leveling adjustment nuts at pilasters for structural connection to floor. Provide shoes at pilasters to conceal anchorage.

B. Ceiling-Anchored Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies complete with threaded rods, lock washers, and leveling adjustment nuts at pilasters for connection to structural support above finished ceiling. Provide assemblies that support pilasters from structure without transmitting load to finished ceiling. Provide sleeves (caps) at tops of pilasters to conceal anchorage.

C. Doors: Unless otherwise indicated, provide 24-inch- wide in-swinging doors for standard toilet compartments and 36-inch- wide out-swinging doors with a minimum 32-inch- wide clear opening for compartments indicated to be accessible to people with disabilities.

1. Hinges: Manufacturer's standard self-closing type that can be adjusted to hold doors open at any angle up to 90 degrees.
2. Latch and Keeper: Manufacturer's standard recessed latch unit designed for emergency access and with combination rubber-faced door strike and keeper. Provide units that comply with accessibility requirements of authorities having jurisdiction at compartments indicated to be accessible to people with disabilities.



3. Coat Hook: Manufacturer's standard combination hook and rubber-tipped bumper, sized to prevent door from hitting compartment-mounted accessories.
4. Door Bumper: Manufacturer's standard rubber-tipped bumper at out-swinging doors.
5. Door Pull: Manufacturer's standard unit at out-swinging doors that complies with accessibility requirements of authorities having jurisdiction. Provide units on both sides of doors at compartments indicated to be accessible to people with disabilities.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.

1. Maximum Clearances:

- a. Pilasters and Panels: 1 inch.
- b. Panels and Walls: 1 inch.

2. Continuous Brackets: Secure panels to walls and to pilasters with stainless steel torx head with pin.

- a. Locate wall brackets so holes for wall anchors occur in masonry or tile joints.
- b. Align brackets at pilasters with brackets at walls.

B. Floor-Anchored Units: Set pilasters with anchors penetrating not less than 2 inches into structural floor, unless otherwise indicated in manufacturer's written instructions. Level, plumb, and tighten pilasters. Hang doors and adjust so tops of doors are level with tops of pilasters when doors are in closed position.

C. Floor to Ceiling Units: Secure pilasters to supporting structure and level, plumb, and tighten. Hang doors and adjust so bottoms of doors are level with bottoms of pilasters when doors are in closed position.

D. Wall-Hung Urinal Screens: Attach with anchoring devices to suit supporting structure. Set units level and plumb and to resist lateral impact.

#### 3.2 ADJUSTING

A. Hardware Adjustment: Adjust and lubricate hardware according to manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors to return doors to fully closed position.

END OF SECTION

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**SECTION 10 2800**

**TOILET ACCESSORIES**

**PART 1 - GENERAL**

**1.0 RELATED DOCUMENTS**

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

**1.1 SUMMARY**

Section includes surface preparation and the application of paint systems on interior substrates.

1. Public-use washroom accessories
2. Healthcare accessories
3. Childcare accessories
4. Underlavatory guards
5. Custodial accessories

**1.2 COORDINATION**

Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.

Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

**1.3 ACTION SUBMITTALS**

Product Data: For each type of product.

6. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
7. Include anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
8. Include electrical characteristics.

Samples: Full size, for each exposed product and for each finish specified.

9. Approved full-size Samples will be returned and may be used in the Work.

Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.

10. Identify locations using room designations indicated.
11. Identify products using designations indicated.

#### 1.4 INFORMATIONAL SUBMITTALS

Sample Warranty: For manufacturer's special warranty.

#### 1.5 CLOSEOUT SUBMITTALS

Maintenance Data: For accessories to include in maintenance manuals.

#### 1.6 QUALITY ASSURANCE

Source Limitations: For products listed together in the same Part 2 articles, obtain products from a single source from a single manufacturer.

Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

#### 1.7 WARRANTY

Manufacturer's Special Warranty for Mirrors: Manufacturer agrees to repair or replace mirrors that fail in materials or workmanship within specified warranty period.

12. Failures include, but are not limited to, visible silver spoilage defects.
13. Warranty Period: 15 years from date of Substantial Completion.

### PART 2 - PRODUCTS

#### 2.1 OWNER-FURNISHED MATERIALS

Owner-Furnished Materials:

1. Wall mounted soap dispensers.
2. Wall mounted paper towel dispensers
3. Wall mounted toilet paper dispensers.

#### 2.2 MANUFACTURER

Basis-of-Design Products: Subject to compliance with requirements, provide the listed Basis-of-Design Products.

4. Bobrick Washroom Equipment, Inc. (Basis-of-Design Product Manufacturer)  
And: Koala (Childcare Accessories Only)  
Plumberex (Underlavatory Guards Only)

5. Or comparable products by one of the following:
  - a. American Specialties, Inc.
  - b. Bradley Corporation.
6. Alternate products submitted for consideration (from one of the manufacturers listed above) must show an itemized comparison with each product named below.

### 2.3 PUBLIC-USE WASHROOM ACCESSORIES

Concrete Counter top:

Responsibility: CFCI  
Basis-of-Design Product: New Cast Stone

- a. Description: Lightweight Limestone countertop
- b. Wall Mounted.

Hand Dryer: TA50

Responsibility: CFCI  
Basis-of-Design Product: ASI (American Specialties, Inc. #0165

- a. Description: Sensor hand dryer
- b. Mounting: Surface Mounted
- c. Requires electrical. See electrical drawings.

Mirror, Framed, without Shelf: TA23, TA24, TA25

Responsibility: CFCI  
Basis-of-Design Product: Vandal Stop Products by Atlas American AA-MVL Safety Mirror

- a. Frame: Stainless steel channel. Stain #4 Finish.
- b. Corners: Mitered, welded, and ground smooth.
- c. Hangers: Produce rigid, tamper and theft-resistant installation, using one-piece, galvanized steel, wall hanger device with spring action locking mechanism to hold mirror unit in position with no exposed screws or bolts.
- d. Size: 18 inches wide x 24 inches high x 1-1/8 inches deep.

Soap Dispenser, Foam Type, Automatic: TA15, TA16, TA17

Responsibility: CFCI  
Basis-of-Design Product: Bobrick B-2013

- a. Description: Automatic Foam Soap Dispenser

- b. Mounting: Wall mount, surface.
- c. Battery operated

Grab Bar (short): TA20

Responsibility: CFCI

Basis-of-Design Product: Bobrick B-6806 x 18

- a. Mounting: Flanges with concealed fasteners.
- b. Material and Finish:
  - 1) Material: Stainless steel, 0.05 inch thick.
  - 2) Finish: Smooth, No. 4 satin finish on ends and slip-resistant texture in grip area.
- c. Outside Diameter: 1-1/2 inches.
- d. Configuration and Length: Straight, 18 inches long.

Grab Bar (medium): TA21

Responsibility: CFCI

Basis-of-Design Product: Bobrick B-6806 x 36

- a. Mounting: Flanges with concealed fasteners.
- b. Material and Finish:
  - 1) Material: Stainless steel, 0.05 inch thick.
  - 2) Finish: Smooth, No. 4 satin finish on ends and slip-resistant texture in grip area.
- c. Outside Diameter: 1-1/2 inches.
- d. Configuration and Length: Straight, 36 inches long.

Grab Bar (long): TA22

Responsibility: CFCI

Basis-of-Design Product: Bobrick B-6806 x 42

- e. Mounting: Flanges with concealed fasteners.
- a. Material and Finish:
  - 1) Material: Stainless steel, 0.05 inch thick.
  - 2) Finish: Smooth, No. 4 satin finish on ends and slip-resistant texture in grip area.
- b. Outside Diameter: 1-1/2 inches.
- c. Configuration and Length: Straight, 42 inches long.

## 2.6 UNDERLAVATORY GUARDS

Underlavatory Guard:

Responsibility: CFCI

Basis-of-Design Product: TrueBro Lav Guard 2

- a. Description: Insulating pipe covering for supply and drain piping assemblies that prevent direct contact with and burns from piping; allow service access without removing coverings.
- b. Material and Finish: molded plastic, white.

## 2.8 MATERIALS

Stainless Steel: ASTM A 666, Type 304, 0.031-inch minimum nominal thickness unless otherwise indicated.

Brass: ASTM B 19, flat products; ASTM B 16/B 16M, rods, shapes, forgings, and flat products with finished edges; or ASTM B 30, castings.

Steel Sheet: ASTM A 1008/A 1008M, Designation CS (cold rolled, commercial steel), 0.036-inch minimum nominal thickness.

Galvanized-Steel Sheet: ASTM A 653/A 653M, with G60 hot-dip zinc coating.

Galvanized-Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.

Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper-and-theft resistant where exposed, and of galvanized steel where concealed.

Chrome Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).

Mirrors: ASTM C 1503, Mirror Glazing Quality, clear-glass mirrors, nominal 6.0 mm thick.

## 2.9 FABRICATION

General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.

Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of [six] keys to Owner's representative.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

Grab Bars: Install to withstand a downward load of at least 250 lbf, when tested according to ASTM F 446.

### 3.2 ADJUSTING AND CLEANING

Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.

Remove temporary labels and protective coatings.

Clean and polish exposed surfaces according to manufacturer's written recommendations.

END OF SECTION



**SECTION 102814**

**BABY CHANGING STATIONS**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Countertop Baby Changing Stations:
  - 1. Surface-mounted design. (Koala Model KB112-CT)
- B. Child Protection Seats, Plastic with Recycled Content. (Koala Model KB102)

1.2 RELATED REQUIREMENTS

- A. Section 061000 - Rough Carpentry, blocking in walls.
- B. Section 092100 - Plaster and Gypsum Board Assemblies, blocking in walls.
- C. Section 093000 - Tiling, coordination with tile layout and installation.

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's data sheets for each product specified, including the following.
  - 1. Installation instructions and recommendations, including templates and rough-in measurements.
  - 2. Storage and handling requirements and recommendations.
  - 3. Cleaning and maintenance instructions.
- B. LEED Submittals:
  - 1. Materials and Resource Credits 4.1 and 4.2 - Recycled Content: Submit manufacturer's calculation of value of recycled content for specified products, calculated in accordance with USGBC LEED certification requirements.
  - 2. Materials and Resource Credits 5.1 and 5.2 - Regional Materials: When the project site is located within 500 miles of Centennial, Colorado, submit manufacturer's certification of location of extraction of materials and location of assembly of products in accordance with USGBC LEED certification requirements.

#### 1.4 QUALITY ASSURANCE

- A. Manufacturer: Provide products manufactured by a company with a minimum of 5 years successful experience manufacturing similar products.
- B. Single Source Requirements: To the greatest extent possible provide products from a single manufacturer.
- C. Accessibility Requirements: Comply with requirements applicable in the jurisdiction of the project, including but not limited to ADA and ICC A117.1 requirements as applicable.
- D. Baby Changing Stations: Provide products which comply with the following standards and requirements.
  - 1. Antimicrobial Treatment: Changing surfaces embedded with Microban®, with antibacterial claim substantiated by Kirby-Bauer test or other manufacturer approved equivalent standard industry test methodology.
  - 2. Americans with Disabilities Act (ADA).
  - 3. ICC A117.1 - Accessible and Usable Building and Facilities.
  - 4. ANSI Z535.4 - Product Safety Signs and Labels.
  - 5. ASTM F 2285 - Standard Consumer Safety Performance Specification for Diaper Changing Tables for Commercial Use.
  - 6. ASTM G 21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
  - 7. European Standards: EN 12221 Changing units for domestic use.
  - 8. CPSIA: Conformity with the U.S. Product Safety Commission product safety rules, bans, standards and regulations that include applicable chemical compliance requirements.
- E. Manufacturing Location: United States.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store and handle materials and products in strict compliance with manufacturer's instructions and recommendations. Protect from damage.

#### 1.6 WARRANTY

- A. Manufacturer's Warranties: Submit manufacturer's standard 5 year warranty for materials and workmanship and include a provision for replacement caused by vandalism.

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PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Basis of Design Products: Based on the quality and performance requirements of the project, specifications are based solely on the products of Koala Kare Products, a Division of Bobrick, [www.koalabear.com](http://www.koalabear.com). Location of manufacturing shall be the United States.
- B. Substitutions: The Project Manager will consider products of comparable manufacturers as a substitution, pending the contractor's submission of adequate documentation of the substitution in accordance with procedures in Division 1 of the Project Manual. Documentation shall include a list of five similar projects of equivalent size where products have been installed for a minimum of two years, and manufacturer's certification that products are fabricated in the United States.

2.1 BABY CHANGING STATIONS, PLASTIC WITH RECYCLED CONTENT

- C. Surface-Mounted Countertop Baby Changing Stations:
  - 1. Basis of Design: Model KB112-01CT, grey granite color, as manufactured by Koala Kare Products, a Division of Bobrick.
  - 2. Materials: Thermoformed high-density polyethylene (HDPE).
  - 3. Changing Surface: Contoured, concave and smooth, 379 sq. in.
  - 4. Safety Straps: Replaceable, snap-lock, nylon protective holding straps.
  - 5. Performance: Units exceed static load requirements called out by ASTM Standard F 2285, Standard Consumer Safety Performance Specification for Diaper Changing Stations for Commercial Use.
  - 6. Mounting: Surface-mounted, units include screws, factory drilled mounting holes.
  - 7. Perimeter Sealant: Silicone sealant, provided by installer.
  - 8. Features: Built-in liner dispenser with 30 liner capacity.
  - 9. Graphics: Universal instruction graphics.

2.2 CHILD PROTECTION SEATS

- A. Child Protection Seats:
  - 1. Model KB102-01, grey color, as manufactured by Koala Kare Products, a Division of Bobrick
  - 2. Materials: Blow-molded high-density polyethylene (HDPE).
  - 3. Capacity: Static loads of 50 lb.
  - 4. Operation: Seat folds flat against back.
  - 5. Hinge Mechanism: Steel pivot rod secured in metal tube.
  - 6. Seat and Frame Support: Steel rod.

7. Safety Straps: Replaceable, snap-lock, nylon protective holding straps; extend over child's shoulders and between legs.
8. Seat: Textured seat surface.
9. Mounting: Surface-mounted. Manufacturer-provided hardware kit with four threaded plugs with head holes, four 1/4 inch screws and washers for partition mounting.

### PART 3 EXECUTION

#### 3.1 INSTALLATION

- A. Install products in strict compliance with manufacturer's written instructions and recommendations, including the following:
  1. Verify blocking has been installed properly.
  2. Verify location does not interfere with door swings or use of fixtures.
  3. Use fasteners and anchors suitable for substrate and project conditions.
  4. Install units at location and height indicated on the Drawings.
  5. Install units level, plumb and in proper relationship with adjacent construction.
  6. Adjust for proper operation.

#### 3.2 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

**SECTION 104416**

**FIRE EXTINGUISHERS, CABINETS, AND ACCESSORIES**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related work specified elsewhere includes:
  - 1. Section 01500 - "Temporary Facilities"
  - 2. Section 06100 - "Rough Carpentry"
  - 3. Section 09250 - "Gypsum Drywall"
  - 4. Section 09900 - "Painting"

**1.2 SUMMARY:**

- A. This Section includes the following:
  - 1. Fire extinguishers.
  - 2. Fire extinguisher cabinets, factory finished.
  - 3. Mounting brackets.

**1.3 SUBMITTALS:**

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
  - 1. Product data for each type of product specified. For fire extinguisher cabinets include rough-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type and materials, trim style, door construction, panel style, and materials.
  - 2. Where color selections by Architect are required, include color charts showing full range of manufacturer's standard colors and designs available.

**1.4** QUALITY ASSURANCE:

- A. Single-Source Responsibility: Obtain fire extinguishers, cabinets, and brackets from one source from a single manufacturer.
  
- B. UL-Listed Products: Provide new portable fire extinguishers which are UL-listed and bear UL "Listing Mark" for type, rating, and classification of extinguisher indicated.

**PART 2 - PRODUCTS**

**2.1** MANUFACTURERS:

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Amerex Corp.
  - 2. J.L. Industries.
  - 3. Larsen's Manufacturing Co.
  - 4. Modern Metal Products by Muckle.
  - 5. Potter-Roemer, Inc.

**2.2** FIRE EXTINGUISHERS:

- A. General: Provide fire extinguishers for each extinguisher cabinet and other locations indicated, in colors and finishes selected by Architect from manufacturer's standard, which comply with requirements of governing authorities.
  - 1. Abbreviations indicated below identify extinguisher types related to UL classification and rating system and not necessarily to type and amount of extinguishing material contained in extinguisher.
  
- B. Extinguishers:
  - 1. Public and Service Areas:
    - a. Multi-purpose Dry Chemical Type: UL-rated 4-A:80-B:C, 10-pound nominal capacity, in enameled steel container.
    - b. Mounted in cabinet in public areas and on wall bracket in non-tenant, non-public and service areas, unless otherwise indicated on the Drawings.
  
  - 2. Kitchen / Food Service Areas (if any):

- a. Regular Wet Chemical Type (Type “K”): UL-rated 2A:K, 2-1/2 gallon nominal capacity, in enameled steel container.
- b. Mounted on wall bracket in Kitchen areas, unless otherwise indicated on the Drawings.
- C. Provide tag for each fire extinguisher, which identifies the unit, indicates date charged, and other pertinent data required by authorities having jurisdiction.

**2.3** MOUNTING BRACKETS:

- A. Provide brackets designed to prevent accidental dislodgement of extinguisher, of sizes required for type and capacity of extinguisher indicated, in manufacturer’s standard plated finish: Provide brackets for extinguishers not located in cabinets.

**2.4** FIRE EXTINGUISHER CABINETS:

- A. General: Provide fire extinguisher cabinets where indicated, of suitable size for housing fire extinguishers of types and capacities indicated.
- B. Product/Manufacturer: Architectural Series, as manufactured by Larsen’s Manufacturing Company; Ft. Lauderdale, FL; Phone: (305) 486-3325; or approved equivalent by another manufacturer named above.
  - 1. Solid #8 stainless steel door and trim with vertical engraved letters and heavy gauge white baked enamel box.
  - 2. Building Interiors - Public Areas:
    - a. Where Indicated and Where Possible: Fully Recessed, Model No. SS-2409-R2.
    - b. Where Indicated: Rolled Edge Semi Recessed, Model No. SS-2409-6R.
    - c. Provide equivalent “Flame-Shield” fire-rated cabinets at fire-rated walls (add “FS” before model numbers above), listed by UL, Warnock-Hersey or other acceptable independent testing/certifying agency. Provide with recessed handle to comply with ADA wall projection guidelines.

**PART 3 - EXECUTION**

**3.1** INSTALLATION:

- A. Install items included in this section in locations and at mounting heights indicated, or if not indicated, at heights to comply with applicable regulations of governing authorities.
- B. Prepare recesses in walls for fire extinguisher cabinets as required by type and size of cabinet and style of trim and to comply with manufacturer’s instructions.

- C. Securely fasten mounting brackets and fire extinguisher cabinets to structure, square and plumb, to comply with manufacturer's instructions, and mounting heights as follows:
  - 1. Fire Extinguisher Cabinets: 4'-0" A.F.F. to horizontal centerline of door handle.
  - 2. Fire Extinguisher Mounting Brackets: 4'-0" A.F.F. to horizontal centerline of bracket release mechanism.
- D. Where exact location of cabinets and bracket-mounted fire extinguishers is not indicated, locate as directed by Architect.
- E. Install one fire extinguisher in each fire extinguisher cabinet and bracket.

END OF FIRE EXTINGUISHERS, CABINETS, AND ACCESSORIES



**SECTION 10 5113**

**METAL LOCKERS**

PART 1 - GENERAL

1.0 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
  - 1. Heavy Duty Knocked-down corridor lockers.
- B. Related Requirements:
  - 1. Section 105113.13 "Coin-Operated Metal Lockers" for coin-operated lockers used in public facilities for temporary storage of personal belongings.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product Data: For each type of product specified.
  - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of metal locker and bench.
- C. Shop Drawings: For metal lockers and benches.
  - 1. Include plans, elevations, sections, and attachment details.
  - 2. Show locker trim and accessories.
  - 3. Include locker identification system and numbering sequence.
- D. Samples: For each color specified, in manufacturer's standard size.
- E. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available.
- F. Samples for Verification: For the following products, in manufacturer's standard size:

1. Lockers and equipment.
2. Locker benches.

G. Product Schedule: For lockers to align with indications on drawings.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Sample Warranty: For special warranty.

#### 1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For adjusting, repairing, and replacing locker doors and latching mechanisms to include in maintenance manuals.

#### 1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  1. The following metal locker hardware items equal to 10 percent of amount installed for each type and finish installed, but no fewer than 5 units:
    - a. Locks.
    - b. Blank identification plates.
    - c. Hooks.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver metal lockers until spaces to receive them are clean, dry, and ready for their installation. Coordinate with Project Manager.
- B. Deliver master and control keys and/ or combination control charts to Project Manager.

#### 1.8 FIELD CONDITIONS

- A. Field Measurements: Verify actual dimensions of recessed openings by field measurements before fabrication.

#### 1.9 COORDINATION

- A. Coordinate sizes and locations of bases for metal lockers.

- B. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of work specified in other Sections to ensure that metal lockers can be supported and installed as indicated.

#### 1.10 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of metal lockers that fail in materials or workmanship, excluding finish, within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Structural failures.
    - b. Faulty operation of latches and other door hardware.
  - 2. Damage from deliberate destruction and vandalism is excluded.
  - 3. Warranty Period for Knocked-Down Metal Lockers: 2 years from date of Substantial Completion.

### PART 2 - PRODUCTS

#### 2.1 SOURCE LIMITATIONS

- A. Obtain metal lockers, locker benches and accessories from single source from single locker manufacturer.
  - 1. Obtain locks from single lock manufacturer.

#### 2.2 PERFORMANCE REQUIREMENTS

- A. Accessibility Standard: For lockers and locker benches indicated to be accessible, comply with applicable provisions in Americans with Disabilities Act Standards for Accessible Design.
- B. Hardwood benches, finished with clear lacquer, with heavy duty pedestal. 9-1/2-inches deep by 1-1/4-inches thick standard bench top; 48-inch by 24-inche for ADA bench top.

#### 2.3 KNOCKED-DOWN CORRIDOR LOCKERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide LockersMFG; 18-inches x 18-inches x 60-inches Heavy Duty Single Tier Locker or comparable product.
- B. Doors: One piece; fabricated from 0.075-inch nominal-thickness steel sheet; formed into

channel shape with double bend at vertical edges and with right-angle single bend at horizontal edges.

1. Reinforcement: Manufacturer's standard reinforcing angles, channels, or stiffeners for doors; welded to inner face of doors.
  2. Stiffeners: Manufacturer's standard full-height stiffener fabricated from 0.0625-inch nominal-thickness steel sheet; welded to inner face of doors.
  3. Sound-Dampening Panels: Manufacturer's standard, designed to stiffen doors and reduce sound levels when doors are closed, of die-formed metal with full perimeter flange and sound-dampening material; welded to inner face of doors.
  4. Door Style: Vented panel as follows:
    - a. Louvered Vents: No fewer than six louver openings at top and bottom for single-tier lockers.
- C. Body: Assembled by riveting or bolting body components together. Fabricate from unperforated steel sheet with thicknesses as follows:
1. Tops, Bottoms, and Intermediate Dividers: 0.0625-inch nominal thickness, with single bend at sides.
  2. Backs and Sides: 0.0625-inch nominal thickness, with full-height, double-flanged connections.
  3. Shelves: 0.0625-inch nominal thickness, with double bend at front and single bend at sides and back.
- D. Frames: Channel formed; fabricated from 0.0625-inch nominal-thickness steel sheet; lapped and factory welded at corners; with top and bottom main frames factory welded into vertical main frames. Form continuous, integral, full-height door strikes on vertical main frames.
- E. Hinges: Welded to door and attached to door frame with no fewer than two factory-installed rivets per hinge that are completely concealed and tamper resistant when door is closed; fabricated to swing 180 degrees; self-closing.
1. Continuous Hinges: Manufacturer's standard, steel, full height.
- F. Recessed Door Handle and Latch: Stainless steel cup with integral door pull, recessed so locking device does not protrude beyond door face; pry and vandal resistant.
1. Multipoint Latching: Finger-lift latch control designed for use with built-in combination locks, built-in key locks, or padlocks; positive automatic latching and prelocking.
    - a. Latch Hooks: Equip doors 48 inches and higher with three latch hooks and doors less than 48 inches high with two latch hooks; fabricated from 0.105-inch nominal-thickness steel sheet; welded or riveted to full-height door strikes; with resilient silencer on each latch hook.
- G. Door Handle and Latch for Lockers: Stainless steel strike plate with integral pull; with steel padlock loop that projects through metal locker door.

- H. Locks: Combination Padlocks.
- I. Identification Plates: Manufacturer's standard, etched, embossed, or stamped aluminum plates, with numbers and letters at least 3/8 inch high.
- J. Hooks: Manufacturer's standard ball-pointed hooks, aluminum or steel; zinc plated.
- K. Coat Rods: 1-inch- diameter steel tube or rod, chrome finished.
- L. Legs: 6 inches high; formed by extending vertical frame members, or fabricated from 0.075-inch nominal-thickness steel sheet; welded to bottom of locker.
  - 1. Closed Front and End Bases: Fabricated from 0.036-inch nominal-thickness steel sheet.
- M. Continuous Sloping Tops: Fabricated from manufacturer's standard thickness, but not less than 0.036-inch nominal-thickness steel sheet.
  - 1. Closures: Vertical Hipped-end type.
- N. Filler Panels: Fabricated from manufacturer's standard thickness, but not less than 0.036-inch nominal-thickness steel sheet.
- O. Finished End Panels: Fabricated from 0.024-inch nominal-thickness steel sheet to cover unused penetrations and fasteners, except for perimeter fasteners, at exposed ends of nonrecessed metal lockers; finished to match lockers.
- P. Materials:
  - 1. Cold-Rolled Steel Sheet: ASTM A1008/A1008M, Commercial Steel (CS), Type B, suitable for exposed applications.
- Q. Finish: Baked enamel or powder coat.
  - 1. Color: Signal Gray RAL7004, as selected by Architect from manufacturer's full range; Confirm color with project manager.

## 2.4 LOCKS

- A. Combination Padlock: Location for Key-controlled, three-number dialing combination locks; capable of five combination changes.
  - 1. Designed for shared or temporary access by multiple users, with user-defined code to lock and unlock. Provide LED indicator to show when lock is in use.

## 2.5 FABRICATION

- A. Fabricate metal lockers square, rigid, without warp, and with metal faces flat and free of

dents or distortion. Make exposed metal edges safe to touch and free of sharp edges and burrs.

1. Form body panels, doors, shelves, and accessories from one-piece steel sheet unless otherwise indicated.
  2. Provide fasteners, filler plates, supports, clips, and closures as required for complete installation.
- B. Fabricate each metal locker with an individual door and frame; individual top, bottom, and back; and common intermediate uprights separating compartments.
- C. Equipment: Provide each locker with an identification plate and the following equipment:
1. Single-Tier Units: Shelf, one double-prong ceiling hook, and two single-prong wall hooks.
  2. Coat Rods: As indicated on Drawings for each compartment.
- D. Knocked-Down Construction: Fabricate metal lockers by assembling at Project site, using manufacturer's nuts, bolts, screws, or rivets.
- E. Accessible Lockers: Fabricate as follows:
1. Locate bottom shelf no lower than 15 inches above the floor.
  2. Where hooks, coat rods, or additional shelves are provided, locate no higher than 48 inches above the floor.
- F. Continuous Zee Base: Fabricated in lengths as long as practical to enclose base and base ends; finished to match lockers.
- G. Continuous Sloping Tops: Fabricated in lengths as long as practical, without visible fasteners at splice locations; finished to match lockers.
1. Sloping-top corner fillers, mitered.
- H. Individual Sloping Tops: Fabricated in width to fit one locker frame in lieu of flat locker tops; with integral back; finished to match lockers. Provide wedge-shaped divider panels between lockers.
- I. Recess Trim: Fabricated with minimum 2-1/2-inch face width and in lengths as long as practical; finished to match lockers.
- J. Filler Panels: Fabricated in an unequal leg angle shape; finished to match lockers. Provide slip-joint filler angle formed to receive filler panel.
- K. Boxed End Panels: Fabricated with 1-inch- wide edge dimension, and designed for concealing fasteners and holes at exposed ends of nonrecessed metal lockers; finished to match lockers.
1. Provide one-piece panels for double-row (back-to-back) locker ends.

- L. Finished End Panels: Fabricated to conceal unused penetrations and fasteners, except for perimeter fasteners, at exposed ends of nonrecessed metal lockers; finished to match lockers.
  - 1. Provide one-piece panels for double-row (back-to-back) locker ends.
- M. Center Dividers: Full-depth, vertical partitions between bottom and shelf; finished to match lockers.

## 2.6 ACCESSORIES

- A. Fasteners: Zinc- or nickel-plated steel, slotless-type, exposed bolt heads; with self-locking nuts or lock washers for nuts on moving parts.
- B. Anchors: Material, type, and size required for secure anchorage to each substrate.
  - 1. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior wall, and elsewhere as indicated, for corrosion resistance.
  - 2. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine walls and floors or support bases, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. Install lockers level, plumb, and true; shim as required, using concealed shims.
  - 1. Anchor locker runs at ends and at intervals recommended by manufacturer, but not more than 36 inches o.c. Using concealed fasteners, install anchors through backup reinforcing plates, channels, or blocking as required to prevent metal distortion.
  - 2. Anchor single rows of metal lockers to walls near top and bottom of lockers of lockers and to floor.
  - 3. Anchor back-to-back metal lockers to floor.

- B. Knocked-Down Lockers: Assemble with manufacturer's standard fasteners, with no exposed fasteners on door faces or face frames.
- C. Equipment:
  - 1. Attach hooks with at least two fasteners.
  - 2. Attach door locks on doors using security-type fasteners.
  - 3. Identification Plates: Identify metal lockers with identification indicated on Drawings.
    - a. Attach plates to each locker door, near top, centered, with at least two aluminum rivets.
    - b. Attach plates to upper shelf of each open-front metal locker, centered, with a least two aluminum rivets.
- D. Trim: Fit exposed connections of trim, fillers, and closures accurately together to form tight, hairline joints, with concealed fasteners and splice plates.
  - 1. Attach recess trim to recessed metal lockers with concealed clips.
  - 2. Attach filler panels with concealed fasteners. Locate filler panels where indicated on Drawings.
  - 3. Attach sloping-top units to metal lockers, with closures at exposed ends.
  - 4. Attach finished end panels using fasteners only at perimeter to conceal exposed ends of nonrecessed metal lockers.
- E. Fixed Benches: Provide no fewer than two pedestals for each bench, uniformly spaced not more than 72 inches apart. Securely fasten tops of pedestals to undersides of bench tops, and anchor bases to floor.
- F. Movable Benches: Place benches in locations indicated on Drawings.

### 3.3 ADJUSTING

- A. Clean, lubricate, and adjust hardware. Adjust doors and latches to operate easily without binding. Verify that integral locking devices operate properly.

### 3.4 PROTECTION

- A. Protect metal lockers from damage, abuse, dust, dirt, stain, or paint. Do not permit use during construction.
- B. Touch up marred finishes, or replace metal lockers that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by locker manufacturer.



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**SECTION 10 53 00**

**WALKWAY CANOPIES**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related work specified elsewhere includes:
  - 1. Section 03 30 00 - "Concrete"
  - 2. Section 05 50 00 - "Metal Fabrications"
  - 3. Section 06 10 00 - "Rough Carpentry"
  - 4. Section 07 62 00 - "Flashing and Sheet Metal"
  - 5. Section 07 92 00 - "Joint Sealers"

**1.2 SUMMARY:**

- A. This Section includes prefinished, preformed, extruded aluminum, manufactured walkway assemblies and all related work, as indicated on the Drawings and including in part, the following:
  - 1. Water-tight canopy system, including in part, prefinished, extruded aluminum columns, support system, combination structural fascia/gutter system, with integral internal drainage, extruded aluminum roof deck, vertical closures between columns at canopy steps, related flashings and trim, accessories, and all related work.
- B. Scope: The work in the Section includes all labor, materials, accessories, services and incidentals necessary for designing, supplying, installing and testing of the metal roofing, drainage, and systems described herein. Provide all flashing, fascia, caps, closures, trim, etc., which are associated with and/or come in contact with walkway canopy systems, in same metal and finish as roofing panels where exposed and where concealed, and make watertight junctions with work of other trades.
  - 1. Finish for concealed sides of all metal shall be manufacturer's standard color baked enamel, in color selected by Architect after bidding.

**1.3 SYSTEM PERFORMANCE REQUIREMENTS:**

- A. Provide certified test results by a recognized testing laboratory or agency in accordance with specified test methods for each system, upon request.

- B. Water Penetration: Provide roof and similar wall panel systems with no water penetration as defined in the test method, when tested in accordance with ASTM E 331 at a static air pressure differential of not less than 6.24 psf and not more than 12.0 psf.
- C. Structural Performance: Manufacturer shall design and supply extruded walkway canopies to withstand severe icing, heavy hail, and project site design wind loads required by applicable building codes and regulations.

**1.4 SUBMITTALS:**

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data including manufacturer's complete and current product specifications, standard details, certified product test results, installation instructions, and general recommendations, as applicable to materials and finishes for each component and for total walkway canopy system.
- C. Samples for Verification Purposes of Roof Panels, Vertical Panels and Trim, and Fascia/Gutter Sections.
  - 1. Provide sample panels 12-inches long by actual panel width, in the profile, style, color, and texture indicated. Include clips, battens, fasteners, closures, and other panel accessories.
- D. Shop Drawings showing layouts of structural support system and canopy system, roof and vertical panels, details of edge conditions, joints, corners, panel profiles, miscellaneous supports, anchorages, trim, flashings, closures, and special details. Distinguish between factory and field assembly work. The manufacturer's design Structural Engineer and technical engineering department shall approve the drawings before they are submitted.
  - 1. Shop Drawings shall be certified by manufacturer's Structural Engineer and bear his/her current, signed and dated Alabama registration seal.

**1.5 QUALITY ASSURANCE:**

- A. Wind Uplift: Provide roof and vertical panel systems including supports meeting requirements of Underwriters Laboratories, Inc. for at least Class 90 wind uplift resistance.
  - 1. Minimum Code Wind Load at Site: **140 mph**, unless higher wind load is indicated on Structural Drawings or required by applicable Codes.
- B. Field Measurements: Where possible, prior to fabrication of walkway canopy system and panels, take field measurements of structure or substrates to receive panel system. Allow for trimming panel units where final dimensions cannot be established prior to fabrication.

**1.6 DELIVERY, STORAGE, AND HANDLING:**

- A. Deliver panels and other components so they will not be damaged or deformed. Package extruded components, vertical and roof panels for protection against transportation damage.
- B. Handling: Exercise care in unloading, storing, and erecting support system, panels and other system components to prevent bending, warping, twisting, and surface damage.
- C. Stack materials on platforms or pallets, covered with tarpaulins or other suitable weathertight ventilated covering. Store metal panels so that they will not accumulate water. Do not store panels or other system components in contact with other materials that might cause staining, denting, or other surface damage.
- D. Deliver accessories, such as reglets, inserts, etc., which are to be installed by other trades and/or in conjunction with the work of other trades, far enough in advance so as not to delay the Work on the project.
- E. Refer to Division 1 Sections "Summary of Work" and "Special Conditions" for additional information and requirements regarding stored materials.

**1.7 WARRANTIES:**

- A. Warranty: The manufacturer and installer shall jointly and severably, in writing, warrant that the walkway canopy system shall remain intact (without perceptible deformation) and completely leak free for a period of **5-years** from the date of acceptance of the project (this warranty need not cover damage from winds exceeding the velocities and/or loading required by the Standard Building Code as generated by a design velocity based on the 100-year probability wind speed).
  - 1. Repairs that become necessary, such as for leaks, wind damage or temperature stress while walkway canopy system is under warranty, shall be performed by the installer or manufacturer within 7-days of notification. Should for any reason, the installer not be able to perform the repairs, it shall be incumbent upon the manufacturer to do so. If repairs are not begun on time, Owner shall have work done by others and costs will be charged to the Contractor, with no detrimental effect or cancellation of the warranty resulting from same.
- B. This warranty shall be in addition to, shall be in effect simultaneously with, and shall not alter other required project or product warranties or guarantees, and shall not limit other remedies available to the Owner.

**1.8 PROJECT CONDITIONS:**

- A. Weather: Proceed with walkway canopy system work when existing and forecasted weather conditions permit work to be performed in accordance with manufacturers' current written instructions, recommendations and warranty requirements.
- B. Substrate Conditions: Do not begin roofing or vertical panel installation until substrates have been inspected and are determined to be in satisfactory condition.

**PART 2 - PRODUCTS**

**2.1 MANUFACTURERS:**

- A. Manufacturer: Subject to compliance with requirements, provide products of one of the following, equivalent in quality and design as "Basis of Design" prefinished, extruded aluminum canopy system:
  - 1. American Walkway Covers, LLC
  - 2. Mapes Industries, Inc.
  - 3. Mason
  - 4. Peachtree Protective Covers, Inc.
  - 5. Polyvision Corporation
  - 6. Superior Metal Products Co.
  - 7. Tennessee Valley Metals, Inc. (Basis of Design, and quality standard)
  - 8. Texas Aluminum Industries, Inc.
  - 9. Vulcan Materials Corp.
- B. Product/Manufacturer: Subject to compliance with requirements, provide water-tight walkway canopy system and all related components equivalent to standard extruded products/systems as manufactured by Tennessee Valley Metals, Inc.; Birmingham, Alabama; Phone: 1-800-551-2579 or (205) 853-1125, by one of the above named manufacturers, or other pre-approved manufacturer - properly submitted at least ten (10) days prior to original bid date in accordance with requirements of Section 01015 - "Special Conditions," and subsequently accepted in writing or by addendum, and as follows:
  - 1. Extruded Corrugated Roof Deck Panels: Extruded aluminum, nominal 6-inches wide x 3-inches high. All panels shall interlock together with no exposed fasteners. Finish shall be factory baked enamel, in non-metallic standard color selected by Architect from manufacturer's standard full line of color selections.
  - 2. Vertical Panels: Similar to Extruded Corrugated Flat-Pan roof deck panels, except 2-inches high.
  - 3. Fascia/Gutter: Extruded aluminum, at least 7-inches high x 4-inches wide; With minimum metal thickness of 0.094-inch. Finish shall be factory baked enamel, in non-metallic standard color selected by Architect from manufacturer's standard full line selections.
  - 4. Columns: Extruded aluminum, at least 6-inches x 6-inches, with minimum metal thickness of 0.125-inch thick. Corners shall be rounded. Finish shall be factory baked

enamel, in non-metallic standard color selected by Architect from manufacturer's standard full line selections.

5. Drainage: All drainage shall drain internally from the deck to the fascia/gutter to the columns, spouting out at ground level with a deflector plate. The hole for the deflector plate shall be cut in the column with the cut straight and neat. Prior to setting deflector plate, fill any internal voids of column with non-metallic non-shrink grout product acceptable to walkway canopy system manufacturer.
6. Flashings and Trim: Same metal and finish as roof deck, unless other metal thickness not less than 0.040-inch is permitted by walkway canopy manufacturer.
7. Sealants: As recommended in writing by walkway canopy manufacturer, or if not recommended by walkway canopy manufacturer, as specified in Section 07900 - "Joint Sealers."

## **2.2 MATERIALS:**

- A. Fasteners: All fasteners in the plane of the roof deck, wall panels and fascia/gutter shall be concealed wherever possible. No exposed fasteners which would penetrate the panels, flashings, etc., will be permitted. Pan and cap type fasteners will be allowed only in the vertical plane (i.e. fastening of flashings, battens, trim, etc., and then only if neoprene washers are used externally). Materials used in all fasteners shall be non-magnetic (stainless steel). All exposed fasteners shall match adjacent material, finish and/or color. Length and diameter of screws shall be sufficient to meet design criteria.
- B. Closures: Precut closures as standard with walkway canopy manufacturer, fabricated from same metal as that receiving closure(s), or from gray cross-linked closed-cell polyethylene composition foam, to the exact profile of the members with which it is to function.
- C. Sealants: Non-skinning, non-hardening, non-oxidizing butyl sealant, designed for metal-to-metal concealed joints. Field applied adhesive tape sealants shall be extruded polymeric butyl tape, non-skinning. Use no exposed sealants. Comply with minimum installation requirements of sealant manufacturer and Section 07900 - "Joint Sealers."
- D. Bituminous Coating: Cold-Applied asphalt mastic, SSPC-12, compounded for 15-mil dry film thickness per coat, and approved for the intended use by both the mastic and roofing manufacturers.
- E. Aluminum Extrusions (minimum): Alloy and temper recommended by manufacturer for use intended and as required for proper application of finish indicated but not less than the strength and durability properties specified in ASTM B 221 for 6063-T6.
- F. Aluminum Sheet (minimum): Alloy and temper recommended by manufacturer for use intended and as required for proper application of finish indicated but with not less than the strength and durability properties specified in ASTM B 209 for 5005-H15.
- G. Non-Metallic Shrinkage-Resistant Grout:

1. Pre-mixed, non-metallic, non-corrosive, non-staining product containing selected silica sands, portland cement, shrinkage compensating agents, plasticizing and water reducing agents, complying with CRD-621.
2. Products offered by manufacturer to comply with requirements for non-metallic, non-shrink grout include the following:
  - a. Euco N.S.; Euclid Chemical Company
  - b. Crystex; L & M Construction Chemicals.
  - c. Masterflow 713; Master Builders.
  - d. Five Star Grout; U.S. Grout Corp.
  - e. Upcon; Upco Chemical Division, USM Corp.
  - f. Propak; Protex Industries, Inc.

### **2.3 METAL FINISHES:**

- A. General: Comply with NAAMM "Metal Finishes Manual" for recommendations relative to application and designations of finishes.
- B. Finish designations prefixed by "AA" conform to the system established by the Aluminum Association for designating aluminum finishes.
- C. High Performance Organic Coating: AA-C12C42R1x (Chemical Finish: Cleaned with inhibited chemicals; Chemical Finish: Chemical conversion coating, acid chromate-fluoride-phosphate pretreatment; Organic Coating: As specified below). Prepare, pretreat, and apply coating to exposed metal surfaces, to comply with coating and resin manufacturer's instructions.
  1. Fluorocarbon **3-Coat** Coating System: Manufacturer's standard **3-coat** thermocured system, with metallic finish, composed of specially formulated inhibitive primer, fluorocarbon color coat and clear top coat, with both color coat and clear top coat containing not less than 70 percent polyvinylidene fluoride resin by weight; Comply with AAMA 2605.2.
  2. Colors: As selected by Architect after Bid Date, from manufacturer's "standard" non-metallic colors; Minimum 15 colors to select from, to include in part, color(s) to match window/storefront framing and/or metal roofing and trim.

### **2.4 FABRICATION:**

- A. General: Fabricate and finish panels, extrusions and accessories at the factory, by manufacturer's standard procedures and processes, as required to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and dimensional requirements and with structural requirements.
- B. Apply bituminous coating or other permanent separation materials on concealed panel surfaces where panels would otherwise be in direct contact with substrate materials that are noncompatible or could result in corrosion or deterioration of either material or finishes.



### **PART 3 - EXECUTION**

#### **3.1 GENERAL:**

- A. Installer shall examine all substrates and verify that they are acceptable, which will be acknowledged and accepted by his beginning work. Installer shall verify that all expansion joints, blocking, etc., are securely anchored into place, and that substrate is clean and free of all debris or other substance detrimental to the walkway canopy system work.
  - 1. Notify the Contractor in writing of conditions requiring corrections, for proper completion of the Work. Do not proceed until unsatisfactory conditions have been satisfactorily completed.
- B. The use of square head nails, staples, and pneumatic or electric nail guns are strictly prohibited.

#### **3.2 PANEL SUPPORTS AND ANCHORAGE:**

- A. All volume, fascia/gutter, and other secondary structural panel support members and anchorage shall be installed in strict accordance with manufacturer's current written instructions and recommendations, and their Structural Engineer's Shop Drawings.

#### **3.3 INSTALLATION:**

- A. General: Comply with manufacturer's current written instructions and recommendations for installation, as applicable to project conditions and supporting substrates. Anchor panels and other components of the work securely in place, with provisions for thermal and structural movement.
  - 1. Field cutting of panels and any other component by torch is not permitted.
- B. Accessories: Install all components required for a complete walkway canopy, roof and vertical panel system, including in part, trim, copings, fascia/gutters, soffits, stops, mullions, corner units, closures, clips, seam covers, battens, flashings, sealants, gaskets, fillers, closure strips, water shields, and similar items.
  - 1. Install water-tight flashing and counterflashings at all locations where canopy system abuts buildings.
- C. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of walkway canopy panel systems and accessories. Provide types of gaskets, sealants, and fillers indicated or, if not otherwise indicated, types recommended by walkway canopy manufacturer.
  - 1. Flash and seal panels to exclude weather.

2. Counter flash over otherwise exposed flashings with metal and finish to match adjacent metal.
  3. Refer to other sections of these specifications for product and installation requirements applicable to indicated joint sealers.
- D. Installation Tolerances: Shim and align panel units within installed tolerance of 1/4-inch in 20'-0" on level/plumb/slope and location/line as indicated, and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

### **3.4 CLEANING AND PROTECTION:**

- A. Damaged Units: Replace panels and other components of the work that have been damaged or have deteriorated beyond successful repair by means of finish touch-up or similar minor repair procedures, as determined solely by the Architect.
- B. Cleaning: Remove temporary protective coverings and strippable films as soon as each panel is installed. Upon completion of panel installation, clean finished surfaces as recommended in writing by walkway canopy system manufacturer, and maintain in a clean condition during construction.

**END OF WALKWAY CANOPIES**

SECTION 220000 – PLUMBING GENERAL

PART 1 - GENERAL

- 1.1 The work covered by this division consists of providing all labor, equipment and materials and performing all operations necessary for the installation of the plumbing work as herein called for and shown on the drawings. The work shall include but shall not be limited to the following:

Provide all plumbing and associated fittings, valves, and accessories for the project. Fully coordinate all plumbing requirements with work by other divisions under this construction contract. All systems shall be complete and fully functional.

1.2 Related Documents:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.
- B. Provisions of this section apply to work of all Division 22 sections.
- C. Review all other contract documents to be aware of conditions affecting work herein.

1.3 Definitions:

- A. Provide: Furnish and install, complete and ready for intended use.
- B. Furnish: Supply and deliver to the project site, ready for subsequent requirements.
- C. Install: Operations at project site, including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar requirements.

- 1.4 Permits and Fees: Contractor shall obtain all necessary permits, meters, and inspections required for Division 22 work and pay all fees and charges incidental thereto.

- 1.5 Verification of Owner's Survey Data: Prior to commencing any work, the Contractor shall verify the accuracy of all survey data as indicated in these plans and specifications and/or as provided by the Owner. Should the Contractor discover any inaccuracies, errors, or omissions in the data, such items shall immediately be notified to the Architect/Engineer so that proper adjustments can be anticipated and ordered. Commencement by the Contractor of work shall be held as an acceptance of the data after which time the Contractor has no claim against the Owner resulting from alleged

errors, omissions or inaccuracies of the said data.

- 1.6 Delivery and Storage of Materials: Materials delivered to site shall be inspected for damage, unloaded, and stored with a minimum of handling. All material shall be stored to provide protection from the weather and accidental damage.
- 1.7 Extent of work is indicated by the drawings, schedules, and the requirements of the specifications. Singular references shall not be construed as requiring only one device if multiple devices are shown on the drawings or are required for proper system operation.
- 1.8 Field Measurements and Coordination:
- A. The intent of the drawings and specifications is to obtain a complete and satisfactory installation. Separate divisional drawings and specifications shall not relieve the Contractor or subcontractors from full compliance of work of his trade indicated on any of the drawings or in any section of the specifications. Report conflicts prior to start of work.
  - B. Verify all field dimensions and locations of equipment to ensure close, neat fit with other trades' work. Make use of all contract documents and approved shop drawings to verify exact dimension and locations.
  - C. Coordinate work in this division with all other trades in proper sequence to ensure that the total work is completed within contract time schedule and with minimum cutting and patching.
  - D. Locate all equipment, piping, and apparatus symmetrical with architectural elements. Install to exact height and locations when shown on architectural drawings. When locations are shown only on plumbing drawings, be guided by architectural details and conditions existing at job and correlate this work with that of others. Provide all required work clearances as defined by code and manufacturer's recommendations.
  - E. Install work as required to fit structure, avoid obstructions, and retain clearance, headroom, openings and passageways. Cut no structural members without written approval from Engineer or Architect.
  - F. Carefully examine any existing conditions, piping, and premises. Compare drawings with existing conditions. Report any observed discrepancies. It shall be the Contractor's responsibility to properly coordinate the work and to identify problems in a timely manner. Written instructions will be issued by the Engineer to resolve discrepancies.
  - G. Because of the small scale of the drawings, it is not possible to indicate all offsets and fittings or to locate every accessory. Drawings are essentially diagrammatic. Study carefully the sizes and locations of structural members, wall and partition locations, trusses, and room dimensions and take actual measurements on the job. Locate piping,

equipment and accessories with sufficient space for installing and servicing. Contractor is responsible for accuracy of his measurements and for coordination with all trades. Contractor shall not order materials or perform work without verification. No extra compensation will be allowed because field measurements vary from the dimensions on the drawings. If field measurements show that equipment or material cannot be fitted, the Engineer shall be consulted. Remove and relocate, without additional compensation, any item that is installed and is later found to encroach on space assigned to another use.

1.9 Guarantee and Service:

- A. The Contractor shall guarantee labor, materials and equipment for a period of one (1) year from Substantial Completion, or from Owner's occupancy, whichever is earlier. Contractor shall make good any defects and shall include all necessary adjustments to and replacement of defective items without expense to the Owner. Manufacturer warranties do not relieve the Contractor of this responsibility.
- B. Owner reserves the right to make emergency repairs as required to keep equipment in operation without voiding Contractor's Guarantee Bond or relieving Contractor of his responsibilities during guarantee period.
- C. Contractor shall provide service of all new equipment during the guarantee period without additional expense to the Owner.

1.10 Approval Submittals:

- A. Shop drawings, product literature, and other approved submittals will only be reviewed if they are submitted in full accordance with the General and Supplementary Conditions and Division 1 Specification sections and the following:
  - 1. Submittals shall not include items from more than one specification section in the same submittal package.
  - 2. Submittals shall be properly identified by a cover sheet showing the project name, Architect and Engineer names, submittal control numbers, specification section, a list of products or item names with model numbers in the order they appear in the package, and spaces for approved stamps. A sample cover sheet is included at the end of this section.
  - 3. Submittals shall have been reviewed and approved by the General Contractor (or Prime Contractor). Evidence of this review and approval shall be an "Approved" stamp with a signature and date on the cover sheet.
  - 4. The electrical design shown on the drawings supports the plumbing equipment basis of design specifications at the time of design. If plumbing equipment is submitted with different electrical requirements, it is the responsibility of the plumbing contractor to resolve all required electrical design changes (wire and

conduit size, type of disconnect or overload protection, point(s) of connection, etc.) and clearly show the new electrical design on the plumbing submittal with a written statement that this change will be provided at no additional cost. Plumbing submittals made with no written reference to the electrical design will be presumed to work with the electrical design. Any corrections required will be at no additional cost.

- B. Before ordering any materials or equipment, and within 30 days after the award of the contract, the Contractor shall submit to the Architect/Engineer one complete schedule showing the make, type, manufacturer's name and trade designation of all equipment.
  - 1. This schedule shall be accompanied by the required number of copies of the manufacturer's printed specifications and shop drawings for each piece of equipment or specialty and shall give dimensions, diagrams, descriptive literature, capacity or rating, kind of material, finish, guarantee, etc., and such other detailed information as the Architect/Engineer may require.
  - 2. When approved, such schedule shall be an addition to these specifications, and shall be of equal force in that no deviation will be permitted except with the approval of the Architect/Engineer.
- C. If the shop drawings show variation from the requirements of the contract documents, the Contractor shall make specific mention of such variation in his letter of transmittal. If acceptable, Contractor will not be relieved of the responsibility for executing the work in accordance with the contract.
- D. Review of shop drawings, descriptive literature, catalog data, or schedules shall not relieve the Contractor from responsibility for deviations from contract drawings or specifications, unless he has in writing called to the attention of the Architect/Engineer such deviation at the time of submission, nor shall it relieve him from responsibility for errors of any sort in shop drawings, descriptive literature, catalog data, or schedules. Any feature or function specified but not mentioned in the submittal shall be assumed to be included per the specification.
- E. Submit shop drawings and any other drawings called for in other sections. Shop drawings shall consist of plans, sections, elevations and details to scale (not smaller than 1/4" per foot), with dimensions clearly showing the installation. Direct copies of small-scale project drawings issued to the Contractor are not acceptable. Drawings shall take into account equipment furnished under other sections and shall show space allotted for it. Include construction details and materials.
- F. Submit product data after award of the contract and before any equipment or materials are purchased. Product data are defined as manufacturer's printed literature specifically marked to indicate size and model and accompanied by rating sheets listing values showing that equipment meets scheduled or specified values. Properly coded stamp from the Engineer on returned submittal is required before ordering equipment.
- G. Coordinate with other divisions supplying equipment prior to submitting shop drawings.

- H. Shop drawings shall be submitted in one package unless approved otherwise by the Engineer. Provide an index of sections listing manufacturers and “as-specified” or not. Each specification section shall be tabbed with equipment inserted.
  
- 1.11 Test Reports and Verification Submittals: Submit test reports, certifications and verification letters as called for in other sections. Contractor shall coordinate the required testing and documentation of system performance such that sufficient time exists to prepare the reports, review the reports, and take corrective action within the scheduled contract time.
  
- 1.12 O&M Data Submittals: Submit Operations and Maintenance data as called for in other sections when a copy of approved submittals is included in the O&M Manual, only the final “Furnish as Submitted” or “Furnish as Corrected” copy shall be used. Contractor shall organize these later in the O&M Manuals tabbed by specification number. Prepare O&M Manuals as required by Division 1 and as described herein. Submit manuals at the Substantial Completion inspection.

## PART 2 - PRODUCTS

- 2.1 All materials shall be new or Owner-supplied reused as shown on the drawings, the best of their respective kinds, suitable for the conditions and duties imposed on them. The description, characteristics, and requirements of materials to be used shall be in accordance with qualifying conditions established in the following sections.
  
- 2.2 Equipment and Materials:
  - A. Any material or equipment used in any potable water system intended for human consumption, including inline devices (i.e. valves, fittings, pumps, meters) and end point devices (ie. drinking water fountains, faucets, ice makers, supply stops, control valves for dispensing), shall be certified “lead-free” in accordance with NSF/ANSI 61.
  
  - B. Equipment and materials furnished under this division shall be the product of a manufacturer regularly engaged in the manufacture of such items for a period of three years. Where practical, all of the components shall be products of a single manufacturer in order to provide proper coordination and responsibility. Where required, Contractor shall furnish proof of installation of similar equipment or materials.
  
  - C. Each item of equipment shall bear a nameplate showing the manufacturer's name, trade name, model number, serial number, ratings and other information necessary to fully identify it. This plate shall be permanently mounted in a prominent location and shall not be concealed, insulated or painted.
  
  - D. The label of the approving agency, such as UL, ASME, or FM, by which a standard has been established for each particular item, shall be in full view.

- E. The equipment shall be essentially the standard product of a manufacturer regularly engaged in the production of such equipment and shall be a product of the manufacturer's latest design.
- F. A service organization with personnel and spare parts shall be available within two hours for each type of equipment furnished.
- G. Install in accordance with manufacturer's recommendations. Place in service by a factory trained representative where required.
- H. Materials and equipment are specified herein by a single or by multiple manufacturers to indicate quality, material and type of construction desired. Manufacturer's products shown on the drawings have been used as basis for design; it shall be the Contractor's responsibility to ascertain that alternate manufacturer's products meet detailed specifications and that size and arrangement of the equipment are suitable for installation.
- I. Model Numbers: Catalog numbers and model numbers indicated in the drawings and specifications are used as a guide in the selection of the equipment and are only listed for the Contractor's convenience. The Contractor shall determine the actual model numbers for ordering equipment and materials in accordance with the written description of each item and with the intent of the drawings and specifications.

2.3 Requests for Substitution:

- A. Where a particular system, product or material is specified by name, consider it as standard basis for bidding, and base proposal on the particular system, product or material specified. Other systems, products, equipment or materials may be accepted only if in the opinion of the Engineer, that they are equivalent in quality and workmanship and will perform satisfactorily its intended purpose. The Engineer shall approve all such substitutions in materials or equipment in writing. This shall occur prior to bidding.
- B. In making requests for substitutions, the Contractor shall list the particular system, product, equipment or material he wishes to substitute and, at bid time, the Contractor shall state the amount he will add or deduct from his base bid if the substitution is approved by the Engineer. If the Contractor allows no deduction or addition to the base bid for such substitution, it shall be stated on the request.
- C. Requests by the Contractor for substitution will be considered only when reasonable, timely, fully documented, and qualifying under one or more of the following circumstances.
  - 1. Required product cannot be supplied in time for compliance with Contract time requirements.
  - 2. Required product is not acceptable to governing authority, or determined to be non-compatible, or cannot be properly coordinated, warranted or insured, or has other recognized disabilities as certified by the Contractor.



3. Substantial cost advantage is offered to the Owner after deducting offsetting disadvantages including delays, additional compensation for redesign, investigation, evaluation and other necessary services and similar considerations.
- D. All requests for substitution shall contain a "Comparison Schedule" and clearly and specifically indicate any and all differences and omissions between the product specified as the basis of design and the product proposed for substitution. Differences shall include, but not limited to, data as follows for both the specified and substituted products:
1. Principle of operation.
  2. Materials of construction or finishes.
  3. Thickness or gauge of materials.
  4. Weight of item.
  5. Deleted features or items.
  6. Added features or items.
  7. Changes in other work caused by the substitution.
  8. Performance and rating data.
- E. If the approved substitution contains differences or omissions not specifically called to the attention of the Engineer, the Owner reserves the right to require equal or similar features to be added to the substituted products at the Contractor's expense.
- 2.4 Prior Approval: Prior Approval shall be required for any manufacturer other than those listed for all specified items in the drawings and specifications. Submit all requests for approval of the alternate manufacturer's products two weeks prior to bid opening. Approval will be in the form of an Addendum to the drawings and specifications. Clearly indicate all differences between the specified and proposed product following the guidelines for substitution herein. This requirement may be waived if, in the opinion of the Engineer, it is in the best interest of the Owner. Submittals received after award of the bid for equipment that has not be Prior Approved shall be subject to immediate rejection.

### PART 3 - EXECUTION

- 3.1 Workmanship: All materials and equipment shall be installed and completed in a first-class workmanlike manner and in accordance with the best modern methods and practice. Any materials installed which do not present an orderly and reasonably neat and/or workmanlike appearance, or do not allow adequate space for maintenance, shall be removed and replaced when so directed by the Architect/Engineer.
- 3.2 Coordination:

- A. The Contractor shall be responsible for full coordination of the plumbing systems with shop drawings of the building construction so the proper openings and sleeves or supports are provided for piping or other equipment passing through slabs or walls.
  - B. Any additional steel supports required for the installation of any plumbing equipment or piping shall be furnished and installed under the section of the specifications requiring the additional supports.
  - C. It shall be the Contractor's responsibility to verify all equipment such as valves and such other apparatus or equipment that may require maintenance and operation are made easily accessible, regardless of the diagrammatic location shown on the drawings.
  - D. All connections to fixtures and equipment shown on the drawings shall be considered diagrammatic unless otherwise indicated by detail. The actual connections shall be made to fully suit the requirements of each case and adequately provide for expansion and servicing.
  - E. The Contractor shall protect equipment, material, and fixtures at all times during storage and construction. The Contractor shall replace all equipment, material, and fixtures which are damaged as a result of inadequate protection.
  - F. Prior to starting and during progress of work, examine work and materials installed by others as they apply to work in this division. Report conditions which will prevent satisfactory installation.
  - G. Start of work will be construed as acceptance of suitability of work of others.
- 3.3 Interruption of Service: Before any equipment is shut down for disconnection or tie-ins, arrangements shall be made with the Architect/Engineer and this work shall be done at the time best suited to the Owner. This will typically be on weekends and/or holidays and/or after normal working hours. Services shall be restored the same day unless prior arrangements are made. All overtime or premium costs associated with this work shall be included in the base bid.
- 3.4 Phasing: Provide all required temporary valves, piping, equipment and devices as required. Maintain temporary services to areas as required. Remove all temporary material and equipment on completion of work unless Engineer concurs that such material and equipment would be beneficial to the Owner on a permanent basis.
- 3.5 Cutting and Patching: Contractor shall be responsible for cutting and patching of all holes, chases, sleeves, and other openings required for installation of equipment furnished and installed under these Specifications. Utilize experienced trades for cutting and patching. Obtain permission from Architect/Engineer before cutting any structural items.

- 3.6 Equipment Setting: Bolt equipment directly to concrete pads or vibration isolators as required, using hot-dipped galvanized anchor bolts, nuts and washers. Level equipment.
- 3.7 Painting: Touch-up factory finishes on equipment located inside and outside shall be done under Division 22. Obtain matched color coatings from the manufacturer and apply as directed. If corrosion is found during inspection on the surface of any equipment, clean, prime, and paint as required. If corrosion is found to be extensive by the Engineer, the equipment shall be removed and replaced with factory new at the expense of the Contractor.
- 3.8 Cleanup: Thoroughly clean all exposed parts of apparatus and equipment of cement, plaster, and other materials and remove all oil and grease spots. Repaint or touch up as required to look like new. During progress of work, Contractor is to carefully clean up and leave premises and all portions of building free from debris and in a clean and safe condition.
- 3.9 Startup and Operational Test: Start each item of equipment in strict accordance with the manufacturer's instructions; or where noted under equipment specification, startup shall be done by a qualified representative of the manufacturer. Alignment, lubrication, safety, and operating control shall be included in startup check.
- 3.10 Record Drawings:
- A. During the progress of the work, the Contractor shall record on his field set of drawings the exact location, as installed, of all piping, equipment, and other systems which are not installed exactly as shown on the contract drawings.
  - B. Upon completion of the work, record drawings shall be prepared as described in the General Conditions, Supplementary Conditions, and Division 1 sections.
- 3.11 Acceptance:
- A. Request inspections as required under the Supplementary or General Conditions. Conceal no work until inspected.
  - B. Punch List: Submit written confirmation that all punch lists have been checked and the required work completed. The Contractor shall pay, at the Engineer's current billing rate, for additional field time required by the Engineer to report or check on previous punch list deficiencies.
  - C. Instructions: At completion of the work, provide a competent and experienced person who is thoroughly familiar with project, for a period deemed necessary by the Owner to instruct permanent operating personnel in the operation of equipment and control

systems.

- D. Operation and Maintenance Manuals: Furnish complete manuals electronically and organized by system or section. Manuals shall contain:
1. Detailed operating instructions and instructions for making minor adjustments.
  2. Routine maintenance operations.
  3. Manufacturer's catalog data, service instructions, and parts lists for each piece of operating equipment.
  4. Copies of approved submittals.
  5. Copies of all manufacturers' warranties.
  6. Copies of test reports and verification submittals.
- E. Warranties: Submit copies of all manufacturers' warranties.
- F. Record Drawings: Submit record drawings.

This is a sample cover sheet. Use one for each shop drawing.

PROJECT NAME  
PROJECT NUMBER

# SAMPLE

ARCHITECT/ENGINEER: Dell Consulting, LLC

CONTRACTOR: XYZ Construction

SUBCONTRACTOR: ABC Plumbing Contractor

SUPPLIER: Supply Company

MANUFACTURER: Manufacturer

DATE: MM/DD/YYYY

SECTION: 22 XX XX / Section Name

1. Description: Manufacturer, Model

2. Description: Manufacturer, Model

3. Description: Manufacturer, Model

4. Description: Manufacturer, Model

5. Description: Manufacturer, Model

Any standard heading is acceptable

List each item separately; include manufacturer name and model number

General Contractor's APPROVAL stamp must be on this sheet.

END OF SECTION

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SECTION 220010 – CODES AND STANDARDS

PART 1 - GENERAL

- 1.1 All work under Division 22 shall be constructed in accordance with the codes and standards listed herein. The design has been based on the requirements of these codes and standards. While it is not the responsibility of the Contractor to verify that all work called for complies with these codes and standards, the Contractor shall be responsible for calling to the Architect/Engineer's attention any details on the drawings or specifications that are not in conformance with these or other codes and standards.
- 1.2 Comply with regulations and codes of utility suppliers.
- 1.3 Where no specific method or form of construction is called for in the contract documents, the Contractor shall comply with code requirements when carrying out such work.
- 1.4 Where code conflict exists, the most stringent requirement applies. Comply with current code edition, unless noted.

PART 2 - CODES

- 2.1 The following codes shall govern all work:
  1. International Building Code – 2015
  2. International Fire Code – 2015
  3. International Plumbing Code – 2015
  4. International Mechanical Code – 2015
  5. International Energy Conservation Code – 2015
  6. ANSI/ASHRAE/IESNA Standard 90.1 Energy Standard for Buildings Except Low-Rise Residential – 2013
  7. National Electric Code (NFPA 70) – 2014
  8. Fire Alarm and Signaling Code (NFPA 72) – 2013
  9. Fire Code (NFPA 1) – 2015
  10. Life Safety Code (NFPA 101) – 2015

PART 3 - STANDARDS

3.1 All plumbing materials, installation and systems shall meet the requirements of the following standards, including the latest addenda and amendments, to the extent referenced:

1. Underwriters' Laboratories (UL)
2. Factory Mutual Global (FM)
3. American National Standards Institute (ANSI)
4. American Society of Testing Materials (ASTM)
5. National Fire Protection Association (NFPA)
6. National Electrical Manufacturers Association (NEMA)

END OF SECTION



SECTION 220020 – PLUMBING RELATED WORK

PART 1 - GENERAL

1.1 Related Documents:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to this Section.
- B. This is a Common Work Results for Plumbing section. Provisions of this section apply to work of all Division 22 sections.
- C. Coordinate with the General Contractor for all cutting and patching. Contractors performing Division 22 work shall inform the General Contractor of all cutting and patching required prior to bidding and shall coordinate installation.

PART 2 - DIVISION 2 – SITE WORK

2.1 Specific requirements for excavation and backfill for underground piping are contained in Section 220550.

2.2 Refer to Division 2 – Site Work for:

- A. All water, sewer, and storm water piping greater than five feet from the building.
- B. Manholes and catch-basins.
- C. Underground tanks and enclosures.
- D. Septic tanks and drainfields.

2.3 The following work is part of Division 22:

- A. All site piping within five feet of building footprint.
- B. Underground tanks and enclosures within five feet of building footprint.
- C. Grease trap.

PART 3 - DIVISION 3 – CONCRETE

3.1 Refer to Division 3 – Concrete for:

- A. Rough grouting in and around plumbing work.

- B. Cutting and patching concrete to accommodate plumbing work.

3.2 The following work is part of Division 22, complying with the requirements of Division 3:

- A. Curbs, foundations and pads for plumbing equipment.
- B. Basins, sumps, and vaults for plumbing work.
- C. Underground structural concrete to accommodate plumbing work.
- D. Inertia bases.

#### PART 4 - DIVISION 4 – MASONRY

4.1 Refer to Division 4 – Masonry for:

- A. Installation of access doors in walls.

#### PART 5 - DIVISION 5 – METALS

5.1 Refer to Division 5 – Metals for:

- A. Framing openings for plumbing equipment.

5.2 The following work is part of Division 22:

- A. Supports for plumbing work.

#### PART 6 - DIVISION 6 – WOOD, PLASTICS, AND COMPOSITES

6.1 Refer to Division 6 – Wood, Plastics, and Composites for:

- A. Framing openings for plumbing equipment.

#### PART 7 - DIVISION 7 – THERMAL AND MOISTURE PROTECTION

7.1 Refer to Division 7 – Thermal and Moisture Protection for:

- A. Installation of all roof curbs and roof supports for plumbing work.
- B. Caulking and waterproofing of all wall- and roof-mounted plumbing work.

- C. Flashing of all roof curbs and roof vents.

7.2 The following work is part of Division 22, complying with the requirements of Division 7:

- A. Fire barrier penetration seals.

#### PART 8 - DIVISION 9 – FINISHES

8.1 Refer to Division 9 – Finishes for:

- A. Painting exposed piping and equipment.
- B. Painting structural metal and concrete for plumbing work.
- C. Painting access panels.
- D. Painting color-coded plumbing work indicated for continuous painting. See color schedule in Division 22 Section, "Plumbing Identification".
- E. Installation of access doors in gypsum drywall.

8.2 Colors shall be selected by the Architect for all painting of exposed plumbing work in occupied spaces, unless specified herein. Do not paint insulated or jacketed surfaces.

8.3 The following work is part of Division 22:

- A. Touch-up painting of factory finishes.
- B. Painting of all hangers.

#### PART 9 - DIVISION 11 – EQUIPMENT

9.1 Refer to Division 11 – Equipment for:

- A. All food service equipment including ranges, ovens, dishwashers, and related food preparation equipment and accessories.

9.2 The following work is part of Division 22:

- A. All trim including faucets, waste connections, drain traps, vents, valves, piping, flashing, fittings, strainers, and other materials necessary to make equipment operational. Provide rough-in for all equipment. Provide final connections for all equipment.

9.3 The following work is part of Division 22:

- A. All trim not furnished by Division 11 including drains, wastes, traps, and similar devices necessary to make fixtures operational. Provide rough-in for all fixtures. Provide final connections for all fixtures.

PART 10 - DIVISION 26 – ELECTRICAL

- 10.1 Plumbing contractor shall coordinate the exact electrical requirements of all plumbing equipment being provided with the electrical contractor. Where approval submittals are required, this coordination shall be accomplished prior to making the submittals. The electrical design shown on the drawings supports the plumbing equipment basis of design. If plumbing equipment is submitted with different electrical requirements, it is the responsibility of the plumbing contractor to resolve all required electrical design changes (wire and conduit size, type of disconnect or overload protection, point(s) of connection, etc.) and clearly show the new electrical design on the plumbing submittal with a written statement that this design will be provided at no additional cost. Plumbing submittals made with no written reference to the electrical design will be presumed to work with the electrical design. Any corrections required will be at no additional cost.
- 10.2 Electrical contractor shall provide disconnect switches, starters, and contactors for plumbing equipment unless specifically noted as being furnished as part of the plumbing equipment.
- 10.3 Electrical contractor shall provide all power wiring, raceway and devices, and make final electrical connections to all plumbing equipment, switches, starters, contactors, controllers, and similar equipment.

END OF SECTION

SECTION 220517 – SLEEVES AND SLEEVE SEALS

PART 1 - GENERAL

1.1 Related Documents:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to this section.
- B. This section is a Division 22 Common Work Results for Plumbing section, and is part of each Division 22 section making reference to or requiring sleeves and sleeve seals specified herein.

1.2 Approval Submittals:

- A. Product Data: Submit product data with installation instructions and UL listing for:
  - 1. Fire barrier sealants.

PART 2 - PRODUCTS

2.1 General: Provide factory-fabricated sleeves and sleeve seals recommended by manufacturer for use in service indicated. Provide sleeves and sleeve seals of type indicated for each service, or if not indicated, provide proper selection as determined by Installer to comply with installation requirements. Provide sizes as indicated, and connections, which properly mate with pipe, tube, and equipment connections. Where more than one type is indicated, selection is Installer's option.

2.2 Escutcheons:

- A. General: Provide pipe escutcheons as specified herein with inside diameter closely fitting pipe outside diameter, or outside of pipe insulation where pipe is insulated. Select outside diameter of escutcheon to completely cover pipe penetration hole in floors, walls, or ceilings; and pipe sleeve extension, if any. Furnish pipe escutcheons with nickel or chrome finish for occupied areas, prime paint finish for unoccupied areas.
- B. Pipe Escutcheons for Moist Areas: For waterproof floors, and areas where water and condensation can be expected to accumulate, provide cast brass or sheet brass escutcheons, solid or split hinged.
- C. Pipe Escutcheons for Dry Areas: Provide sheet steel escutcheons, solid or split hinged.

2.3 Fabricated Piping Specialties:

- A. Drip Pans: Provide drip pans fabricated from corrosion-resistant sheet metal with watertight joints, and with edges turned up 2-1/2". Reinforce top, either by structural angles or by rolling top over 1/4" steel rod. Provide hole, gasket, and flange at low point for watertight joint and 1" drain line connection.
- B. Pipe Sleeves: Provide pipe sleeves of one of the following:
  - 1. Sheet-Metal: Fabricate from galvanized sheet metal, round tube closed with snaplock joint, welded spiral seams, or welded longitudinal joint. Fabricate from the following gauges: 3" and smaller, 20 gauge; 4" to 6" 16 gauge; over 6", 14 gauge.
  - 2. Steel-Pipe: Fabricate from Schedule 40 galvanized steel pipe; remove burrs.
  - 3. Iron-Pipe: Fabricate from cast-iron or ductile-iron pipe; remove burrs.
- C. Sleeve Seals: Provide sleeve seals for sleeves located in foundation walls below grade, or in exterior walls, of one of the following:
  - 1. Caulking and Sealant: Provide foam or caulking and sealant compatible with piping materials used.

PART 3 - EXECUTION

- 3.1 Pipe Escutcheons: Install pipe escutcheons on each pipe penetration through floors, walls, partitions, and ceilings where penetration is exposed to view; and on exterior of building. Secure escutcheon to pipe or insulation so escutcheon covers penetration hole, and is flush with adjoining surface.
- 3.2 Drip Pans: Locate drip pans under piping passing over or within 3' horizontally of electrical equipment, and elsewhere as indicated. Hang from structure with rods and building attachments, weld rods to sides of drip pan. Brace to prevent sagging or swaying. Connect 1" drain line to drain connection, and run to nearest plumbing drain or elsewhere as indicated.
- 3.3 Pipe Sleeves: Install pipe sleeves of types indicated where piping passes through walls, floors, ceilings, and roofs. Do not install sleeves through structural members of work, except as detailed on drawings, or as reviewed by Architect/Engineer. Install sleeves accurately centered on pipe runs. Size sleeves so that piping and insulation (if any) will have free movement in sleeve, including allowance for thermal expansion; but not less than 2 pipe sizes larger than piping run. Where insulation includes vapor-barrier jacket, provide sleeve with sufficient clearance for installation. Install length of sleeve equal to thickness of construction penetrated, and finish flush to surface; except floor sleeves.

Extend floor sleeves 1/4" above level floor finish, and 3/4" above floor finish sloped to drain. Provide temporary support of sleeves during placement of concrete and other work around sleeves, and provide temporary closure to prevent concrete and other materials from entering sleeves.

- A. Install sheet-metal sleeves at interior partitions and ceilings other than suspended ceilings. Fill annular space with caulking or fire barrier sealant as required.
- B. Install steel-pipe sleeves at floor penetrations. Fill annular space with caulking or fire barrier sealant as required.
- C. Install iron-pipe sleeves at all foundation wall penetrations and at exterior penetrations, both above and below grade. Fill annular space with caulking or mechanical sleeve seals.

END OF SECTION

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SECTION 220523 – VALVES

PART 1 - GENERAL

1.1 Related Documents:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to this section.
- B. This section is a Division 22 Common Work Results for Plumbing section, and is part of each Division 22 section making reference to or requiring valves specified herein.
- C. Extent of valves required by this section is indicated on drawings and/or specified in other Division 22 sections.

1.2 Quality Assurance:

- A. Valve Types: Provide valves of same type by same manufacturer.

1.3 Approval Submittals: When required by other Division 22 sections, submit product data, catalog cuts, specifications, and dimensioned drawings for each type of valve. Include pressure drop curve or chart for each type and size of valve. Submit valves with Division 22 section using the valves, not as a separate submittal. Submit valve comparison chart with applicable valves clearly marked if valves other than basis-of-design are to be used. For each valve, identify systems where the valve is intended for use.

- A. Gate Valves: Type GA.
- B. Check Valves: Type CK.
- C. Ball Valves: Type BA.

1.4 O&M Data Submittals: Submit a copy of approval submittals. Submit installation instructions, maintenance data, and spare parts lists for each type of valve. Include in O&M Manual.

PART 2 - PRODUCTS

2.1 General: Provide factory-fabricated valves recommended by manufacturer for use in service indicated. Provide valves of types and pressure ratings indicated; provide proper selection as determined by Installer to comply with specifications and installation requirements. Provide sizes as indicated, and connections which properly

mate with pipe, tube, and equipment connections.

2.2 Acceptable Manufacturers: Subject to compliance with requirements, provide valves of one of the producers listed for each valve type. The model numbers are listed for Contractor's convenience only. In the case of a model number discrepancy, the written description shall govern.

2.3 Gate Valves:

A. Packing: Select valves designed for repacking under pressure when fully opened, equipped with non-asbestos packing suitable for intended service. Select valves designed so back seating protects packing and stem threads from fluid when valve is fully opened, and equipped with gland follower.

B. Comply with the following standards:

1. Cast Iron Valves: MSS SP-70. Cast Iron Gate Valves, Flanged and Threaded Ends.
2. Bronze Valves: MSS SP-80. Bronze Gate, Angle and Check Valves.
3. Steel Valves: ANSI B16.34. Steel Standard Class Valve Ratings.

C. Types of Gate (GA) Valves:

1. Threaded Ends 2" and Smaller (GA1): Class 125, bronze body, screwed bonnet, rising stem, solid wedge. Apollo 101T. Stockham B-100. Nibco T-111. Crane 428. Milwaukee 148.
2. Soldered Ends 2" and Smaller (GA2): Class 125, bronze body, screwed bonnet, non-rising stem, solid wedge. Apollo 101S. Stockham B-108 or B-109. Nibco S-111. Crane 1334. Milwaukee 149.
3. Flanged Ends 2-1/2" and Larger (GA3): Class 125, iron body, bronze mounted, bolted bonnet, rising stem, OS&Y, solid wedge. Apollo 611F. Stockham G-623. Nibco F617-0. Crane 465-1/2. Milwaukee F2885.

2.4 Check Valves:

A. Construction: Construct valves of castings free of any impregnating materials. Construct valves with a bronze regrinding disc with a seating angle of 40° to 45°, unless a composition disc is specified. Provide stop plug as renewable stop for disc hanger, unless otherwise specified. Disc and hanger shall be separate parts with disc free to rotate. Support hanger pins on both ends by removable side plugs.

B. Comply with the following standards:

1. Cast Iron Valves: MSS SP-71. Cast Iron Swing Check Valves, Flanged and Threaded Ends.
2. Bronze Valves: MSS SP-80. Bronze Gate, Angle and Check Valves.
3. Steel Valves: ANSI B16.34. Steel Standard Class Valve Ratings.

C. Types of Check (CK) Valves:

1. Threaded Ends 2" and Smaller (CK1): Class 125, bronze body, screwed cap, horizontal swing, bronze disc. Apollo 163T. Stockham B-319. Nibco T-413-BY. Crane 1707. Milwaukee 509.
2. Soldered Ends 2" and Smaller (CK2): Class 125, bronze body, screwed cap, horizontal swing, bronze disc. Apollo 163S. Stockham B-309. Nibco S-413-B. Crane 1707S. Milwaukee 1509.
3. Flanged Ends 2-1/2" and Larger (CK3): Class 125, iron body, bronze-mounted, bolted cap, horizontal swing, cast-iron or composition disc. Apollo 910F. Stockham G-931 or G-932 as applicable. Nibco F918-B. Crane 373. Milwaukee F2974 as applicable.

2.5 Ball Valves:

- A. General: Select with port area equal to or greater than connecting pipe area, include seat ring designed to hold sealing material.
- B. Construction: Ball valves shall be rated for 150 psi saturated steam and 600 psi non-shock cold water. Pressure containing parts shall be constructed of ASTM B-584 alloy 844, or ASTM B-124 alloy 377. Valves shall be furnished with blow-out proof bottom loaded stem constructed of ASTM B-371 alloy 694 or other approved low zinc material. Provide TFE packing, TFE thrust washer, chrome-plated ball and reinforced teflon seats. Valves 1" and smaller shall be full port design. Valves 1-1/4" and larger shall be conventional port design. Stem extensions shall be furnished for use in insulated piping where insulation exceeds 1/2" thickness.
- C. Comply with the following standards:
  1. MSS SP-72. Ball Valves with Flanged or Butt Welding Ends for General Service.
  2. MSS SP-110. Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.
- D. Types of Ball (BA) Valves:

1. Threaded Ends 2" and Smaller (BA1): Bronze two-piece full port body with adjustable stem packing. Nibco T-585-70. Stockham S216-BR-R-T. Milwaukee BA125. Apollo 77-100.
2. Soldered Ends 2" and Smaller (BA2): Bronze three-piece full port body with adjustable stem packing. Nibco S-595-Y-66. Milwaukee BA350. Apollo 82-200.
3. Threaded Ends 1" and Smaller (BA3): Bronze two-piece full port body, UL listed (UL 842) for use with flammable liquids and LP gas. Apollo 77G. Nibco T-585-70-UL.

2.6 Valve Features:

- A. General: Provide valves with features indicated and, where not otherwise indicated, provide proper valve features as determined by Installer for installation requirements. Comply with ANSI B31.1.
- B. Valve features specified or required shall comply with the following:
  1. Flanged: Provide valve flanges complying with ANSI B16.1 (cast iron), ANSI B16.5 (steel), or ANSI B16.24 (bronze).
  2. Threaded: Provide valve ends complying with ANSI B2.1.
  3. Solder-Joint: Provide valve ends complying with ANSI B16.18.
  4. Trim: Fabricate pressure-containing components of valve, including stems (shafts) and seats from brass or bronze materials, of standard alloy recognized in valve manufacturing industry unless otherwise specified.
  5. Non-Metallic Disc: Provide non-metallic material selected for service indicated in accordance with manufacturer's published literature.
  6. Renewable Seat: Design seat of valve with removable disc, and assemble valve so disc can be replaced when worn.
  7. Extended Stem: Increase stem length by 2" minimum, to accommodate insulation applied over valve.
  8. Mechanical Actuator: Provide factory-fabricated gears, gear enclosure, external chain attachment and chain designed to provide mechanical advantage in operating valve for all valves 4" and larger that are mounted more than 7'-0" above the floor, or are otherwise difficult to operate regardless of height.

PART 3 - EXECUTION

3.1 Installation:

- A. General: Install valves where required for proper operation of piping and equipment, including valves in branch lines to isolate sections of piping. Locate valves so as to be accessible and so that separate support can be provided when necessary. Install valves with stems pointed up, in vertical position where possible, but in no case with stems pointed downward below horizontal plane.
- B. Insulation: Where insulation is indicated, install extended-stem valves, arranged in proper manner to receive insulation.
- C. Applications Subject to Corrosion: Do not install bronze valves and valve components in direct contact with steel, unless bronze and steel are separated by dielectric insulator.
- D. Mechanical Actuators: Install mechanical actuators as recommended by valve manufacturer.
- E. Selection of Valve Ends (Pipe Connections): Except as otherwise indicated, select and install valves with the following ends or types of pipe/tube connections:
  - 1. Tube Size 3" and Smaller: Threaded valves. Soldered-joint valves may also be used.
  - 2. Pipe Size 2" and Smaller: Threaded valves.
  - 3. Pipe Size 2-1/2" and Larger: Flanged valves.
- F. Non-Metallic Disc: Limit selection and installation of valves with non-metallic disc to locations indicated and where foreign material in piping system can be expected to prevent tight shutoff of metal seated valves.
- G. Renewable Seats: Select and install valves with renewable seats, except where otherwise indicated.
- H. Installation of Check Valves: Install in horizontal position with hinge pin horizontally perpendicular to center line of pipe. Install for proper direction flow.

END OF SECTION

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SECTION 220526 – ACCESS DOORS

PART 1 - GENERAL

1.1 Related Documents:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to this section.
- B. This section is a Division 22 Common Work Results for Plumbing section, and is part of each Division 22 section making reference to or requiring access doors specified herein.

1.2 Approval Submittals:

- A. Product Data: When required by other Division 22 sections, submit product data for access doors. Submit with Division 22 section using access doors, not as a separate submittal. Include rating data.

1.3 O&M Data Submittals: Submit a copy of approval submittals. Include in O&M Manual.

PART 2 - PRODUCTS

2.1 General: Where floors, walls and ceilings must be penetrated for access to plumbing work, provide types of access doors indicated. Furnish sizes indicated or, where not otherwise indicated, furnish adequate size for intended and necessary access. Furnish manufacturer's complete units, of type recommended for application in indicated substrate construction, in each case, complete with anchorages and hardware.

2.2 Acceptable Manufacturers: Subject to compliance with requirements, provide access doors by Milcor, Jay R. Smith, Zurn, BOICO, Elmdor, or approved equal.

2.3 Access Door Construction: Except as otherwise indicated, fabricate wall/ceiling door units of welded steel construction with welds ground smooth, 16-gauge frames and 14-gauge flush panel doors, 175° swing with concealed spring hinges, flush screw-driver-operated cam locks, factory-applied rust-inhibitive prime-coat paint finish.

2.4 Locks: Where indicated, provide flat pass key type 5-pin or 5-disc type cylinder locks, individually keyed unless otherwise indicated, 2 keys.

- 2.5 Fire Rated Access Doors: Where required furnish with 20-gauge insulated sandwich panel, automatic closing mechanism, cylinder type lock (self-latching with inside release mechanism), and continuous concealed steel hinge pin. Access doors shall carry the UL 1-1/2 hour "B" label.

### PART 3 - EXECUTION

- 3.1 Access doors shall be installed to operate and service all plumbing equipment including valves and other items requiring maintenance that are concealed above or behind finished construction. Access doors shall be installed in walls, chase and floors as necessary, but are not required in accessible suspended ceiling systems. Access doors shall have factory applied protective phosphate coating and baked enamel primer suitable for field painting.
- 3.2 Access doors shall be installed by the Division installing the substrate construction. However, responsibility for furnishing and determining location of access doors is part of this Division's work. The style of access door shall be suitable for construction into which installed.
- 3.3 Access doors shall be sized and located as required to provide proper maintenance and service access in accordance with the manufacturer's recommendations and code authority requirements for all devices and equipment.

END OF SECTION



SECTION 220529 – HANGERS AND SUPPORTS

PART 1 - GENERAL

1.1 Related Documents:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to this section.
- B. This section is a Division 22 Common Work Results for Plumbing section, and is part of each Division 22 section making reference to or requiring hangers and supports specified herein.
- C. Extent of hangers and supports required by this section is indicated on drawings and/or specified in other Division 22 sections.

1.2 Codes and Standards:

- A. Code Compliance: Comply with applicable codes pertaining to product materials and installation of hangers and supports.
- B. MSS Standard Compliance:
  - 1. Provide pipe hangers and supports of which materials, design, and manufacture comply with ANSI/MSS SP-58.
  - 2. Select and apply pipe hangers and supports, complying with MSS SP-69.
  - 3. Terminology used in this section is defined in MSS SP-90.
- C. UL Compliance: Provide products which are UL listed.

PART 2 - PRODUCTS

- 2.1 Acceptable Manufacturers: Subject to compliance with requirements, provide supports and hangers by Grinnell, Michigan Hanger Company, B-Line Systems, or approved equal.
- 2.2 Horizontal-Piping Hangers and Supports: Except as otherwise indicated, provide factory-fabricated horizontal-piping hangers and supports complying with ANSI/MSS SP- 58, of one of the following MSS types listed, selected by Installer to suit horizontal-piping systems, in accordance with MSS SP-69 and manufacturer's published product information. Use only one type by one manufacturer for each piping service. Select size

of hangers and supports to exactly fit pipe size for bare piping, and to exactly fit around piping insulation with saddle or shield for insulated piping. Provide copper-plated hangers and supports for copper-piping systems.

- A. Adjustable Steel Clevises: MSS Type 1.
  - B. Steel Double Bolt Pipe Clamps: MSS Type 3.
  - C. Adjustable Steel Band Hangers: MSS Type 7.
  - D. Steel Pipe Clamps: MSS Type 4.
  - E. Pipe Stanchion Saddles: MSS Type 37, including steel pipe base support and cast-iron floor flange.
- 2.3 Vertical-Piping Clamps: Except as otherwise indicated, provide factory-fabricated vertical-piping clamps complying with ANSI/MSS SP-58, of one of the following MSS types listed, selected by Installer to suit vertical piping systems, in accordance with MSS SP-69 and manufacturer's published product information. Select size of vertical piping clamps to exactly fit pipe size of bare pipe. Provide copper-plated clamps for copper-piping systems.
- A. Two-Bolt Riser Clamps: MSS Type 8.
  - B. Four-Bolt Riser Clamps: MSS Type 42.
- 2.4 Hanger-Rod Attachments: Except as otherwise indicated, provide factory-fabricated hanger-rod attachments complying with ANSI/MSS SP-58, of one of the following MSS types listed, selected by Installer to suit horizontal-piping hangers and building attachments, in accordance with MSS SP-69 and manufacturer's published product information. Use only one type by one manufacturer for each piping service. Select size of hanger-rod attachments to suit hanger rods. Provide copper-plated hanger-rod attachments for copper-piping systems.
- A. Steel Turnbuckles: MSS Type 13.
  - B. Malleable Iron Sockets: MSS Type 16.
- 2.5 Building Attachments: Except as otherwise indicated, provide factory-fabricated building attachments complying with ANSI/MSS SP-58, of one of the following MSS types listed, selected by Installer to suit building substrate conditions, in accordance with MSS SP-69 and manufacturer's published product information. Select size of building attachments to suit hanger rods.
- A. Center Beam Clamps: MSS Type 21.

- B. C-Clamps: MSS Type 23.
  - C. Malleable Beam Clamps: MSS Type 30.
  - D. Side Beam Brackets: MSS Type 34.
  - E. Concrete Inserts: MSS Type 18.
- 2.6 Saddles and Shields: Except as otherwise indicated, provide saddles or shields under piping hangers and supports, factory-fabricated, for all insulated piping. Size saddles and shields for exact fit to mate with pipe insulation.
- A. Protection Shields: MSS Type 40, of length recommended by manufacturer to prevent crushing of insulation.
- 2.7 Miscellaneous Materials:
- A. Metal Framing: Provide products complying with NEMA STD ML 1.
  - B. Steel Plates, Shapes and Bars: Provide products complying with ANSI/ASTM A 36.
  - C. Cement Grout: Portland cement (ANSI/ASTM C 150, Type I or Type III) and clean uniformly graded, natural sand (ANSI/ASTM C 404, Size No. 2). Mix at a ratio of 1.0 part cement to 3.0 parts sand, by volume, with minimum amount of water required for placement and hydration.
  - D. Heavy-Duty Steel Trapezes: Fabricate from steel shapes or continuous channel struts selected for loads required; weld steel in accordance with AWS standards.

### PART 3 - EXECUTION

- 3.1 Preparation:
- A. Proceed with installation of hangers, supports, and anchors only after required building structural work has been completed in areas where the work is to be installed. Correct inadequacies including, but not limited to, proper placement of inserts, anchors and other building structural attachments.
  - B. Prior to installation of hangers, supports, anchors and associated work, Installer shall meet at project site with Contractor, installer of each component of associated work, and installers of other work requiring coordination with work of this section for purpose of reviewing material selections and procedures to be followed in performing the work in compliance with requirements specified.

3.2 Installation of Building Attachments:

- A. Install building attachments at required locations within concrete or on structural steel for proper piping support. Space attachments within maximum piping span length indicated in MSS SP-69. Install additional building attachments where support is required for additional concentrated loads, including valves, flanges, guides, strainers, expansion joints, and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten insert securely to forms. Where concrete with compressive strength less than 2500 psi is indicated, install reinforcing bars through openings at top of inserts.

3.3 Installation of Hangers and Supports:

- A. General: Install hangers, supports, clamps and attachments to support piping properly from building structure; comply with MSS SP-69. Arrange for grouping of parallel runs of horizontal piping to be supported together on trapeze type hangers where possible. Install supports with maximum spacing complying with MSS SP-69 or as listed herein, whichever is most limiting. Where piping of various sizes is to be supported together by trapeze hangers, space hangers for smallest pipe size or install intermediate supports for smaller diameter pipe. Do not use wire or perforated metal to support piping, and do not support piping from other piping.
1. Horizontal steel pipe and copper tube 1-1/2" diameter and smaller: support on 6-foot centers.
  2. Horizontal steel pipe and copper tube over 1-1/2" diameter: support on 10-foot centers.
  3. Vertical steel pipe and copper tube: support at each floor and on 10-foot centers.
  4. Horizontal PVC pipe: support on 4-foot centers.
  5. Vertical PVC pipe: support at each floor and on 10-foot centers.
  6. Non-PVC plastic pipe: support in accordance with manufacturer's recommendations.
  7. Horizontal cast iron pipe inside building: support on 5-foot centers.
  8. Vertical cast iron pipe: support at each floor and on 15-foot centers.
- B. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers and other accessories.
- C. Paint all black steel hangers with black enamel. Galvanized steel and copper clad hangers do not require paint.

- D. Prevent electrolysis in support of copper tubing by use of hangers and supports which are copper plated, or by other recognized industry methods.
- E. Provision for Movement:
  - 1. Load Distribution: Install hangers and supports so that piping live and dead loading and stresses from movement will not be transmitted to connected equipment.
  - 2. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes, and so that maximum pipe deflections allowed by ANSI B31 are not exceeded.
- F. Insulated Piping: Comply with the following installation requirements:
  - 1. Shields: Where low-compressive-strength insulation or vapor barriers are indicated, install coated protective shields. For pipe 8" and over, install wood insulation saddles
  - 2. Clamps: Attach clamps, including spacers (if any), to piping with clamps projecting through insulation; do not exceed pipe stresses allowed by ANSI B31.

3.4 Equipment Bases:

- A. Concrete housekeeping bases will be provided as work of Division 3. Furnish to Contractor scaled layouts of all required bases, with dimensions of base, and location to column center lines. Furnish templates, anchor bolts, and accessories necessary for base construction.
- B. Provide concrete housekeeping bases for all floor mounted equipment furnished as part of the work of Division 22. Size bases to extend minimum of 4" beyond equipment base in any direction, and 4" above finished floor elevation. Construct of reinforced concrete, roughen floor slab beneath base for bond, and provide steel rod anchors between floor and base. Locate anchor bolts using equipment manufacturer's templates. Chamfer top and edge corners.

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SECTION 220539 – TESTING, CLEANING, AND STERILIZATION FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 Related Documents:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to this section.
- B. This section is a Division 22 Common Work Results for Plumbing section, and is part of each Division 22 section making reference to or requiring the testing and other procedures specified herein.
- C. Notify the Architect/Engineer when system tests are ready to be witnessed at least 24 hours prior to the test.
- D. All materials, test equipment, and devices required for cleaning, testing, sterilizing or purging shall be provided by the Contractor.

PART 2 - PRESSURE TESTS

- 2.1 General: Provide temporary equipment for testing, including pump and gauges. Test piping systems before insulation is installed wherever feasible, and remove control devices before testing. Test each natural section of each piping system independently but do not use piping system valves to isolate sections where test pressure exceeds valve pressure rating. Fill each section with indicated medium and pressurize for indicated pressure and time.
- 2.2 Required test period is four hours.
- 2.3 No piping, fixtures, or equipment shall be concealed or covered until they have been tested. The contractor shall apply each test and ensure that it is satisfactory for the period specified before calling the Architect/Engineer to observe the test. Test shall be repeated upon request to the satisfaction of those making the inspection.
- 2.4 Observe each test section for leakage at the end of the test period. Test fails if leakage is observed or if pressure drop exceeds 5% of the test pressure.
- 2.5 Check of systems during application of test pressures should include visual check for water leakage and soap bubble or similar check for air and nitrogen leakage.

- 2.6 Repair piping systems sections which fail required piping test. Disassemble and re-install using new materials to extent required to overcome leakage. Do not use chemicals, stop-leak compounds, mastics, or other temporary repair methods.
- 2.7 Pressure Test Requirements:
- A. Waste and Vent: Test all piping within the building with a 10 foot head of water. Test piping in sections so that all joints are tested. Provide test tees as required.
  - B. Domestic Water: Perform hydrostatic test on all piping within the building at twice the normal static pressure at service point, but not less than 100 psig. Once tested, flush out piping and leave under pressure of the supply main or 40 psig for the balance of the construction period.

### PART 3 - CLEANING AND STERILIZATION

- 3.1 General: Clean exterior surfaces of installed piping systems of superfluous materials, and prepare for application of specified coatings (if any). Flush out piping systems with clean water or blowdown with air before proceeding with required tests. Inspect each run of each system for completion of joints, supports and accessory items.
- 3.2 Flush and drain all water systems at least three times. Reverse flush systems from smallest piping to largest piping. Replace startup strainers with operating strainers.
- 3.3 Sterilization of Domestic Water Systems:
- A. Prerequisites: All new hot and cold water piping installed (complete), all fixtures connected, system flushed out, and system filled with water.
  - B. The shut off valve at the water main the point of connection shall be closed, all fixture outlets opened slightly, and a sterilizing solution shall be introduced at a manifold connection installed by the Contractor at the meter. the point of connection.
  - C. The solution shall contain 50 parts per million of available chlorine. The chlorinating material shall be either liquid chlorine or calcium hypochlorite. The solution shall be allowed to stand in the system for at least eight hours after which the entire system shall be flushed.
  - D. After final flushing, all aerators shall be removed, cleaned, and reinstalled. After final flush the residual chlorine shall not exceed 0.2 parts per million.
  - E. The Architect/Engineer shall be notified 24 hours prior to the procedure so that it can be witnessed.



- F. Provide sampling and certified report by an independent testing lab. Provide written Health Department approval of disinfection samples.

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SECTION 220550 – EXCAVATION AND BACKFILL

PART 1 - GENERAL

1.1 Related Documents:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to this section.
- B. This section is a Division 22 Common Work Results for Plumbing section, and is part of each Division 22 section making reference to or requiring excavation and backfill specified herein.
- C. OSHA: Contractor employee worker protection for all trenching and excavation operations shall comply with 29 CFR 1926.650 Subpart P and all current OSHA requirements.

PART 2 - PRODUCTS

- 2.1 Sand: Clean, hard, uncoated grains free from organic matter or other deleterious substances. Sand for backfill shall be of a grade equal to mortar sand, with 95% passing a No. 8 sieve, and not more than 8% passing a No. 100 sieve.
- 2.2 Gravel: Clean, well-graded hard stone or lime rock gravel, free from organic material. Size range to be from No. 4 screen retentions to 1".
- 2.3 Earth: Must be free of stones, wood, roots or rubbish.
- 2.4 Identification Tape: Polyethylene 6 inches wide, 0.004 inches thick, continuously printed with "CAUTION" in large letters and type of pipe below.
- 2.5 Copper Identification Wire: 14-gauge.

PART 3 - EXECUTION

- 3.1 Ditching and Excavation: Shall be performed by hand wherever the possibility of encountering obstacles or any existing utility lines. The Contractor is responsible to ensure that no utility or service interruptions shall be caused and that no existing utilities or obstructions will prohibit installations of service under this contract at proper grade and location. Where clear and unobstructed areas are to be excavated, appropriate machine excavation methods may be employed. Avoid use of machine excavations within the limits of the building lines, except when machine weights and operation will not damage sub-surface structural components or piping.
- 3.2 Bedding: Excavate to bottom grade of pipe to be installed, and shape bed of undisturbed earth to contour of pipe for a width of at least 50% of pipe diameter. If earth conditions

necessitate excavation below grade of the pipe, such as due to the presence of clay, much, or roots, sub-cut and bring bed up to proper elevation with clean, dry sand deposited in 6" layers and firmly tamped by mechanical means. If sub-cut exceeds 12", or if bed is of an unstable nature, a 6" minimum layer of rock will be required before sand bedding begins.

- 3.3 Placing: Pipe shall be carefully handled into place. Avoid knocking loose soil from the banks of the trench into the pipe bed. Rig heavier sections with nylon slings in lieu of wire rope to avoid crushing or chipping. Pipe which is handled with insulation in place, coated pipe, and jacketed pipe shall have special handling slings to prevent damage to the material.
- 3.4 Backfilling: Deposit sand to 6" above the pipe and tamp. Then deposit sand or earth carefully in 6" layers, maintaining adequate side support on nonferrous piping materials. Compact fill in 6" layers, using mechanical means, up to the top elevation of the pipe, and in 12" layers to rough or finish grade as required. Fine grade and restore surface to original condition.
- 3.5 Special: Excavations shall be installed and maintained in satisfactory condition during the progress of the work. Subsurface structures are to be constructed in adequately sized excavations. De-watering equipment shall be installed and properly maintained where required. Shoring shall be employed in the event of unstable soil condition, and in all cases where required by OSHA regulations and necessary to protect materials and personnel from injury.
- 3.6 Identification: Install identification tape directly above all underground piping, one tape for each pipe where multiple pipes are installed. Depth of tape shall be at least 6 inches below finished grade and 24" above buried pipe. Install copper wire above non-metallic pipes.
- 3.7 Depth of Cover: Minimum cover for underground piping is two feet unless indicated otherwise.

END OF SECTION

## SECTION 220553 – PLUMBING IDENTIFICATION

### PART 1 - GENERAL

#### 1.1 Related Documents:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to this section.
- B. This section is a Division 22 Common Work Results for Plumbing section, and is part of each Division 22 section making reference to or requiring identification devices specified herein.
- C. Extent of plumbing identification work required by this section is indicated on drawings and/or specified in other Division 22 sections.
- D. Refer to Division 26 sections for identification requirements of electrical work (not work of this section).

#### 1.2 Codes and Standards: Comply with ANSI A13.1 for lettering size, length of color field, colors, and viewing angles of identification devices.

### PART 2 - PRODUCTS

#### 2.1 General: Provide manufacturer's standard products of categories and types required for each application as referenced in other Division 22 sections. Where more than a single type is specified for application, selection is the Contractor's option, but provide single selection for each product category.

#### 2.2 Painted Identification Materials:

- A. Stencils: Standard fiberboard stencils, prepared for required applications with letter sizes generally complying with recommendations of ANSI A13.1 for piping and similar applications, but not less than 3/4" high letters for access door signs and similar operational instructions.
- B. Stencil Paint: Standard exterior type stenciling enamel; black, except as otherwise indicated; either brushing grade or pressurized spray-can form and grade.
- C. Identification Paint: Standard identification enamel.

#### 2.3 Plastic Pipe Markers:

- A. Pressure-Sensitive Type: Provide manufacturer's standard pre-printed, permanent adhesive, color-coded, pressure-sensitive vinyl pipe markers.
- B. Lettering: Manufacturer's standard pre-printed nomenclature which best describes piping system in each instance, as selected by Architect/Engineer in cases of variance with name as shown or specified.
- C. Arrows: Print each pipe marker with arrows indicating direction of flow, either integrally with piping system service lettering (to accommodate both directions), or as separate unit of plastic.

2.4 Valve Tags:

- A. Brass Valve Tags: Provide 19-gauge polished brass valve tags with stamp-engraved piping system abbreviation in 1/4" high letters and 1/2" high sequenced valve numbers, and with 5/32" hole for fastener. Provide 1-1/2" diameter tags, except as otherwise indicated.
- B. Plastic Laminate Valve Tags: Provide manufacturer's standard 3/32" thick engraved plastic laminate valve tags, with piping system abbreviation in 1/4" high letters and 1/2" high sequenced valve numbers, and with 5/32" hole for fastener. Provide 1-1/2" square black tags with white lettering, except as otherwise indicated.

2.5 Engraved Plastic-Laminate Signs:

- A. General: Provide engraving stock melamine plastic laminate, in the sizes and thicknesses indicated, engraved with engraver's standard letter style a minimum of 3/4" tall and wording indicated, punched for mechanical fastening except where adhesive mounting is necessary because of substrate.
- B. Thickness: 1/16" for units up to 20 square inches or 8" length; 1/8" for larger units.
- C. Fasteners: Self-tapping stainless steel screws, except contact-type permanent adhesive where screws cannot or should not penetrate the substrate.

2.6 Stamped Nameplates: Provide equipment manufacturer's standard stamped nameplates for motors, pumps, etc.

PART 3 - EXECUTION

- 3.1 Coordination: Where identification is to be applied to surfaces which require insulation, painting or other covering or finish, including valve tags in finished mechanical spaces, install identification after completion of covering and painting. Install identification prior

to installation of acoustical ceilings and similar removable concealment.

3.2 Piping System Identification:

- A. General: Install pipe markers of one of the following types on each system indicated to receive identification, and include arrows to show normal direction of flow:
1. Plastic pipe markers.
  2. Stenciled markers of black or white for best contrast.
- B. Locate pipe markers as follows wherever piping is exposed to view in occupied spaces, machine rooms, accessible maintenance spaces and exterior non-concealed locations.
1. Near each valve and control device.
  2. Near each branch, excluding short take-offs for fixtures and terminal units. Mark each pipe at branch where there could be question of flow pattern.
  3. Near locations where pipes pass through walls or floors/ ceilings or enter non-accessible enclosures.
  4. At access doors, manholes, and similar access points which permit view of concealed piping.
  5. Near major equipment items and other points of origination and termination.
  6. Spaced intermediately at maximum spacing of 50' along each piping run, except reduce spacing to 25' in congested areas of piping and equipment.
  7. On piping above removable acoustical ceilings, except omit intermediately spaced markers.

3.3 Valve Identification: Provide coded valve tag on every valve, cock and control device in each piping system; exclude check valves, valves within factory-fabricated equipment units, plumbing fixture faucets, convenience and lawn-watering hose bibs, and shut-off valves at plumbing fixtures, and similar rough-in connections of end-use fixtures and units.

3.4 Valve Charts: Provide framed, glass-covered valve charts in each mechanical room. Identify coded valve number, valve function, and valve location for each valve.

3.5 Plumbing Equipment Identification: Install engraved plastic laminate sign on or near each major item of plumbing equipment and each operational device. Label shall indicate type of system and area served. Provide signs for the following general categories of equipment and operational devices:

1. Electric water heaters.

3.6 Adjusting and Cleaning:

- A. Relocate any plumbing identification device which has become visually blocked by work of this division or other divisions.
- B. Clean face of each identification device and glass frame of each valve chart.

END OF SECTION



SECTION 220719 – PLUMBING PIPING INSULATION

PART 1 - GENERAL

1.1 Related Documents:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to this section.
- B. Division 22 Common Work Results for Plumbing sections apply to work of this section.

1.2 Approval Submittals:

- A. Product Data: Submit manufacturer's product data sheets and installation instruction on each insulation system including insulation, coverings, adhesives, sealers, protective finishes, and other material recommended by the manufacturer for applications indicated. Submit for:
  - 1. Fiberglass pipe insulation.
  - 2. Flexible unicellular pipe insulation.

1.3 O&M Data Submittals: Submit a copy of all approval submittals. Include in O&M Manual.

PART 2 - PRODUCTS

2.1 Acceptable Manufacturers: Subject to compliance with requirements, provide insulation products by Knauf, Owens-Corning, Johns Manville, Certainteed, Pittsburgh Corning, U.S. Rubber, or approved equal.

2.2 Flame/Smoke Ratings: Provide composite plumbing insulation (insulation, coverings, sealers, mastic, and adhesive) with a flame spread rating of 25 or less, and a smoke-developed rating of 50 or less as tested by ANSI/ASTM E84.

2.3 Pipe Insulation Materials:

- A. Fiberglass Pipe Insulation: ASTM C547, Class 1 unless otherwise indicated (preformed sleeving with white all-service jacket, suitable for temperatures up to 450°F).
- B. Flexible Unicellular Pipe Insulation: ASTM C534, Type I (tubular, suitable for use up to 200°F).

- C. Staples, Bands, Wires, and Cement: As recommended by the insulation manufacturer for applications indicated.
- D. Adhesives, Sealers, Protective Finishes: Products recommended by the insulation manufacturer for the application indicated.
- E. Jackets: ASTM C921, Type I (vapor barrier) for piping below ambient temperature, Type II (vapor permeable) for piping above ambient temperature. Type I may be used for all piping at Installer's option.

### PART 3 - EXECUTION

#### 3.1 General:

- A. Install thermal insulation products in accordance with manufacturer's written instructions, and in compliance with recognized industry practices to ensure that insulation serves intended purpose.
- B. Install insulation materials with smooth and even surfaces and on clean and dry surfaces. Redo poorly fitted joints. Do not use mastic or joint sealer as filler for gapping joints and excessive voids resulting from poor workmanship.
- C. Maintain integrity of vapor barrier on insulation and protect it to prevent puncture and other damage. Label all insulation "ASBESTOS FREE".
- D. Do not apply insulation to surfaces while they are hot or wet.
- E. Do not install insulation until systems have been checked and found free of leaks. Surfaces shall be clean and dry before attempting to apply insulation. A professional insulator with adequate experience and ability shall install insulation.
- F. Do not install insulation on pipe systems until acceptance tests have been completed except for flexible unicellular insulation. Do not install until the building is "dried-in".

#### 3.2 Installation of Fiberglass Pipe Insulation:

- A. Insulate the following piping systems:
  - 1. Domestic hot water: up to 3" pipe = 1-1/2" thick; over 3" pipe = 2" thick.
  - 2. Storm water piping above ceiling including roof drain body: 1/2" thick.
  - 3. Cold water pipe: 1/2" thick.

- B. Apply insulation to pipe with all side and end joints butted tightly. Seal longitudinal lap by pressurizing with plastic sealing tool. Apply 3-inch wide self-sealing butt strips to joints between insulation sections. Insulate all fittings, flanges, valves and strainers with premolded insulation. Apply coat of insulating cement to fittings and wrap with glass cloth overlapping each wrap 1" and adjacent pipe 2". Finish with heavy coat of general purpose mastic. Premolded PVC covers may also be used, but no flexible inserts are allowed.
- C. Provide hanger or pipe support shields of 16 gauge (minimum) galvanized steel over the insulation which extends halfway up the pipe insulation cover and at least 6" on each side of the hanger.
- D. Omit insulation on unions, flanges, strainer blowoffs, flexible connections, expansion joints, and exposed plumbing fixture run-outs from faces of wall or floor to fixture.
- E. Outdoor Locations: Cover straight piping with 0.016" thickness smooth aluminum jacket fastened with aluminum bands on not over 12" centers. Use factory-made 0.014" aluminum covers for fittings and valves. Metal jacketing shall be applied with the longitudinal seam positioned to shed water.

3.3 Installation of Flexible Unicellular Pipe Insulation:

- A. Insulate the following piping systems:
  - 1. Horizontal above-grade waste piping receiving condensate from air conditioning units to points of connection receiving waste from four or more fixtures: 1/2" thick.
  - 2. Horizontal above-grade waste piping receiving discharge from ice machines, coolers, freezers or similar units to points of connection receiving waste from four or more fixtures: 1/2" thick.
  - 3. Floor drain bodies located above ceiling or above-grade and receiving condensate from air conditioning units: 1/2" thick.
- B. Apply insulation in accordance with the manufacturer's recommendations and instructions. Miter cut insulation to fit pipe fittings. Use approved cement to seal all joints and ends in the insulation.
- C. Insulation outside the building shall be protected by a smooth 0.016" thickness aluminum jacket secured with aluminum bands on 12" centers.

END OF SECTION

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SECTION 221116 – DOMESTIC WATER PIPING

PART 1 - GENERAL

1.1 Related Documents:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to this section.
- B. Division 22 Common Work Results for Plumbing sections apply to work of this section.
- C. Extent of domestic water piping work is indicated on drawings and schedules, and by requirements of this section.
- D. Refer to appropriate Division 2 sections for exterior domestic water piping (not work of this section unless noted).
- E. Refer to other Division 22 sections for insulation of domestic water piping (not work of this section).
- F. Refer to other Division 22 sections for excavation and backfill required in conjunction with domestic water piping.

1.2 Codes and Standards: Comply with applicable portions of Uniform Plumbing Code pertaining to selection and installation of plumbing materials and products. Comply with local utility requirements.

- A. Any material or equipment used in any potable water system intended for human consumption, including inline devices (i.e. valves, fittings, pumps, meters) and end point devices (ie. drinking water fountains, faucets, ice makers, supply stops, control valves for dispensing), shall be certified “lead-free” in accordance with NSF/ANSI 61.

1.3 Approval Submittals:

- A. Product Data: Submit manufacturer’s product data for:

- 1. Valves.
- 2. Balancing valves.
- 3. Dielectric unions.
- 4. Strainers.
- 5. Wall hydrants.
- 6. Meters and gauges.
- 7. Relief valves.
- 8. Water hammer arrestors.

9. Access doors.

1.4 Test Reports and Verification Submittals:

A. Backflow Preventer Test Report: Submit Test Report for each backflow preventer.

1.5 O&M Data Submittals: Submit a copy of all approval submittals. Submit maintenance data and parts list for valves, backflow preventers, pressure regulating valves, trap primers. Include in O&M Manual.

PART 2 - PRODUCTS

2.1 General: Provide piping materials and factory-fabricated piping products of sizes, types, pressure ratings, temperature ratings, and capacities as indicated. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements. Provide materials and products complying with Uniform Plumbing Code where applicable. Provide sizes and types matching pipe materials used in potable water systems. Where more than one type of materials or products is indicated, selection is Installer's option.

2.2 Basic Identification: Provide identification complying with Division 22 Common Work Results for Plumbing section "Plumbing Identification". Provide manufacturer's standard permanent, bright-colored, continuous-printed plastic tape, intended for direct burial service; not less than 6" wide x 4 mils thick. Provide blue tape with black printing reading "CAUTION WATER LINE BURIED BELOW".

2.3 Basic Pipes and Pipe Fittings: Provide pipes and pipe fittings in accordance with the following listing:

A. Interior Water Piping:

1. Above Grade: ASTM B88 copper tube, Type L, hard-drawn temper with ANSI B16.29 wrought-copper fittings and soldered joints.
2. Below Grade: ASTM B88 copper tube, Type L, soft-annealed temper; no joints below floor.

B. Exterior Water Piping:

1. Copper Tube: ASTM B88, Type L, hard-drawn temper with ANSI B16.29 wrought-copper fittings and soldered joints.

C. Soldered Joints: Tin-Antimony (95-5) solder, ASTM B32, Grade 95TA.

- 2.4 Sleeves and Sleeve Seals: Provide sleeves and sleeve seals complying with Division 22 Common Work Results for Plumbing section "Sleeves and Sleeve Seals".
- 2.5 Basic Hangers and Supports: Provide hangers and supports complying with Division 22 section "Hangers and Supports".
- 2.6 Interior Valves: Provide valves complying with Division 22 Common Work Results for Plumbing section "Valves" and the following list:
- A. Sectional and Shutoff Valves: Type GA1, GA2, GA3, BA1, BA2.
  - B. Drain Valves: Type GA1, GA2, BA1, BA2.
  - C. Throttling Valves: Type GL1, GL2, GL6, BA1, BA2.
  - D. Check Valves: Type CK1, CK2, CK3.
- 2.7 Exterior Valves: Provide as indicated, gate valves, AWWA C500, 175 psi working pressure. Provide threaded, flanged, hub, or other end configurations to suit size of valve and piping connections. Provide inside screw type for use with curb valve box, iron body, bronze-mounted, double disc, parallel seat, non-rising stem. Clow Corp., Dresser Mfg., Fairbanks Co., Kennedy, Stockham.
- 2.8 Balancing Valves: Provide balancing valves as indicated, of one of the following types:
- A. Threaded Ends 2" and Smaller: Class 125, copper alloy, bronze plug, straight or angle pattern with fixed orifice, multi-turn throttling adjustment with integrated setpoint indicator, dual differential pressure test ports.
  - B. Soldered Ends 2" and Smaller: Class 125, copper alloy, bronze plug, straight or angle pattern with fixed orifice, multi-turn throttling adjustment with integrated setpoint indicator, dual differential pressure test ports.
  - C. Flanged Ends 2-1/2" and Larger: Class 125, ductile or cast iron body with fusion bonded epoxy coating, straight or angle pattern with fixed orifice, multi-turn throttling adjustment with integrated setpoint indicator, dual differential pressure test ports.
  - D. Acceptable Manufacturers: Subject to compliance with requirements, provide balancing valves by Apollo Valves, Bell & Gossett, IMI-TA/Victaulic, Taco, or approved equal.
- 2.9 Dielectric Unions: Provide standard products recommended by manufacturer for use in service indicated, which effectively isolate ferrous from non-ferrous piping (electrical

conductance), prevent galvanic action, and stop corrosion.

2.10 Low Pressure Y-Type Pipeline Strainers:

- A. General: Provide strainers full line size of connecting piping, with ends matching piping system materials. Provide Type 304 stainless steel screens. Select for 200 psi working pressure (water, oil or gas). Provide 20 mesh screens through 2" size and 1/16" perforations for 2-1/2" size and larger.
- B. Select from the following types:
  - 1. Threaded Ends, 2" and Smaller: Cast-iron body, screwed screen retainer with centered blowdown fitted with pipe plug.
  - 2. Threaded Ends, 2-1/2" and Larger: Cast-iron body, bolted screen retainer with off-center blowdown fitted with pipe plug.
  - 3. Flanged Ends, 2-1/2" and Larger: Cast-iron body, bolted screen retainer with off-center blowdown fitted with pipe plug.

2.11 Non-freeze Wall Hydrants: Provide 3/4" anti-syphon, non-freeze wall hydrant with bronze casing, satin bronze box, straight inlet connection, and integral vacuum breaker-backflow preventer. Vacuum breakers shall conform to ASME A112.21.3 and ASSE 1019. Wade W-8700 or approved equal.

2.12 Meters and Gauges: Provide meters and gauges complying with Division 22 Common Work Results for Plumbing section "Meters and Gauges", in accordance with the following listing:

- A. Thermometers.
- B. Pressure gauges.

Combined Pressure-Temperature Relief Valves: Provide relief valves as indicated, of size and capacity as selected by Installer for proper relieving capacity, in accordance with ASME Boiler and Pressure Vessel Code. Provide bronze body, test lever and thermostat complying with ANSI Z21.22 listing requirements for temperature discharge capacity. Provide temperature relief at 210°F, and pressure relief at 150 psi. Apollo Valves, Watts, Cash, Zurn, or approved equal.

2.14 Water Hammer Arrestors: Provide bellows type water hammer arrestors, stainless steel casing and bellows, pressure rated for 250 psi, tested and certified in accordance with PDI Standard WH-201 and ASSE 1010. Precision Plumbing Products, Josam, Zurn, Amtrol,



Wade, Jay R. Smith, or approved equal.

- 2.15 Trap Primers: Provide brass trap primers and distribution units to seal floor drains indicated on drawings. Trap primer valves shall be automatic, self-contained type with no springs or diaphragms and shall not require adjustment. Trap primer valves shall be the type that can be installed anywhere on cold water piping. Distribution units shall supply 1-4 floor drains. Trap primer valves shall comply with ASSE 1018. Wade 4402-NL-DU/IPS, Precision Plumbing Products PR-500, or approved equal. Where P-trap primers are indicated use Wade 4401, "Prime-Eze" by Jay R. Smith, or approved equal.
- 2.16 Access Doors: Provide access doors to service all valves and other devices as required in accordance with Division 22 Common Work Results for Plumbing section "Access Doors".

### PART 3 - EXECUTION

- 3.1 General: Examine areas and conditions under which potable water systems are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.
- 3.2 Install plumbing identification in accordance with Division 22 Common Work Results for Plumbing section "Plumbing Identification". Install underground plastic pipe markers during backfill, 6"-8" below grade.
- 3.3 Installation of Domestic Water Piping:
- A. General: Install pipes and pipe fittings in accordance with recognized industry practices which will achieve permanently-leakproof piping systems, capable of performing each indicated service without piping failure. Install each run with minimum joints and couplings, but with adequate and accessible unions for disassembly and maintenance or replacement of valves and equipment.
  - B. Comply with ANSI B31 Code for Pressure Piping.
  - C. Locate piping runs, except as otherwise indicated, vertically and horizontally (pitched to drain) and avoid diagonal runs wherever possible. Orient horizontal runs parallel with walls and column lines. Locate runs as shown or described by diagrams, details and notations or, if not otherwise indicated, run piping in shortest route which does not obstruct usable space or block access for servicing building and its equipment. Hold piping close to walls, overhead construction, columns and other structural and permanent-enclosure elements of building; limit clearance to 1/2" where furring is shown

for enclosure or concealment of piping, but allow for insulation thickness, if any. Where possible, locate insulated piping for 1" clearance outside insulation.

- D. Concealed Piping: Unless specifically noted as "Exposed" on the drawings, conceal piping from view in finished and occupied spaces, by locating in column enclosures, chases, in hollow wall construction or above suspended ceilings; do not encase horizontal runs in solid partitions, except as indicated.
  - E. Exterior Piping: Install exterior water piping in compliance with local governing regulations. Water piping shall be installed with a minimum 30 inches of cover unless otherwise indicated.
  - F. Electrical Equipment Spaces: Do not run piping through transformer vaults and other electrical, communications, or data equipment spaces and enclosures unless shown. Install drip pan under piping that must run through electrical spaces.
  - G. Cut pipe from measurements taken at the site, not from drawings. Keep pipes free of contact with building construction and installed work.
  - H. Install eccentric reducers where pipe is reduced in size in direction of flow, with tops of both pipes and reducer flush. Do not use bushings.
  - I. Install piping with 1/32" per foot (1/4%) upward slope in direction of flow, or as indicated on the drawings. The intent is to install piping sloped to drains at low points in the system for a drainable system.
  - J. Connect branch-feed piping to mains at horizontal center line of mains, connect run-out piping to branches at horizontal center line of branches.
  - K. Locate groups of pipes parallel to each other, spaced to permit applying full insulation and servicing of valves.
  - L. Install piping to allow for expansion and contraction.
  - M. Isolate all copper tubing from steel and concrete by wrapping the pipe at the contact point, and for one inch on each side, with a continuous plastic sleeve. Isolate all copper tubing installed in block walls with a continuous plastic sleeve.
- 3.4 Installation of Piping System Joints: Provide joints of the type indicated in each piping system.
- A. Solder copper tube-and-fitting joints where indicated, in accordance with recognized industry practice. Cut tube ends squarely, ream to full inside diameter, and clean outside of tube ends and inside of fittings. Apply ASTM B13, water-flushable / non-acid type solder flux to joint areas of both tubes and fittings. Insert tube full depth into fitting, and

solder in manner which will draw solder full depth and circumference of joint according to ASTM B828 or Copper Tube Handbook by CDA. Wipe excess solder from joint before it hardens.

- 3.5 Install hangers and supports in accordance with Division 22 Common Work Results for Plumbing section "Hangers and Supports".
- 3.6 Install valves in accordance with Division 22 Common Work Results for Plumbing section "Valves".
- A. Sectional Valves: Install on each branch and riser, close to main, where branch or riser serves two or more plumbing fixtures or equipment connections, and elsewhere as indicated.
  - B. Shutoff Valves: Install on inlet of each plumbing equipment item, and on inlet of each plumbing fixture, and elsewhere as indicated.
  - C. Drain Valves: Install on each plumbing equipment item located to completely drain equipment for service or repair. Install at base of each riser, at base of each rise or drop in piping system, and elsewhere where indicated or required to completely drain domestic water piping system.
  - D. Check Valves: Install on discharge side of each pump, and elsewhere as indicated.
- 3.7 Balancing Valves: Install balancing valves on discharge of each plumbing pump, in each hot water recirculating loop, and elsewhere as indicated. Install with readout valves in vertical upright position. Maintain minimum length of straight unrestricted piping equivalent to three pipe diameters upstream of valve.
- 3.8 Dielectric Unions: Install at each piping joint between ferrous and non-ferrous piping. Comply with manufacturer's installation instructions.
- 3.9 Y-Type Strainers: Install Y-type strainers full size of pipeline, in accordance with manufacturer's installation instructions. Install pipe nipple and shutoff valve in strainer blowdown connection, full size of connection. Where indicated, provide drain line from shutoff valve to plumbing drain, full size of blowdown connection.
- Locate Y-type strainers in supply line ahead of the following equipment, and elsewhere as indicated, if integral strainer is not included in equipment: pumps, pressure reducing valves, and temperature or pressure regulating valves.
- 3.10 Hose Bibbs and Wall Hydrants: Install on concealed piping where indicated with vacuum breaker. Mount 18 inches above grade or finished floor.

3.11 Meters and Gauges: Install in accordance with Division 22 Common Work Results for Plumbing section "Meters and Gauges".

Relief Valves: Install on each water heater, and where indicated in accordance with the manufacturer's instructions. Pipe full size outside or to floor drain. Cut the end of the pipe at a 45° angle and terminate 6 inches above the floor or grade.

3.13 Piping Run-outs to Fixtures: Provide hot and cold water piping run-outs to fixtures of sizes indicated, but in no case smaller than required by Uniform Plumbing Code.

3.14 Water Hammer Arrestors: Install in upright position, in locations and of sizes indicated in accordance with PDI Standard WH-201.

3.15 Air Chambers: Install at each fixture (or group of fixtures if the farthest fixture is within 6 feet of an air chamber). Air chambers shall be 20 pipe diameters long, but in no case less than 12 inches long.

3.16 Trap Primers: Install as indicated, and in accordance with manufacturer's installation instructions. Provide access panels to all trap primers unless accessible through a lay-in ceiling.

3.17 Access Doors: Locate and coordinate installation of access doors for all valves and devices in accordance with Division 22 Common Work Results for Plumbing section "Access Doors".

3.18 Piping Tests: Test, clean, and sterilize domestic water piping in accordance with requirements of Division 22 Common Work Results for Plumbing section "Testing, Cleaning, and Sterilization for Plumbing Piping".

END OF SECTION

SECTION 221316 – SANITARY WASTE AND VENT PIPING

PART 1 - GENERAL

1.1 Related Documents:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to this section.
- B. Division 22 Common Work Results for Plumbing sections apply to work of this section.
- C. Extent of sanitary waste and vent piping work is indicated on drawings and schedules, and by requirements of this section.
- D. Refer to appropriate Division 2 sections for exterior sanitary sewer piping (not work of this section unless noted).
- E. Refer to other Division 22 sections for insulation of sanitary waste piping (not work of this section).
- F. Refer to other Division 22 sections for excavation and backfill required in conjunction with sanitary waste piping.

1.2 Codes and Standards: Comply with applicable portions of Uniform Plumbing Code pertaining to selection and installation of plumbing materials and products. Comply with local utility requirements.

1.3 Approval Submittals:

- A. Product Data: Submit manufacturer's product data for:
  - 1. Cleanouts.
  - 2. Floor drains.
  - 3. Floor sinks.
  - 4. Trap seal protection.

1.4 O&M Data Submittals: Submit a copy of all approval submittals. Submit maintenance data and parts list for oil separators and backwater valves. Include in O&M Manual.

PART 2 - PRODUCTS

2.1 General: Provide piping materials and factory-fabricated piping products of sizes, types,

pressure ratings, and capacities as indicated. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements. Provide sizes and types matching piping and equipment connections; provide fittings of materials which match pipe materials used in sanitary waste systems. Where more than one type of materials or products is indicated, selection is Installer's option.

- 2.2 Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following listed for each item.
- 2.3 Basic Identification: Provide identification complying with Division 22 Common Work Results for Plumbing section "Plumbing Identification."
- 2.4 Underground-Type Plastic Line Marker: Manufacturer's standard permanent, bright-colored, continuous-printed plastic tape, intended for direct-burial service, not less than 6" wide x 4 mils thick. Provide green tape with black printing reading "CAUTION SEWER LINE BURIED BELOW".
- 2.5 Basic Pipes and Pipe Fittings: Provide pipes and pipe fittings in accordance with the following listing:
- A. Above Ground Sanitary Waste and Vent Piping:
1. ASTM B306 copper tube, Type DWV with ANSI B16.29 cast-bronze fittings, drainage pattern, 50-50 soldered joints. Use for waste arms only. Connections to tapped cast iron fittings shall be made with C X MPT DWV soil pipe adapters. Connections to hub-cast iron fittings shall be made with C X SPIGOT DWV soil pipe adapters. Connections to no hub cast-iron fittings shall be made with C X NO HUB DWV soil pipe adapters.
  2. ASTM A74 coated cast-iron hub-and-spigot soil pipe, service weight, with cast-iron hub-and-spigot soil pipe fittings, lead and oakum joints. Use for branch piping serving floor drains only where specified on the drawings.
  3. ASTM A74 coated cast-iron hub-and-spigot soil pipe with cast-iron hub-and-spigot soil pipe fittings, ASTM C564 neoprene compression gasket joints. Use for branch piping serving floor drains only where specified on the drawings.
  4. FS WW-P-401 coated hubless cast-iron soil pipe, service weight, with hubless cast-iron soil pipe fittings, hubless joints. Hubless cast-iron soil pipe fittings shall be two-piece cast iron with stainless steel bolts and nuts (MG Coupling or equal) or neoprene gasket complying with ASTM C564 and stainless steel holding band. Use for branch piping serving floor drains only where specified on the drawings.
  5. ASTM D2665 Schedule 40 polyvinyl chloride plastic pipe (PVC), Type DWV, with

PVC plastic type DWV socket-type fittings, solvent cement joints. Do not use in fire-rated assemblies or return air plenums.

6. ASTM F441 Schedule 40 chlorinated polyvinyl chloride plastic pipe (CPVC), Type DWV, with CPVC plastic type DWV socket-type fittings, solvent cement joints. Do not use in fire-rated assemblies or return air plenums. Provide for the first 25-ft of grease waste piping from each plumbing fixture.
7. ASME A112.3.1 stainless steel drainage systems, Type 304 or Type 316L, with DWV fittings, push-fit joints. Use for grease waste drainage systems where specified on the drawings.

B. Underground Building Drain Piping (within 5 feet of the building):

1. ASTM A74 coated cast-iron hub-and-spigot soil pipe, service weight, with cast-iron hub-and-spigot soil pipe fittings, lead and oakum joints Use for branch piping serving floor drains only where specified on the drawings.
2. ASTM A74 coated cast-iron hub-and-spigot soil pipe with cast-iron hub-and-spigot soil pipe fittings, ASTM C564 neoprene compression gasket joints Use for branch piping serving floor drains only where specified on the drawings.
3. ASTM D2665 Schedule 40 polyvinyl chloride plastic pipe (PVC), Type DWV, with PVC plastic type DWV socket-type fittings, compression gasket joints.
4. ASTM F441 Schedule 40 chlorinated polyvinyl chloride plastic pipe (CPVC), Type DWV, with CPVC plastic type DWV socket-type fittings, solvent cement joints. Do not use in fire-rated assemblies or return air plenums. Provide for the first 25-ft of grease waste piping from each plumbing fixture.
5. ASME A112.3.1 stainless steel drainage systems, Type 316L, with DWV fittings, push-fit joints. Use for grease waste drainage systems where specified on the drawings.

C. Site Sanitary Piping (over 5 feet from the building):

1. ASTM A74 coated cast-iron hub-and-spigot soil pipe, service weight, with cast-iron hub-and-spigot soil pipe fittings, lead-oakum joints or compression gasket joints.
2. ASTM D3034 polyvinyl chloride sewer pipe (PVC), standard weight, with PVC sewer pipe fittings and elastomeric joints.
3. ASME A112.3.1 stainless steel drainage systems, Type 304 or Type 316L, with DWV fittings, push-fit joints. Use for grease waste drainage systems where specified on the drawings.

- 2.6 Pipe Sleeves and Seals: Provide pipe sleeves and seals complying with Division 22 Common Work Results for Plumbing section "Sleeves and Sleeve Seals".
- 2.7 Basic Hangers and Supports: Provide supports and anchors complying with Division 22 Common Work Results for Plumbing section "Hangers and Supports".
- 2.8 Cleanouts: Provide factory-fabricated drainage piping products of sizes and type indicated. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements and governing regulations. Josam, Jay R. Smith, Wade, Zurn.
- A. Cleanout Plugs: Cast-bronze or brass, threads complying with ANSI B2.1 countersunk head.
- B. Cleanouts for Cast-Iron Piping Systems:
1. Floor Cleanouts: Cast-iron body with adjustable head, brass plug, and scoriated nickel-brass cover. Furnish with carpet marker or carpet flange style (as recommended by Architect) for carpeted floors. Furnish with recessed cover for tile floors. Furnish with clamping ring for floors with waterproof membrane. Wade W-6000 spigot outlet for Ty-Seal hub, W-6000 inside caulk, or W-6000 hub outlet for push-on as required.
  2. Cleanouts in Piping: Cast-iron cleanout ferrule with threaded brass countersunk plug for caulked piping, Wade W-8550-D. For no-hub piping, furnish no-hub ferrule with W-8590-D threaded brass countersunk plug.
  3. Wall Cleanouts: Cast-iron ferrule with tapped, countersunk, threaded brass plug and round stainless steel access cover with screw. Wade W-8550-R for caulked joints. No-hub ferrule, Wade-8590-E plug, and Wade W-8304 cover for no-hub joints.
  4. Grade Cleanouts: Cast-iron cleanout ferrule with threaded brass countersunk plug. Wade W-8550-D. In sidewalks and other finished concrete, provide access cover frames with a non-tilting tractor cover. Wade W-8401-12-COF or equal.
  5. Cleanouts in Paved Areas: Cast iron body, adjustable housing, ferrule with plug and round loose scoriated tractor cover. Wade W-8401. Coordinate concrete depth at site with adjustable flange.
- C. Cleanout for PVC Systems:
1. Floor Cleanouts: Cast-iron body with adjustable head, brass plug, and scoriated nick-brass cover. Furnish with carpet marker or flange style for carpeted floors as recommended by Architect. Furnish with recessed cover for tile floors. Furnish



with clamping ring for floors with membrane. Wade W-6000 hub outlet for push-on.

2. Cleanouts in Piping: PVC cleanout adaptor with threaded PVC plug.
3. Wall Cleanouts: PVC cleanout adaptor with tapped, countersunk, threaded brass plug and round stainless steel access cover with screw. Wade W-8304-COF-RHP-75.
4. Grade Cleanouts: PVC cleanout adaptor with countersunk, threaded brass plug. Wade W-8590-D plug. In sidewalks and other finished concrete, provide access cover frames with a non-tilting tractor cover. Wade W-8401-COF or equal.
5. Cleanouts in Paved Areas: Cast iron body, adjustable housing, ferrule with plug and round loose scoriated tractor cover. Wade W-8401. Coordinate concrete depth at site with adjustable flange.

2.9 Floor Drains: Provide floor drains of size as indicated on drawings and type, including features, as specified herein. Floor drains shall conform to ASME A112.3.1 or ASME A112.6.3. Josam, Jay R. Smith, Wade, Zurn.

- A. Floor Drains: Provide inside caulk bottom outlet or TY-Seal hub outlet with adaptor for cast iron trap installation and a 4" deep trap seal. Provide clamping rings for floors with membrane.
- B. Strainer: Provide 5" satin-nickel bronze strainer.
- C. Trap Seals: Provide trap seal protection in accordance with ASSE 1072, similar to Wade Series 4405.
- D. Trap Primer Connection: Provide 1/2" trap primer tapping.
- E. Funnel: Provide funnel where shown on the drawings.
- F. Basis of Design: Wade Series 1100.
- G. Flushing Rim Type: Provide flushing rim floor drain with acid resistance enamel interior, flushing connection, and vandal-proof, satin-nickel bronze grate with perforated strainer. Basis of design: Wade W-9300.

Floor Sinks: Provide floor sinks of size and type as indicated on drawings and in compliance with ASME A112.6.7. Josam, Jay R. Smith, Wade, Zurn.

Grease Interceptors: Provide horizontal, atmospheric grease interceptors designed for

intermittent variable flows of kitchen grease waste. The interceptor shall be suitable for outdoor above-grade or below-grade installations. Interceptor shall be built in accordance with ASME A112.14.3. Provide the following features:

- A. Field-cut riser system.
- B. Built-in flow control and test / sealing caps.
- C. Access covers with water / gas tight seal.
- D. Vent fittings, pumpout port.
- E. Lifting lugs.
- F. Acceptable Manufacturers: Jay R. Smith, Schier, Wade, or approved equal.

### PART 3 - EXECUTION

3.1 General: Examine substrates and conditions under which sanitary waste and vent systems are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 Install plumbing identification in accordance with Division 22 Common Work Results for Plumbing section "Plumbing Identification".

3.3 Piping Installation:

A. General:

- 1. Install above-grade sanitary waste and vent piping in accordance with Uniform Plumbing Code and recognized industry practices which will achieve permanently-leakproof piping systems, capable of performing each indicated service without piping failure. Install each run with minimum joints and couplings.
- 2. Install underground sanitary waste piping as indicated and in accordance with Uniform Plumbing Code. Lay underground piping beginning at low point of systems, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install required gaskets in accordance with manufacturer's recommendations for use of lubricants, cements, and other special installation requirements. Clean interior of piping of dirt and other superfluous material as work progresses. Maintain swab or drag in line and pull past each joint as it is completed. Place plugs in ends of uncompleted piping at end of day or whenever work stops.

3. Install building sanitary waste and vent piping pitched to drain at minimum slope of 1/4" per foot (2%) for piping 3" and smaller, and 1/8" per foot (1%) for piping 4" and larger.
  4. Locate piping runs, except as otherwise indicated, vertically and horizontally (pitched to drain) and avoid diagonal runs wherever possible. Orient horizontal runs parallel with walls and column lines. Locate runs as shown or described by diagrams, details and notations or, if not otherwise indicated, run piping in shortest route which does not obstruct usable space or block access for servicing building and its equipment. Hold piping close to walls, overhead construction, columns and other structural and permanent-enclosure elements of building; limit clearance to 1/2" where furring is shown for enclosure or concealment of piping, but allow for insulation thickness, if any. Where possible, locate insulated piping for 1" clearance outside insulation.
- B. Underground Piping: Provide plastic tape markers over all underground piping. Provide copper wire over all underground plastic piping. Locate markers 18" above piping.
  - C. Concealed Piping: Unless specifically noted as "Exposed" on the drawings, conceal piping from view in finished and occupied spaces, by locating in column enclosures, chases, in hollow wall construction or above suspended ceilings; do not encase horizontal runs in solid partitions, except as indicated.
  - D. Electrical Equipment Spaces: Do not run piping through transformer vaults and other electrical, communications, or data equipment spaces and enclosures unless shown. Install drip pan under piping that must run through electrical spaces.
  - E. Cut pipe from measurements taken at the site, not from drawings. Keep pipes free of contact with building construction and installed work.
  - F. Install eccentric reducers where pipe is reduced in size in direction of flow, with tops of both pipes and reducer flush. Do not use bushings.
  - G. Connect branch-feed piping to mains at horizontal center line of mains, connect run-out piping to branches at horizontal center line of branches.
- 3.4 Installation of Piping System Joints: Provide joints of the type indicated in each piping system.
- A. Solder copper tube-and-fitting joints where indicated, in accordance with recognized industry practice. Cut tube ends squarely, ream to full inside diameter, and clean outside of tube ends and inside of fittings. Apply non-acid type solder flux to joint areas of both tubes and fittings. Insert tube full depth into fitting, and solder in manner which will draw solder full depth and circumference of joint. Wipe excess solder from joint before it hardens.

- B. Plastic Pipe Joints: Comply with manufacturer's instructions and recommendations, and with applicable industry standards.
    - 1. Solvent-cemented joints shall be made in accordance with ASTM D2235 and ASTM F402.
    - 2. PVC sewer pipe bell/gasket joints shall be installed in accordance with ASTM D2321.
  
  - C. Cast-Iron Joints: Tightly pack joint with joint packing material. Do not permit packing to enter bore of finished joint. Clean joint after packing. Fill remaining joint space with one pouring of lead to indicated minimum depth measured from face of bell. After lead has cooled, calk joint tightly by use of hammer and calking iron. If using compression joints, comply with manufacturer's installation instruction using gaskets and lubricant furnished specifically for this duty.
    - 1. Hubless Cast-Iron Joints: Comply with coupling manufacturer's installation instructions.
  
  - D. Stainless Steel Pipe Joints: Comply with manufacturer's instructions and recommendations, and with applicable industry standards.
- 3.5 Install pipe sleeves and seals in accordance with Division 22 Common Work Results for Plumbing section "Sleeves and Sleeve Seals".
- 3.6 Install hangers and supports in accordance with Division 22 Common Work Results for Plumbing section "Hangers and Supports".
- 3.7 Installation of Cleanouts: Install in above ground piping and building drain piping as indicated, as required by Uniform Plumbing Code, and at each change in direction of piping greater than 45°, at minimum intervals of 50' for piping 4" and smaller and 100' for larger piping, and at base of each vertical waste stack. Install floor and wall cleanout covers for concealed piping, select type to match adjacent building finish.
- A. Size: Cleanouts shall be full size up to 4". Piping over 4" shall have a reducing fitting to accommodate a 4" cleanout unless indicated otherwise on drawings.
  - B. Install cleanouts to allow adequate clearance for rodding.
  - C. Protect all finished surfaces of cleanouts with a suitable adhesive covering until construction is completed.

- D. Locate wall cleanouts to the side of water closets with a minimum clearance of 6" from the rough-in of the water closets, and between 30" and 42" above finished floor.
  - E. Cleanouts to Grade: Provide an 18" x 18" x 8" thick concrete pad around the cleanout. Set the cleanout ferrule, adapter, or access cover frame in the concrete as required. The cleanout shall be extended to the finished grade. The concrete pad shall slope away from the cleanout in all directions approximately one inch. Cover pad with fill to finished grade.
  - F. Cleanouts in Paved Areas: Provide concrete pad similar to cleanout to grade and coordinate concrete depth at site with adjustable flange. Access cover frames are required.
- 3.8 Flashing Flanges: Install flashing flange and clamping device with each stack and cleanout passing through waterproof membranes.
- 3.9 Vent Flashing Sleeves: Install on stack passing through roof, secure to stack flashing in accordance with manufacturer's instructions. For metal roofs, sleeves and flashing are by Division 7.
- 3.10 Installation of Floor Drains: Install floor drains in accordance with manufacturer's written instructions and in locations indicated.
- A. Coordinate flashing work with work of waterproofing and adjoining substrate work.
  - B. Install floor drains at low points of surface areas to be drained, or as indicated. Set tops of drains flush with finished floor.
  - C. Install drain flashing collar or flange so that no leakage occurs between drain and adjoining flooring. Maintain integrity of waterproof membranes, where penetrated.
  - D. Position drains so that they are accessible and easy to maintain.
- 3.11 Trap Seal Protection: Install trap seals in accordance with manufacturer's instructions.
- 3.12 Connection of Trap Primers: Connect trap primers as indicated, and in accordance with manufacturer's installation instructions. Pitch piping towards drain trap, minimum of 1/8" per foot (1%). Adjust trap primer for proper flow.

Installation of Floor Sinks: Install floor sinks in accordance with manufacturer's written instructions and in locations indicated. Coordinate flashing work with work of waterproofing and

adjoining substrate work. Position floor sinks so that they are accessible and easy to maintain.

Piping Tests: Test, clean, and sterilize sanitary waste piping in accordance with requirements of Division 22 Common Work Results for Plumbing section "Testing, Cleaning, and Sterilization for Plumbing Piping".

END OF SECTION

SECTION 224000 – PLUMBING FIXTURES

PART 1 - GENERAL

1.1 Related Documents:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to this section.
- B. Division 22 Common Work Results for Plumbing sections apply to work of this section.
- C. Extent of plumbing fixtures work is indicated on drawings and schedules, and by requirements of this section.
- D. Refer to other Division 26 sections for field-installed electrical wiring required for plumbing fixtures (not work of this section).

1.2 Codes and Standards:

- A. Plumbing Fixture Standards: Comply with applicable portions of Uniform Plumbing Code pertaining to materials and installation of plumbing fixtures.
- B. ANSI Standards: Comply with applicable ANSI standards pertaining to plumbing fixtures and systems.
- C. PDI Compliance: Comply with standards established by PDI pertaining to plumbing fixture supports.
- D. UL Listing: Construct plumbing fixtures requiring electrical power in accordance with UL standards and provide UL-listing and label.
- E. AHRI Compliance: Construct and install water coolers in accordance with AHRI Standard 1010 "Self-Contained, Mechanically-Refrigerated Drinking-Water Coolers", and provide Certification Symbol.
- F. ANSI Compliance: Construct and install barrier-free plumbing fixtures in accordance with ANSI Standard A117.1 "Accessible and Usable Buildings and Facilities".
- G. NSF Compliance: Faucets and fixture fittings that supply drinking water for human ingestion shall conform to the requirements of NSF 61, Section 9.

1.3 Approval Submittals:

- A. Product Data: Submit manufacturer's technical product data, including rated capacities of selected model clearly indicated, furnished specialties and accessories, and

installation instructions. Submit manufacturer's assembly-type drawings indicating dimensions, rough-in requirements, required clearances, and methods of assembly of components and anchorages. The submittal shall be organized by "fixture number" and each fixture package shall be identified. Each fixture package shall include all of the required fittings and trim, even if such devices are used for more than one fixture.

- 1.4 O&M Data Submittals: Submit a copy of all approval submittals. Submit maintenance data and parts list for each type of plumbing fixture and accessory, including troubleshooting maintenance guide. Include in O&M Manual.
- 1.5 Handle all plumbing fixtures carefully to prevent breakage, chipping, and scoring fixture finish. Do not install damaged plumbing fixtures; replace and return damaged units to equipment manufacturer.

## PART 2 - PRODUCTS

- 2.1 General: Provide factory-fabricated fixtures of type, style, and material indicated. For each type fixture, provide trim, carrier, seats, and valves as specified. Where not specified, provide products as recommended by manufacturer, and as required for complete installation. Where more than one type is indicated, selection is Installer's option; however, all fixtures of same type must be furnished by single manufacturer. Where type is not otherwise indicated, provide fixtures complying with governing regulations.
- 2.2 Model Numbers: Basis of design model numbers of a particular manufacturer are listed in the fixture schedule as an aid to contractors. Where conflicts between the model number and the written description occur, the written description shall govern. Where acceptable manufacturers are listed, products are subject to compliance with requirements.
- 2.3 Materials:
- A. Provide materials which have been selected for their surface flatness and smoothness. Exposed surfaces which exhibit pitting seam marks, roller marks, foundry sand holes, stains, de-coloration, or other surface imperfections on finished units are not acceptable.
  - B. All fixtures shall be white vitreous china unless otherwise specifically noted. Where enameled iron fixtures are specified, they shall be furnished with acid resisting enamel.
  - C. Where fittings, trim, and accessories are exposed or semi-exposed, provide bright chrome-plated or polished stainless steel units. Provide copper or brass where not exposed.



- D. Stainless Steel Sheets: ASTM A167, Type 302/304, hardest workable temper. Finish shall be No. 4, bright, directional polish on exposed surfaces.
- E. Vitreous China: High quality, free from fire cracks, spots, blisters, pinholes and specks; glaze exposed surfaces, and test for crazing resistance in accordance with ASTM C554.
- F. Synthetic Stone: High quality, free from defects, glaze on exposed surfaces, stain resistant.

2.4 Plumbing Fittings, Trim and Accessories:

- A. General: Faucets and fixture fittings shall conform to ASME A112.18.1.
- B. Faucets: At locations where water is supplied (by manual, automatic, or remote control), provide commercial quality chrome-plated, cast-brass faucets, valves, or other dispensing devices, of type and size indicated, and as required to operate as indicated.
  - 1. Automatic Faucets: Provide electronic sensor-operated faucets with 0.5 gpm vandal-resistant spray head. Set volume adjustment at 0.25 gallons per operation. When using hard-wired faucets, provide a box-mounted, hard-wired transformer (120 VAC primary - 24 VAC secondary) with each faucet. All wiring and electrical connections shall be provided by Division 26.
  - 2. Aerators: Provide aerators of types approved by Health Department having jurisdiction.
  - 3. Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item: American Standard, Chicago Faucet Co., Symmons, Kohler Co., Speakman Co., TOTO USA, T & S Brass and Bronze Works, Water Saver Faucet Co.
- C. Stops: Provide chrome-plated brass, angle type, manual shutoff valves and d" chrome-plated flexible supply pipes to permit fixture servicing without shutdown of water supply piping systems for all fixtures. Coordinate with fixture requirements.
  - 1. Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item: McGuire, or approved equal.
- D. Waste Outlets: Provide removable P-traps, drains, waste arms, tailpieces, and wastes-to-wall where drains are indicated for direct connection to drainage system for all fixtures unless otherwise noted. Provide drains, tailpieces, and waste arms where indirect drains are indicated. Waste outlets shall be full size of fixture drain connection.
  - 1. Provide chrome-plated cast-brass P-traps and drains with cleanout.

2. P-traps, wastes, and drains of all types shall be 17-gauge.
  3. Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item: McGuire, or approved equal.
- E. Carriers: Provide cast-iron supports for fixtures of either graphitic gray iron, ductile iron, or malleable iron or steel as indicated. Coordinate with specific fixture requirements and conditions of the project.
1. Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item: Josam, Wade, Zurn, J.R. Smith.
- F. Fixture Bolt Caps: Provide manufacturer's standard exposed fixture bolt caps finished to match fixture finish.
- G. Escutcheons: Where fixture supplies and drains penetrate walls in exposed locations, provide chrome-plated brass sheet steel escutcheons with friction clips.
- H. Comply with additional fixture requirements listed for each fixture and as required for a complete and functional system.
- 2.5 Water Closets:
- A. General: Provide white china siphon jet type unless otherwise noted, and in compliance with ASME A112.19.2 or ASME A112.19.3.
1. Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item: American Standard, Kohler, TOTO.
- B. Fixture Seats: Provide white, heavy molded plastic fixture seats with stainless steel self-sustaining check hinges.
1. Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item: Bemis Mfg. Co., Beneke Corp., Church, Sperzel, Olsonite, TOTO.
- 2.6 Lavatories:
- A. General: Provide white china lavatories in compliance with ASME A112.19.1, ASME A112.19.2, or ASME A112.19.3.
- B. Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item: American Standard, Kohler, TOTO.

2.7 Stainless Steel Sinks:

- A. General: Provide Type 302, 18 gauge self-rimming stainless steel back ledge with No. 4 finish. Provide sound deadening material on the sides and bottom of the sink. Provide grid drain or strainer with removable crumb cup and stopper as indicated. Sinks shall conform to ASME A112.19.1, ASME A112.19.2, or ASME A112.19.3.
- B. Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item: Elkay, Franke, Just.

2.8 Showers: Provide prefabricated showers and shower compartments in compliance with ASME A112.19.2.

PART 3 - EXECUTION

3.1 General:

- A. Examine rough-in work of potable water and waste piping systems to verify actual locations of piping connections prior to installing fixtures. Also examine floors and substrates, and conditions under which fixture work is to be accomplished. Correct any incorrect locations of piping, and other unsatisfactory conditions for installation of plumbing fixtures. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.
- B. Install plumbing fixtures of types indicated where shown and at indicated heights. Install in accordance with fixture manufacturer's written instructions, rough-in drawings, and with recognized industry practices. Install in accordance with ADA and applicable accessible code requirements. Ensure that plumbing fixtures comply with requirements and serve intended purposes. Comply with applicable requirements of Uniform Plumbing Code pertaining to installation of plumbing fixtures. Furnish templates for cut-outs in countertops. Coordinate exact fixture locations with countertop shop drawings.
- C. Fasten plumbing fixtures securely to indicated supports or building structure, and ensure that fixtures are level and plumb. Secure plumbing supplies behind or within wall construction so as to be rigid, and not subject to pull or push movement. Mount at heights shown on the drawings. Fixture heights are floor-to-rim distance. Fitting heights are to centerline.
- D. Install stop valve in water supply to each fixture.
- E. After fixtures are set, the crack between the fixture and wall shall be caulked with DAP silicone-based caulking, or approved equal.
- F. Protect installed fixtures from damage during remainder of construction period.

- G. Upon completion of installation of plumbing fixtures and after units are water pressurized, test fixtures to demonstrate capability and compliance with requirements. When possible, correct malfunctioning units at site, then retest to demonstrate compliance; otherwise, remove and replace with new units and proceed with retesting.
- H. Inspect each installed unit for damage to finish. If feasible, restore and match finish to original at site; otherwise, remove fixture and replace with new unit. Feasibility and match to be judged by Architect/Engineer. Remove cracked or dented units and replace with new units.
- I. Clean plumbing fixtures, trim, aerators, and strainers of dirt and debris upon completion of installation.
- J. Adjust water pressure at drinking fountains, faucets, shower valves, and flush valves to provide proper flow stream and specified gpm.
- K. Adjust or replace washers to prevent leaks at faucets and stops.

END OF SECTION

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**SECTION 23 34 00**  
**HVLS Fans**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. Section Includes
  - 1. The ceiling-mounted circulation fan is the model scheduled with the capacities indicated. The fan shall be furnished with standard mounting hardware and variable speed control to provide cooling and destratification.
- B. Summary of Work
  - 1. Installation of the fan, miscellaneous or structural metal work (if required), field electrical wiring, cable, conduit, fuses and disconnect switches, other than those addressed in the installation scope of work, shall be provided by others. Factory installation services are available through Big Ass Fans. Consult the appropriate installation scope of work for information on the available factory installation options, overview of customer and installer responsibilities, and details on installation site requirements.

**1.2 RELATED SECTIONS**

- A. 21 00 00 Fire Suppression
- B. 23 00 00 Heating, Ventilating, and Air Conditioning (HVAC)
- C. 26 00 00 Electrical

**1.3 REFERENCES**

- A. National Fire Protection Association (NFPA)
- B. Underwriters Laboratories (UL)
- C. Canadian Standards Association (CSA)
- D. National Electrical Code (NEC)
- E. International Organization for Standardization (ISO)
- F. Air Movement and Control Association Inc. (AMCA)
  - 1. AMCA Publication 211-13 - Certified Ratings Program - Product Rating Manual for Fan Air Performance
  - 2. AMCA 230-15 - Standard Laboratory Methods of Testing Air Circulating Fans for Rating and Certification
- G. American National Standards Institute (ANSI)
- H. Nationally Recognized Testing Laboratory (NRTL)
- I. European Community (CE)
- J. UK Conformity Assessed (UKCA)

**1.4 SUBMITTALS**

- A. Shop Drawings: Drawings detailing product dimensions, weight, and attachment methods
- B. Product Data: Specification sheets on the ceiling-mounted fan, specifying electrical and installation requirements, features and benefits, and controller information
- C. Revit Files: Files provided for architectural design
- D. IES Files (fans with optional light kit)
- E. Installation Guide: The manufacturer shall furnish a copy of all operating and maintenance instructions for the fan. All information is subject to change without notice.
- F. Schedule
- G. Provide manufacturer's certification that high volume, low speed fans are licensed to bear the Air Movement and Control Association (AMCA) Certified Rating Seal for Circulating Fan Performance.

**1.5 QUALITY ASSURANCE**

- A. Certifications
  - 1. The fan assembly, as a system (without light kit), shall be Nationally Recognized Testing Laboratory (NRTL)-certified and built pursuant to the guidelines set forth by UL standard 507 and CSA standards 22.2 No. 60335-1 and 22.2 No. 113.
  - 2. The fan assembly, as a system (without light kit), shall be CE- and UKCA-compliant.
  - 3. The fan (without light kit) shall be compliant with NFPA 13—Standard for the Installation of Sprinkler Systems, NFPA 72—National Fire Alarm and Signaling Code, and NFPA 70—NEC.
  - 4. Controllers shall comply with NEC and UL standards and shall be labeled where required by code.
  - 5. The optional LED light kit shall be compliant with UL standard 1598 and CSA standard 22.2 No. 250.
  - 6. Performance ratings (airflow and power) shall conform to AMCA standard 211. Fans must be tested in accordance with ANSI/AMCA Standard 230-15 in an AMCA accredited laboratory. Fans shall be certified to bear the AMCA Seal for Circulating Fan Performance.
- B. Manufacturer Qualifications
  - 1. The fan and any accessories shall be supplied by Big Ass Fans that has a minimum of twenty (20) years of product experience.
  - 2. ISO 9001 compliant

**1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver product in original, undamaged packaging with identification labels intact. The fan shall be new, free from defects, and factory tested.
- B. The fan and its components shall be stored in a safe, dry location until installation.

**1.7 WARRANTY**

- A. The manufacturer shall replace any products or components defective in material or workmanship for the customer free of charge (including transportation charges within the USA, FOB Lexington, KY), pursuant to the complete terms and conditions of the Big Ass Fans Warranty in accordance to the following schedule:

Mechanical <sup>†</sup>	10 years
Electrical <sup>††</sup>	5 years (no factory install <sup>†††</sup> ); 10 years (factory install <sup>††††</sup> )
Labor	1 year

<sup>†</sup>"Mechanical" is defined as mechanical components of the fan, including, the gearbox, fan hub, motor frame, mounting, airfoils, and winglets.

<sup>††</sup>"Electrical" is defined as electrical and electronic components of the fan, including the motor, motor drive, variable frequency drive, and any standard controller or accessories.

<sup>†††</sup>The No Factory Install Warranty Period defined above for "Electrical" applies to proper installations by any other state-qualified or licensed electrical contractor.

<sup>††††</sup>The Factory Install Warranty Period defined above for "Electrical" requires installation to be purchased from Big Ass Fans and performed by a factory-approved, Big Ass Fans Certified Installer.

<sup>†††††</sup>All reasonable costs of repair or replacement will be paid or reimbursed provided customer obtains pre-approval.

<sup>††††††</sup>The Warranty Period for light kits is limited to 1 year (parts).

<sup>†††††††</sup>The Warranty period for any manufacturer defects or flaws to surface finishes is limited to 1 year.

<sup>††††††††</sup>All products are considered for indoor use only unless specifically specified on the product label.

<sup>†††††††††</sup>See the complete warranty for more details.

**PART 2 PRODUCT**

**2.1 MANUFACTURER -BASIS OF DESIGN MANUFACTURER**

- A. Delta T LLC, dba Big Ass Fans, PO Box 11307, Lexington, Kentucky 40575.  
Phone (877) 244-3267. Fax (859) 233-0139. Website: www.bigassfans.com.

**2.2 HIGH VOLUME, LOW SPEED FANS – BIG ASS FANS ESSENCE -8'-0" diameter – BASIS OF DESIGN**

- A. Complete Unit

1. Regulatory Requirements: The entire fan assembly (without light kit) shall be NRTL-certified and built pursuant to the construction guidelines set forth by UL standard 507 and CSA standards 22.2 No. 60335-1 and 22.2 No. 113.
  2. Sustainability Characteristics: The fan shall be designed to move an effective amount of air for cooling and destratification of conditioned commercial applications over an extended life. The fan components shall be designed specifically for high volume, low speed fans to ensure lower operational noise. Sound levels from the fan operating at maximum speed measured in a laboratory setting shall not exceed 40 dBA. Actual results of sound measurements in the field may vary due to sound reflective surfaces and environmental conditions.
  3. Good workmanship shall be evident in all aspects of construction. Field balancing of the airfoils shall not be necessary.
  4. High volume, low speed (HVLS) fans shall be licensed to bear the AMCA Certified Rating Seal for Circulating Fan Performance to ensure performance as cataloged in the field. Unlicensed HVLS fans shall not be accepted.
- B. Controls
1. The fan controller shall be incorporated into the fan assembly and housed in an enclosure independent of the motor to prevent overheating or electrical interference. The fan controller shall be factory programmed to minimize starting and braking torques and shall be equipped with a simple diagnostic program and an LED light to identify and relay faults in the system.
- C. Airfoil System
1. The fan shall be equipped with eight (8) high volume, low speed airfoils of precision extruded, anodized aluminum alloy. Each airfoil shall be of the high-performance Mini-Elipto design. The airfoils shall be connected to the hub and interlocked with eight (8) stainless steel retainers and two (2) sets of stainless steel bolts and lock washers per airfoil.
  2. The fan shall be equipped with eight (8) upswept winglets designed to redirect outward airflow downward, thereby enhancing efficiency. The winglets shall be molded of high strength polymer and shall be attached at the tip of each airfoil with a stainless steel screw. The standard color of the winglets shall be silver or black.
  3. As an option, the fan shall be equipped with eight (8) plug-style airfoil tips, molded of high strength polymer, in place of the eight (8) upswept winglets. The airfoil tips shall be attached at the tip of each airfoil with a stainless steel screw. The standard color of the airfoil tips shall be black.
- D. Motor
1. The motor shall be a permanent magnet brushless motor rated for continuous operation at maximum speed with the capability of modulating the fan speed from 0–100% without the use of a gearbox or other mechanical means of control.
  2. The motor shall operate from any voltage ranging from 100–120 VAC or 200–240 VAC, single phase, and 50/60Hz, without requiring adapters or customer selection. The motor shall be a non-ventilated, heat sink design with the capability of continuous operation in -4°F to 131°F (-20°C to 55°C) ambient condition.
  3. The motor shall be rated IP43.
  4. The standard color of the motor unit shall be white with silver trim or silver with black trim.
- E. LED Light Kit (Optional)
1. The fan shall be equipped with a hollow shaft in which electrical wiring can be routed to below the fan.
  2. The LED light kit shall operate independently from the fan at an operating voltage of 120–277 VAC, 50–60 Hz.
  3. The standard color of the LED light kit components shall be white or silver.
  4. As an option, Big Ass Fans can provide a controller to operate the LED light.
  5. The LED light kit shall have a standard LED color temperature and lumen option of one of the following:
    - a. 3,000 CCT (4,800 lumens)
    - b. 4,000 CCT (5,000 lumens)
- F. With UV-C Technology (Optional)
1. The fan shall be equipped with a UV-C light, as specified by the architect or owner.

2. The UV-C light shall be installed on top of the fan motor hub and shall emit UV-C light while the fan is spinning.
  3. For safety, the UV-C light shall only be able to be turned on while the fan is spinning.
  4. The UV-C light kit shall include a UV-C LED light module that shall secure to the fan extension tube with two screws and two set screws. The kit shall also include a driver box that shall be installed near the ceiling for electrical connections.
- G. Mounting System
1. The fan mounting system shall be designed for quick and secure installation from a variety of structural supports. All components in the mounting system shall be of formed metal design using low-carbon steel no less than 3/16" (0.5 cm) thick and containing no critical welds. The mounting system shall be powder coated for appearance and resistance to corrosion. All mounting bolts shall be metric stainless steel or equivalent. No mounting hardware substitutions, including cast aluminum, are acceptable.
  2. The fan extension tube shall be a round, extruded aluminum tube. The extension tube shall include a chrome plate with forward and reverse controls and a fan status indicator light that is visible from the floor.
- H. Hub
1. The fan hub shall be constructed of zinc plated steel for high strength and durability. The hub shall be precision machined to achieve a well-balanced and solid rotating assembly.
- I. Safety Cable
1. The fan shall be equipped with a safety cable that provides an additional means of securing the fan assembly to the building structure. The safety cable shall be  $\varnothing 3/16''$  (0.5 cm) diameter and fabricated out of 7 x 19 stranded galvanized steel, pre-loaded and tested to 3,200 lbf (13,345 N).
  2. Field construction of safety cables is not permitted.
- J. Wall Control
1. Wired (standard). The fan shall be equipped with a low-voltage wired remote wall control providing control of all fan functions. The wall control shall be capable of mounting to a standard electrical box. The wall control shall include a rotary-style dial for controlling the fan's power and speed and an LED light to identify and relay faults in the system. Communication with the fan drive and controller shall be by a standard, commercially available CAT5 (or higher) Ethernet cable that is field installed and provided by the installer.
  2. Wireless (optional). As an option, the fan shall be equipped with a battery-operated radio frequency (RF) remote wall control in place of the wired wall control. The wall control shall include buttons for wirelessly controlling the fan's power and speed and for programming a preferred preset speed. The wall control shall be capable of functioning as a handheld remote control or can be mounted to a wall or other surface. Communication with the fan drive and controller shall be wireless.
- K. Fire Control Panel Integration
1. Includes a 10–30 VDC pilot relay for seamless fire control panel integration. The pilot relay can be wired Normally Open or Normally Closed in the field.
- L. Guy Wires
1. Guy wires shall be included for installations with extension tubes 4 ft (1.2 m) or longer to limit the potential for lateral movement.

## PART 3 EXECUTION

### 3.1 PREPARATION

- A. Fan location shall have a typical bar joist or existing I-beam structure from which to mount the fan. Additional mounting options may be available.
- B. Mounting structure shall be able to support weight and operational torque of fan. Consult structural engineer if necessary.
- C. Fan location shall be free from obstacles such as lights, cables, or other building components.
- D. Check fan location for proper electrical requirements. Consult Installation Guide for appropriate circuit requirements.
- E. Each fan requires dedicated branch circuit protection.



### 3.2 INSTALLATION

- A. The fan shall be installed by a factory-certified installer according to the manufacturer's Installation Guide, which includes acceptable structural dimensions and proper sizing and placement of angle irons for bar joist applications. Big Ass Fans (basis of design manufacturer) recommends consulting a structural engineer for installation methods outside the manufacturer's recommendation and a certification, in the form of a stamped print or letter, submitted prior to installation.
- B. Minimum Distances
  - 1. Airfoils shall be at least 10 ft (3.05 m) above the floor.
  - 2. Installation area shall be free of obstructions such as lights, cables, sprinklers, or other building structures with the airfoils at least 2 ft (0.61 m) clear of all obstructions.
  - 3. The structure the fan is attached to shall be capable of supporting a torque load of up to 40 ft·lb (54 N·m) of torque.
- C. The fan shall not be located where it shall be continuously subjected to wind gusts or in close proximity to the outputs of HVAC systems or radiant heaters. Additional details are in the manufacturer's Installation Manual.
- D. The fan is suitable for use in wet locations when installed on a GFCI protected branch circuit.
- E. The optional LED light kit shall be installed on a separate circuit from the fan and shall be connected to the lighting grid control, not the fan control.
- F. In buildings equipped with sprinklers, including ESFR sprinklers, fan installation shall comply with all of the following:
  - 1. The maximum fan diameter shall be 24 ft (7.3 m).
  - 2. The HVLS fan shall be centered approximately between four adjacent sprinklers.
  - 3. The vertical clearance from the HVLS fan to the sprinkler deflector shall be a minimum of 3 ft (0.9 m).
  - 4. All HVLS fans shall be interlocked to shut down immediately upon receiving a waterflow signal from the alarm system in accordance with the requirements of NFPA 72—National Fire Alarm and Signaling Code.

END OF SECTION

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**SECTION 313116**

**TERMITE CONTROL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. Section Includes:

1. Soil treatment.
2. Wood treatment.
3. Bait-station system.
4. Metal mesh barrier system.

- B. Related Requirements:

1. Section 061000 "Rough Carpentry" for wood preservative treatment by pressure process.
2. Section 076200 "Sheet Metal Flashing and Trim" for custom-fabricated, metal termite shields.

**1.3 ACTION SUBMITTALS**

- A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components, and profiles for termite control products.
2. Include the EPA-Registered Label for termiticide products.

**1.4 INFORMATIONAL SUBMITTALS**

- A. Qualification Data: For qualified Installer.

- B. Product Certificates: For each type of termite control product.

- C. Soil Treatment Application Report: After application of termiticide is completed, submit report for Owner's records and include the following:

1. Date and time of application.
2. Moisture content of soil before application.

3. Termiticide brand name and manufacturer.
  4. Quantity of undiluted termiticide used.
  5. Dilutions, methods, volumes used, and rates of application.
  6. Areas of application.
  7. Water source for application.
- D. Wood Treatment Application Report: After application of termiticide is completed, submit report for Owner's records and include the following:
1. Date and time of application.
  2. Termiticide brand name and manufacturer.
  3. Quantity of undiluted termiticide used.
  4. Dilutions, methods, volumes used, and rates of application.
  5. Areas of application.
- E. Bait-Station System Installation Report: After installation of bait-station system is completed, submit report for Owner's records and include the following:
1. Location of areas and sites conducive to termite feeding and activity.
  2. Plan drawing showing number and locations of bait stations.
  3. Dated report for each monitoring and inspection occurrence, indicating level of termite activity, procedure, and treatment applied before time of Substantial Completion.
  4. Termiticide brand name and manufacturer.
  5. Quantities of termiticide and nontoxic termite bait used.
  6. Schedule of inspections for one year from date of Substantial Completion.
- F. Research/Evaluation Reports: For metal mesh barrier system, from Architect approved manufacturer.
- G. Sample Warranties: For special warranties.

## **1.5 QUALITY ASSURANCE**

- A. Installer Qualifications: A specialist who is licensed according to regulations of authorities having jurisdiction to apply termite control treatment and products in jurisdiction where Project is located and who employs workers trained and approved by manufacturer to install manufacturer's products.

## **1.6 FIELD CONDITIONS**

- A. Soil Treatment:
1. Environmental Limitations: To ensure penetration, do not treat soil that is water saturated or frozen. Do not treat soil while precipitation is occurring. Comply with

requirements of the EPA-Registered Label and requirements of authorities having jurisdiction.

2. Related Work: Coordinate soil treatment application with excavating, filling, grading, and concreting operations. Treat soil under footings, grade beams, and ground-supported slabs before construction.

## **1.7 WARRANTY**

- A. Soil Treatment Special Warranty: Manufacturer's standard form, signed by Applicator and Contractor, certifying that termite control work consisting of applied soil termiticide treatment will prevent infestation of subterranean termites, including Formosan termites (*Coptotermes formosanus*) If subterranean termite activity or damage is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.

1. Warranty Period: Five years from date of Substantial Completion.

- B. Wood Treatment Special Warranty: Manufacturer's standard form, signed by Applicator and Contractor, certifying that termite control work consisting of applied wood termiticide treatment will prevent infestation of subterranean termites, including Formosan termites (*Coptotermes formosanus*). If subterranean termite damage is discovered during warranty period, repair or replace damage caused by termite infestation and treat replacement wood.

1. Warranty Period: 12 years from date of Substantial Completion.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Source Limitations: Obtain termite control products from single source.

### **2.2 SOIL TREATMENT**

- A. Termiticide: EPA-Registered termiticide acceptable to authorities having jurisdiction, in an aqueous solution formulated to prevent termite infestation.
  1. Service Life of Treatment: Soil treatment termiticide that is effective for not less than Five number years against infestation of subterranean termites.

## **2.3 WOOD TREATMENT**

- A. Borate: EPA-Registered borate termiticide acceptable to authorities having jurisdiction, in an aqueous solution for spray application and a gel solution for pressure injection, formulated to prevent termite infestation in wood.
  - 1. Pango Wrap Termite/Vapor Barrier

## **2.4 BAIT-STATION SYSTEM**

- A. Description: EPA-Registered system acceptable to authorities having jurisdiction. Provide bait stations based on the dimensions of building perimeter indicated on Drawings, according to product's EPA-Registered Label and manufacturer's written instructions.

## **2.5 METAL MESH BARRIER SYSTEM**

- A. Stainless-Steel Mesh: 0.025-by-0.018-inch (0.64-by-0.45-mm) mesh of 0.08-inch- (2.0-mm-) diameter, stainless-steel wire, Type 316.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for moisture content of soil per termiticide label, interfaces with earthwork, slab and foundation work, landscaping, utility installation, and other conditions affecting performance of termite control.
- B. Proceed with application only after unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. General: Prepare work areas according to the requirements of authorities having jurisdiction and according to manufacturer's written instructions before beginning application and installation of termite control treatment(s). Remove extraneous sources of wood cellulose and other edible materials, such as wood debris, tree stumps and roots, stakes, formwork, and construction waste wood from soil within and around foundations.

### **3.3 APPLYING SOIL TREATMENT**

- A. Application: Mix soil treatment termiticide solution to a uniform consistency. Distribute treatment uniformly. Apply treatment at the product's EPA-Registered Label volume and rate for maximum specified concentration of termiticide to the following so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction.
1. Slabs-on-Grade and Basement Slabs: Under ground-supported slab construction, including footings, building slabs, and attached slabs as an overall treatment. Treat soil materials before concrete footings and slabs are placed.
  2. Foundations: Soil adjacent to and along the entire inside perimeter of foundation walls; along both sides of interior partition walls; around plumbing pipes and electric conduit penetrating the slab; around interior column footers, piers, and chimney bases; and along the entire outside perimeter, from grade to bottom of footing.
  3. Crawlspace: Soil under and adjacent to foundations. Treat adjacent areas, including around entrance platform, porches, and equipment bases. Apply overall treatment only where attached concrete platform and porches are on fill or ground.
  4. Masonry: Treat voids.
  5. Penetrations: At expansion joints, control joints, and areas where slabs and below-grade walls will be penetrated.
- B. Post warning signs in areas of application.
- C. Reapply soil treatment solution to areas disturbed by subsequent excavation, grading, landscaping, or other construction activities following application.

### **3.4 APPLYING WOOD TREATMENT**

- A. Wood Treatment: Apply wood treatment after framing, sheathing, and exterior weather protection is completed but before electrical and mechanical systems are installed.
- B. Application: Mix borate wood treatment solution to a uniform consistency. Apply treatment at the product's EPA-Registered Label volume and rate for the maximum borate concentration allowed for each specific use so that wood framing, sheathing, siding, and structural members subject to infestation receive treatment.
1. Framing and Sheathing: Apply termiticide solution by spray to bare wood and with complete coverage.
  2. Exterior Uncoated Wood Trim and Siding: Apply termiticide solution to bare wood only when forecasted weather conditions indicate no precipitation or fog before application of seal coat. After 48 hours, verify that surface is sufficiently dry for seal coat and apply seal coat as specified in drawing.

### 3.5 INSTALLING BAIT-STATION SYSTEM

- A. Bait-Station System: Install after construction, including landscaping, is completed.
- B. Place bait stations according to product's EPA-Registered Label and manufacturer's written instructions, in the following locations:
  - 1. Conducive sites and locations indicated on Drawings.
  - 2. In and around infested trees and stumps.
  - 3. In mulch beds.
  - 4. Where wood directly contacts soil.
  - 5. Areas of high soil moisture.
  - 6. Near irrigation sprinkler heads.
  - 7. Each area where roof drainage system, including downspouts and scuppers, drains to soil.
  - 8. Along driplines of roof overhangs without gutters.
  - 9. Where condensate lines from mechanical equipment drip or drain to soil.
  - 10. At plumbing penetrations through ground-supported slabs.
  - 11. Other sites and locations as determined by licensed Installer.
- C. Spacing: Place bait stations according to manufacturer's written instructions and at a frequency no less than the following:
  - 1. One bait station per **20 linear feet (6.1 linear meters)**.
  - 2. One cluster of bait stations per **20 linear feet (6.1 linear meters)**, with no fewer than three bait stations per cluster.

### 3.6 INSTALLING METAL MESH BARRIER SYSTEM

- A. Install metal mesh barrier system to provide a continuous barrier to entry of subterranean termites, according to manufacturer's written instructions.
  - 1. Fit mesh tightly around pipes and other penetrations and terminate at slab and foundation perimeters.
  - 2. Install mesh under the perimeter of concrete slab edges and joints after vapor retarder and reinforcing steel are in place.

### 3.7 PROTECTION

- A. Avoid disturbance of treated soil after application. Keep off treated areas until completely dry.
- B. Protect termiticide solution dispersed in treated soils and fills from being diluted by exposure to water spillage or weather until ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions.



**3.8 MAINTENANCE SERVICE**

- A. Maintenance Service: Beginning at Substantial Completion, maintenance service shall include 12 months' full maintenance by skilled employees of termite-control-treatment Installer. Include quarterly maintenance as required for proper performance according to the product's EPA-Registered Label and manufacturer's written instructions. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.
- B. Continuing Maintenance Proposal: Provide from termite-control-treatment Installer to Owner, in the form of a standard yearly (or other period) maintenance agreement, starting on date initial maintenance service is concluded. State services, obligations, conditions, and terms for agreement period and for future renewal options.
  - 1. Include **annual** inspection for termite activity and effectiveness of termite treatment according to manufacturer's written instructions.

**END OF SECTION 313116**

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**EXHIBIT A  
SCOPE OF WORK**

## AZALEA CITY GOLF COURSE – PARK IMPROVEMENTS PHASE 2

Project #PR-029-21

The work of this contract consists of renovating the Men's and Women's locker rooms and restrooms. Alternate 1 consists of demolishing existing range house and rebuilding a new range house building with sidewalks. Alternate 2 consists of building pre-engineered equipment warehouse building.

END OF SCOPE OF WORK

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~ Geotechnical Evaluations ~ Construction Materials Testing ~ Geosciences ~ Infrastructure Management Services ~

**REPORT OF:  
SOILS EXPLORATIONS AND GEOTECHNICAL EVALUATIONS  
FOR A PROPOSED DRIVING RANGE BUILDING AT  
AZALEA CITY GOLF COURSE IN  
MOBILE, ALABAMA**

**Professional Services Since 1974**

904 Butler Drive, Mobile, AL 36693

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[www.geoengr.com](http://www.geoengr.com)

# Geotechnical Engineering-Testing, Inc.

PROFESSIONAL ENGINEERS

Geotechnical Evaluations - Geosciences - Construction Materials - Pavement Management

December 15, 2022

Ms. Shannon McIntyre  
City of Mobile  
Architectural Engineering Department  
P.O. Box 1827  
Mobile, AL 36633

Via Email: [shannon.mcintyre@cityofmobile.org](mailto:shannon.mcintyre@cityofmobile.org)

Re: Soils Explorations and Geotechnical Engineering Studies for a Proposed Driving Range Building at Azalea City Golf Course in Mobile, Alabama (GET Project Number 22-225)

Ms. McIntyre:


Geotechnical Engineering-Testing, Inc. (GET) is pleased to submit this report of our soils explorations and geotechnical engineering evaluations for a proposed Driving Range Building at Azalea City Golf Course in Mobile, Alabama. This report includes the results of the soil test boring and laboratory soils tests performed for these evaluations along with our recommendations for design and construction of foundations for the proposed building. Our services were performed in general accordance with our proposal dated October 25, 2022 and they were authorized by City of Mobile purchase order number 23001503-00.

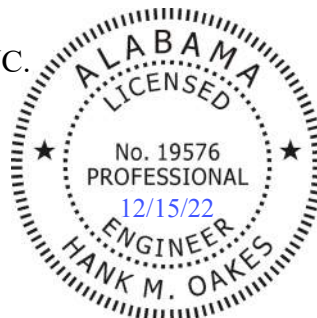
The recommendations provided are based in part on the project information provided to GET and only apply to the specific project and site discussed in this report.

Please call Hank Oakes, P.E. if you have any questions regarding this report.

Sincerely,

GEOTECHNICAL ENGINEERING-TESTING, INC.

  
Hank M. Oakes, P.E.  
Sr. Project Engineer  
Alabama License No. 19576



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## **INTRODUCTION**

Geotechnical Engineering-Testing, Inc. has completed the authorized soils explorations and geotechnical engineering studies for a proposed Driving Range Building at Azalea City Golf Course in Mobile, Alabama. The soils explorations have included one exploratory soil test boring, visual descriptions of the soils encountered, and laboratory tests on selected soil samples. The engineering study has included the planning, coordination, and supervision of the soils explorations program, evaluations of the results of the soils explorations, development of recommendations for site preparation and for design and construction of shallow foundations, and the preparation of this report.

Our understanding of the project was based primarily on information received from Ms. Shannon McIntyre, of the City of Mobile Architectural Engineering Department, via email. The information essentially consisted of an indication of the planned approximate location of the Driving Range Building. We understand that details of the building design have not been finalized. We anticipate that the building will be a relatively small, one-story structure framed with wood or steel. We also anticipate that the finished floor elevation of the planned building will be very near existing site grade.

A survey drawing, received from Ms. McIntyre, showing the planned construction area is included in Appendix A of this report. A wider view of the area is shown in the Google Earth® image that follows the survey drawing.

Details of our findings and recommendations are presented in the following sections of this report.

## **SITE DESCRIPTION**

We understand the planned Driving Range Building will be located in close proximity to, and on the south side of, the existing Range Ball Shed. The site is currently clear, relatively level, and grass covered. The site lies just south of a paved driveway that passes between the club house and the driving range.



## SOILS EXPLORATIONS PROGRAM

The procedures for the field exploration and laboratory testing programs utilized on this project are summarized in the following sections of this report.

### Boring Location

One soil test boring was performed for this project; near the center of the anticipated building location (as we understood it). The approximate soil boring location is shown on the Google Earth® image included in Appendix B of this report.

### Soil Boring

The field explorations were subcontracted to G&E Services, a local drilling company. The soil test boring was performed with a truck-mounted SIMCO 2800 drill rig. The borehole was advanced using continuous flight solid stem augers. During the boring operations, standard penetration tests (SPT's) were performed and split spoon soil samples were collected continuously from the ground surface to a depth of 10 ft and then a sample was collected from 13 ft to the 15-ft boring termination depth. Boring and sampling operations were conducted in general accordance with standard procedures. Depths where samples were collected and the results of the standard penetration tests are shown on the Log of Boring included in Appendix C of this report.

The collected soil samples were field logged, sealed in moisture-tight plastic bags, and transported to our laboratory. At the laboratory the soil samples were visually examined by the project engineer to verify or adjust field classifications.

### Laboratory Testing

Selected soil samples were subjected to laboratory tests to aid the engineering evaluations. Tests included moisture content and percent finer than a number 200 sieve. Tests were performed in general accordance with standard laboratory soil testing procedures and results are shown on the Logs of Boring opposite the samples tested.

## **SUBSURFACE CONDITIONS**

The soil test boring encountered sand soils throughout the exploration depth. The relative density of the sands, as indicated by the standard penetration tests, was generally loose to very loose. Details of the soils encountered are shown by the Log of Boring in Appendix C.

The soil boring results are representative of subsurface conditions at its location and vertical reach. However, local variations characteristic of the subsurface materials of the region are likely to exist. The boring log and related information are based on the driller's log and visual examination of recovered samples in the laboratory. The delineation between soil types shown on the log is approximate and the descriptions represent the interpretation of subsurface conditions at the boring location on the date drilled.

Ground water was not encountered to the 15-ft boring termination depth.

## **GEOTECHNICAL RECOMMENDATIONS**

Soil conditions at the site of the proposed Driving Range Building should be adequate for supporting the building on shallow foundations.

Site preparation should consist of removing surface vegetation and the upper few inches of soil that contains significant amounts of grass roots or other deleterious materials. The soil boring indicated that the soils were gray-colored to a depth of about 2 ft. All of the gray material need not be removed, just the upper few inches. Insitu soils should then be compacted by multiple passes of a self-propelled vibratory compactor. Compaction of the building site using a small, hand-operated compactor will not suffice. Compaction efforts should be observed by a representative of the geotechnical engineer. If areas of unstable soils are made evident by the compaction efforts, the unstable soils should be removed and replaced with imported select soils.

Imported select soils, whether used for backfill or fill, should consist of naturally occurring sands that have no more than about 20 percent by weight passing a number 200 sieve and that have a plasticity index of no more than 6. These soils should be placed in loose lifts no more than 8 inches

thick and each lift should be compacted to at least 95 percent of standard proctor density (ASTM D698).

As stated above, we anticipate that the building will be constructed near existing site grade; raised only enough to provide drainage away from the building. Thus, we anticipate building foundations will be constructed on insitu soils. We recommend that soils at the bottoms of foundation excavations be compacted to at least 98 percent of standard proctor density to a depth of at least 8 inches.

We recommend that building foundations have a minimum width of 1.5 ft and that they bear at least 1 ft below the lowest adjacent final grade. With sand foundation soils, as is the case at hand, allowable bearing pressures vary with foundation width and embedment. For the conditions indicated by the soil boring, and assuming soils are compacted as recommended above, our recommended allowable foundation bearing pressures for various widths and embedment depths of continuous and spread footings are shown in the tables below.

#### **RECOMMENDED ALLOWABLE BEARING PRESSURES - CONTINUOUS**

Bearing Depth*	Foundation Width			
	1.5 Ft	2 Ft	2.5 Ft	3 Ft
1 Ft	1100 PSF	1250 PSF	1400 PSF	1550 PSF
1.5 Ft	1450 PSF	1600 PSF	1750 PSF	1900 PSF
2 Ft	1800 PSF	1950 PSF	2100 PSF	2250 PSF

\*Below lowest adjacent finished grade.

#### **RECOMMENDED ALLOWABLE BEARING PRESSURES - SPREAD**

Bearing Depth*	Square Foundation Width			
	1.5 Ft	2 Ft	2.5 Ft	3 Ft
1 Ft	1000 PSF	1150 PSF	1250 PSF	1350 PSF
1.5 Ft	1350 PSF	1500 PSF	1600 PSF	1700 PSF
2 Ft	1700 PSF	1850 PSF	1950 PSF	2050 PSF

\*Below lowest adjacent finished grade.

## **ENGINEERING SERVICES DURING CONSTRUCTION**

The engineering recommendations provided in this report are based on the information obtained from the soils explorations program. Regardless of the thoroughness of geotechnical explorations, there is a possibility that conditions at locations remote from borings will be different from those at specific boring locations and that conditions will not be as anticipated by the designers or constructors. In addition, the construction process may itself alter soil conditions. Therefore, we recommend that a representative of the geotechnical engineer of record observe and document soil conditions encountered and the construction procedures used during the foundation construction phase of the project. Unanticipated conditions and/or inadequate procedures should be reported to the design team along with timely recommendations to remediate such conditions or procedures. This representative could also perform the construction materials testing services that are typically required.

## **LIMITATIONS**

We prepared this report to aid in the design and construction of the project. The recommendations provided are based in part on the project information provided to GET and only apply to the specific project and site discussed in this report. Additional assumptions, if any, are stated in the report. If the project description, included in the **INTRODUCTION**, or our assumptions are incorrect, or if additional information is available, correct or additional information should be conveyed to GET for review. Recommendations can then be modified if warranted.

Our professional services for this project have been performed, findings obtained, and recommendations prepared in accordance with generally accepted engineering principles and practices. The services identified herein were completed in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality and under similar conditions as this project. No other representation, expressed or implied, is included or intended, and no warranty or guarantee is included or intended in this report or any other instrument of service.

**APPENDIX A**  
**PLANNED CONSTRUCTION AREA**





CLUBHOUSE

APPROX. AREA  
SHOWN ON  
SURVEY DRAWING

**APPENDIX B**  
**SOIL BORING LOCATION**



# APPROXIMATE BORING LOCATION

DRIVING RANGE BUILDING  
AZALEA CITY GOLF COURSE, MOBILE, ALABAMA  
DECEMBER 12, 2022



**APPENDIX C**  
**LOG OF BORING**

PROJECT NAME:

DATE DRILLED:

G.E.T. PROJ. NUMBER:

BORING DEPTH: 0 FT.

PROJECT LOCATION:

BORING ELEV.:

DRILL RIG:

DATUM:

WATER DEPTH:

DRILL METHOD:

REMARKS:

DRILL CREW:



BORING NUMBER: LEGEND

BORING LOCATION:

DEPTH IN FEET	LOG	DESCRIPTION	SAMPLE NO.	S.P.T.		W.C. %	ATTERBERG LIMITS		DRY UNIT WT. pcf	% MINUS #200	SHEAR STRENGTH tsf	UNIFIED CLASS
				N <sub>r</sub>	N <sub>c</sub>		L.L.	P.I.				
0		TOPSOIL										
5		SAND										
10		CLAY										
15		SILT										
20		GRAVEL										
25		ORGANICS										
30		PEAT										
35		SILTY SAND (EXAMPLE OF A SOIL MIXTURE)										
40		SPLIT-SPOON SAMPLE (STANDARD PENETRATION TEST)										
45		UNDISTURBED TUBE SAMPLE										
50		SAMPLE NOT RECOVERED										
55		VANE SHEAR										
		B.T. @ 0 FT										

NOTE: The stratification lines shown represent the approximate boundary between soil types and the transition may be gradual. The groundwater level stated is for conditions at the time of boring and the level may fluctuate large amounts for other conditions or seasons.

Reviewed By:

**PROJECT NAME:** DRIVING RANGE BUILDING AT AZALEA CITY GOLF COURSE

**DATE DRILLED:** 12/7/22



**G.E.T. PROJ. NUMBER:** 22-225

**BORING DEPTH:** 15 FT.

**BORING ELEV.:**

**PROJECT LOCATION:** MOBILE, ALABAMA

**DATUM:**

**BORING NUMBER:** B-1

**DRILL RIG:** SIMCO 2400

**WATER DEPTH:** NOT ENCOUNTERED

**REMARKS:** DRILLED BY G&E SERVICES

**BORING LOCATION:** SEE AERIAL IMAGE

**DRILL CREW:** CW, CB(LOGGER)

DEPTH IN FEET	LOG	DESCRIPTION	SAMPLE NO.	S.P.T.		W.C. %	ATTERBERG LIMITS		DRY UNIT WT. pcf	% MINUS #200	SHEAR STRENGTH tsf	UNIFIED CLASS
				N <sub>r</sub>	N <sub>c</sub>		L.L.	P.I.				
0		Loose dark grayish brown fine sand	1	5								
			2	7		7			12.7			
5		Loose to very loose reddish brown fine sand w/ silt	3	4								
			4	3		7			7.8			
			5	3		14			18.3			
10		Very loose red fine sand w/ clay	6	4		12			16.2			
15		B.T. @ 15 FT										
20												

MOD DEEP BORING LOG W/O NC VALUES 22-225 DRIVING RANGE BUILDING.GPJ GETI AL.GDT 12/15/22

NOTE: The stratification lines shown represent the approximate boundary between soil types and the transition may be gradual. The groundwater level stated is for conditions at the time of boring and the level may fluctuate large amounts for other conditions or seasons.

Reviewed By:



# Interior Lighting Compliance Certificate

## Project Information

Energy Code: 2015 IECC  
 Project Title: Azalea City  
 Project Type: Alteration

Construction Site: Owner/Agent: Designer/Contractor:

## Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts
1-Common Space Types:Workshop	865	1.59	1375
2-Common Space Types:Locker Room	500	0.75	375
3-Common Space Types:Restrooms	375	0.98	368
Total Allowed Watts =			2118

## Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
<u>Common Space Types: Workshop (865 sq.ft.)</u>				
LED: TPZ: Other:	1	6	40	240
LED: WF6: Other:	1	8	14	112
<u>Common Space Types: Locker Room (500 sq.ft.)</u>				
LED: EVO: Other:	1	3	32	95
LED: L24: Other:	1	7	50	350
<u>Common Space Types: Restrooms (375 sq.ft.)</u>				
LED: EVO: Other:	1	13	32	411
LED: L24: Other:	1	1	50	50
Total Proposed Watts =				1258

## Interior Lighting PASSES

### Interior Lighting Compliance Statement

*Compliance Statement:* The proposed interior lighting alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2015 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Christina Marie - Professional Engineer  
 Name - Title \_\_\_\_\_ Signature

04/12/2023  
 Date \_\_\_\_\_





COMcheck Software Version COMcheckWeb

# Exterior Lighting Compliance Certificate

## Project Information

Energy Code: 2015 IECC  
 Project Title: Azalea City  
 Project Type: Alteration  
 Exterior Lighting Zone: 3 (Other (LZ3))

Construction Site: Owner/Agent: Designer/Contractor:

## Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts /	D Tradable Wattage	E Allowed Watts (B X C)
Main entry	3 ft of door	30	Yes	90
Other door (not main entry)	30 ft of	20	Yes	600
Total Tradable Watts (a) =				690
Total Allowed Watts =				690
Total Allowed Supplemental Watts (b) =				750

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.

(b) A supplemental allowance equal to 750 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

## Proposed Exterior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
<u>Main entry (3 ft of door width): Tradable Wattage</u>				
LED: WPX: Other:	1	1	47	47
<u>Other door (not main entry) (30 ft of door width): Tradable Wattage</u>				
LED: WPX: Other:	1	2	47	94
Total Tradable Proposed Watts =				141

## Exterior Lighting PASSES

### Exterior Lighting Compliance Statement

*Compliance Statement:* The proposed exterior lighting alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2015 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Christina Marie - Professional Engineer

Name - Title

Signature

04/12/2023

Date



Project Title: Azalea City  
 Data filename:

Report date: 04/17/23