



CITY OF HOUSTON

Sylvester Turner

Mayor



HOUSTON AIRPORT SYSTEM

George Bush Intercontinental ~ William P. Hobby ~ Ellington Airport

Mario C. Diaz
Director of Aviation

May 10, 2022

SUBJECT: Addendum No. 4

REFERENCE: Invitation To Bid (ITB) for IAH Terminal B Garage, 3rd & 4th Levels Rehab; Solicitation No. HJA IAHTBGR 2022 007; Project No. 466B

To: All Prospective Bidders:

This Addendum is issued for the following reason:

I. To Respond to Questions

1. **Question:** Please provide the layout for the new signage types shown on A-620.

Response: See revised sheets, A-620, A-113, and A-114 for signage locations.

2. **Question:** Are the wheel stops at the handicap parking spaces by the elevators being replaced?

Response: Existing wheel stops are to be demolished to correctly apply new waterproofing. New wheel stops to be provided.

3. **Question:** The repairs for the stair enclosures on sheets A421; A422; A423, and A424 is an unknown until the stucco is demoed as shown on sheet AD113. The extent of damage will not be known until the stucco is removed. The general contractor will need the stucco removed to price these repairs; these repairs might not be needed if the damage is only to stucco. Please confirm how this is to be handled.

Response: The current scope of work is for plaster repair and elastomeric finish only. It is unknown if there is damage to the wall behind the structure and will not be known until stucco is demolished.

4. **Question:** Provide sign in sheet from the site visit walks on 2/10 and 2/17.

Response: <http://www.fly2houston.com/biz/opportunities/solicitations> for site visit information.

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5. **Question:** What is the general contractors water responsibility from 3rd floor and below? Since we are power washing water may find a way below our work area, but this will be an unknown factor until the work happens.

Response: If power water washing is the contractor's means and method, it would not be acceptable for water infiltration beyond the work area.

6. **Question:** The stairs and ramps continue below the third floor. What is the general contractor's responsibility in these locations? If we are to leave undisturbed, please state where work is to be stopped (i.e., finish floor level of 3rd floor).

Response: The general contractor's responsibility in the stairwells ends directly below the 3rd level.

7. **Question:** How many parking stalls can be closed at one time to perform work?

Response: HAS anticipates closing both levels to speed up the project. HAS wants one level to be the priority and to open that level before finishing the next level.

8. **Question:** What is the precise phasing plan HAS is proposing for this project?

Response: Please refer to the response in Question #7.

9. **Question:** Where can the general contractor stage sanitary facilities (e.g., portable toilets), dumpsters, equipment, materials, fencing and other good as required for the work?

Response: Laydown must occur where the contractor is working, and HAS plans for the dumpster to be placed in lot PL6 (Eastside of Terminal B).

10. **Question:** Does this project require any type of permitting?

Response: Building permit has been approved by BSG.

11. **Question:** Are there specific days during the calendar year where work cannot be performed on the structure? Please provide detailed schedule.

Response: None.

12. **Question:** Where is the location, we can accept delivery of goods on site?

Response: On the job site at the 3rd or 4th floor of the garage. Anything larger than the garage's height will require off site trans load.

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13. **Question:** Material costs have seen substantial cost increases with no warning due to shortages of goods and labor. What is the process for recovering these potential cost increases from HAS should prices increase after bid submittal?

Response: In the event of a significant delay or price increase of material or equipment occurring during the performance of the contract through no fault of the Contractor, the Contract Sum, time of completion, or contract requirements shall be equitably amended by Change Order per the procedures described in the General Terms and Conditions.

14. **Question:** Can the 180-day bid award timeline be reduced? Current market volatility makes it impossible to predict future cost of goods.

Response: No, HAS standard is 180 days.

15. **Question:** Per Document 00340, Section 4.0 A.2 & A.2, Page 00340; Please provide the Report No. 53326, prepared by the firm of SSCI Environmental, Construction and Engineering Services, entitled Lead-Based Paint Inspection Report, dated October 31, 2019, consisting of 34 pages for review.

Response: The report is included in the addendum. Additionally, specification 028300 has been added to show remediation scope.

16. **Question:** Per Document 00340, Section 4.0 A.2 & A.2, Page 00340-2; Please provide Report No. 53326, prepared by the firm of SSCI Environmental, Construction and Engineering Services, entitled Asbestos Survey Report, dated October 31, 2019, consisting of 25 pages for review.

Response: The report is included in the addendum.

17. **Question:** Does HAS or the Architect and/or Engineer anticipate potential lead and/or asbestos abatement on this project? If so, please provide as much detail as possible regarding this scope of work.

Response: Specification 028300 Lead Remediation has been added to show remediation scope.

18. **Question:** In Section 01726-2, Paragraph B.2 states the following: "The contractor will provide HAS with a map of the project area to be used by the infrastructure and IT sections to compile a map of known underground utilities and telecommunications lines and equipment. This process does not replace any base survey methods or requirements." Please clarify if these services are required and to what extent in detail.

Response: The base survey method will be acceptable.

19. **Question:** Is the contractor responsible for payment of testing services? If so, please indicate which testing services the contract is responsible for payment.

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Response: Specifications indicate all required testing service.

20. **Question:** The extents of the traffic coating installation are not clear. Can HAS provide a drawing with the areas of traffic coating replacement highlighted?

Response: The scope is clearly noted in the plans. Traffic coating is for the entirety of levels 3 and level 4. Refer to scoping notes on A-114 and A-113.

21. **Question:** Per B4/A-500 the detail refers to BASF WaboCrete Membrane. BASF Manufacturers two generations of this product, which generation does HAS want to use?

Response: Drawings indicate WaboCrete Membrane, which is a expansion joint system for garages. Wabocrete II is not the same type of product.

22. **Question:** Detail B2/A-500 provides a detail for bollards, but the quantity and locations of installation are not identified. Please quantity and mark the locations where this condition occurs.

Response: See revised sheets A-113 and A-114 showing locations.

23. **Question:** Detail 12/S2.00 specifies a Sikalastic 720 One Shot system, but the project specifications call for a MasterProtect 2575 System. Please confirm the system specifications we are to price.

Response: MasterProtect 2575 System specifications remain as-is.

24. **Question:** On S1.04D, Task Item 28 indicates painting only 30% of girders. This conflicts with the information on AD-113 note 5 and AD-133 Note 4, which indicates new paint on all surfaces. Please clarify exact scope of cleaning and painting tasks.

Response: New paint to be provided for all surfaces.

25. **Question:** A-114 Note 3 states “Repaint entire elevator enclosure with an elastomeric paint system, providing base flashing to ensure water tightness” but there is no specification for elastomeric paint or flashing. Please provide this specification. Does this include only the.

Response: See added spec section 099653 Elastomeric coatings, for this information.

26. **Question:** A-114 Note 5 states “repaint all horizontal and vertical surfaces” but does not specify which horizontal and vertical surfaces. One example of this is, are we required to paint the garage exterior and floors? Please specify exactly which surfaces are to be painted.

Response: The garage exterior is not included in the scope, and floors will receive a waterproofing membrane. Horizontal and vertical surfaces include but is not limited to columns, walls, the underside of the floor structure, doors, plinths, and wheel stops.

27. **Question:** The color of the paint can affect the costs significantly. Please provide a paint type and color schedule for reference.

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Response: Color to be selected by architect from entire range as per specifications.

28. **Question:** Does HAS require the plumbing, electrical, water lines, and/or HVAC or other items a different color and/or paint type than the standard ceiling paint?

Response: Fire alarm j-boxes and conduit RED. All other piping is covered by labeling.

29. **Question:** On page 071800 – 3 section 2.3 paragraph B, BASF has indicated they are no longer manufacturing this Primer material. Please provide an alternative specification to accommodate this.

Response: See revised spec section 071800 Traffic Coatings.

30. **Question:** There is no repair detail for the elevator core & stairwell wall repairs. Please provide a repair detail and specification for this.

Response: Follow plaster specification for plaster repairs.

31. **Question:** If you look at draw E-305 and E-305A at the approved by (in red circle): that telling me we will not have to install any new electrical panel for the project, all power circuits for the new rooftop unit will come out from panels 3PA and 3PC on the 3rd floor mechanical rooms is that correct?

Response: Correct.

32. **Question:** If you look at draw E-305A panel schedules: that telling me RTU-4 will connect to circuits 13-15-17 and RTU-1 will connect to circuits 8-10-12 in panel 3PA but look at the panel 3PA picture only circuits 1-3-5 been inactive, all the other circuits been active, I just want to making sure we have available spaces for the new rooftop unit. Also, RTU-2 will connect to circuits 1-3-5 and RTU-3 will connect to circuits 2-4-6 in panel 3PC, but look at the panel 3PC picture circuits 1-3-5, 7-9-11, 13-15-17 been active and circuits 2-4-6, 8-10-12, 14-16-18 been inactive, so witch one the right circuits to connect? Please advise

Response: RTU #1 cir 8,10 12 RTU #2 cir 1,3,5 RTU #3 cir 2,4,6 RTU #4 cir 13,15,17.

33. **Question:** There are some communication equipment on the roof, these roof top units does need Lightning Protection System on them and interconnect to the existing Lightning Protection System. It currently is not under any kind of zones of protection, do we need to install lightning protection for them? They were not show up on the draws.

Response: Refer to sheet EP114 note #7 and sheet E0000 to applicable codes and standards referring to UL 96A Requirements for lightning protection systems.

34. **Question:** By NEC we have to install the exit light for each entry door at the stair enclosure on level 4, but they are not show on the draw, do we have to provide the new exit lights? If we do will need type and model.

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Response: Yes. Match building standards and connect to existing exit light circuit.

35. **Question:** Page 104400-2 Paragraph 2.03 in the specifications provides a manufacturer for the fire extinguisher cabinets but does not provide a model number. Please provide this specification describing the model number and color.

Response: See revised spec section 104400.

36. **Question:** On the electrical drawings it states, "Remove all abandoned communication and electrical conduits in room/hatched region back to panel." Please provide a LF or location of all conduit to be removed.

Response: Sheet EP113 shows conduits around elevator area and on beams in driveway area that are empty conduits. Refer to pics.

37. **Question:** Will contractors be required to use certain approved vendors for the Traffic Arm and Operator scope of work? (AD-114 Note D11).

Response: The Parking Operator has staff to R&R parking equipment. The contractor will be responsible to cut power to the device.

38. **Question:** Is there a maximum number of parking spots contractors will be able to occupy at a time of construction? (AS-114 Note D11)

Response: Please refer to the response in Question #7.

39. **Question:** Detail A4/A-500, A3/A-500, 4/S2.01 and 5/S2.02 indicate the type of handrail to install, but the locations of the handrail installation are not identified on the drawings anywhere. Please mark and identify the exact locations the handrail system is to be installed.

Response: See revised sheet A-400 to indicate new rail locations.

40. **Question:** On Draw M-301 show 115V/1P GFCI service receptacle on roof top unit, do we have to supply power to it? If we do where can we get the power from?

Response: Note #6 EP114 integrated receptacle to be selected with mechanical equipment supplied by mechanical contractor.

41. **Question:** Will other general contractors working on site impact our scope of work? If so, please describe the potential interferences in detail.

Response: No, other contractors will be working in the garage during your scope.

42. **Question:** Can the 10% bid bond be reduced to 5%, per typical City of Houston projects?

Response: No, HAS standard is 10%.

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43. **Question:** Do we have to be badged to work on this project? Since it is outside the secure area is it necessary?

Response: No badging is required.

44. **Question:** Add Building Construction Wage Rate for 2022?

Response: See attached updated Building Construction Wage Rate for 2022.

When issued, Addendum shall automatically become part of the solicitation documents and shall supersede any previous specification(s) and/or provision(s) in conflict with the Addendum. Addendum will be incorporated into the Agreement as applicable. It is the responsibility of the bidder(s) to ensure that it has obtained all such letter(s). By submitting a bid on this project, bidder(s) shall be deemed to have received all Addendum and to have incorporated them into their bid.

If further clarification is needed regarding this solicitation, please contact Jorge Ardines, Sr. Procurement Specialist, via email at jorge.ardines@houstontx.gov.

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DocuSigned by:

Cathy Vander Plaats

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Cathy Vander Plaats
Aviation Procurement Officer
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cc: Alfredo Oracion
Dallas Evans
Solicitation File

Attachments: Revised Specifications Section 071800 Traffic Coatings
Revised Specification Section 104400 Fire Protection Specialties
Revised sheet A-400
Doc 00821 Building Construction Wage Rate 2022
Specification 099653 Elastomeric Coating
Revised sheets A-113 and A-114
Revised sheets A-620, A-113, and A-114 for signage locations
Revised Doc 00010 Table of Content
Specification 028300 Lead Remediation
SSCI Environmental Report (2019)

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TRAFFIC COATINGS

SECTION 071800 - TRAFFIC COATINGS

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 traffic coatings and pavement markings for the following applications:
 - 1. Vehicular traffic.
- B. Related Requirements:
 - 1. Section 071900 "Water Repellents" for penetrating and film-forming water repellents applied on traffic-bearing surfaces.
 - 2. Section 096766 "Fluid-Applied Athletic Flooring" for fluid-applied, resinous flooring for athletic activity areas.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include installation instructions and details, material descriptions, dry or wet film thickness requirements, and finish.
- B. Shop Drawings: For traffic coatings.
 - 1. Include details for treating substrate joints and cracks, flashings, deck penetrations, and other termination conditions that are not included in manufacturer's product data.
 - 2. Include plans showing layout of pavement markings, lane separations, and defined parking spaces. Indicate, with international symbol of accessibility, spaces allocated for people with disabilities.
- C. Samples for Initial Selection: For each type of exposed finish.

1.5 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of traffic coating.

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- B. Field quality-control reports.
- C. Sample Warranty: For manufacturer's warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For traffic coatings to include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Mockups: Build mockups to set quality standards for materials and execution.
 - 1. Build mockup for each traffic coating and substrate to receive traffic coatings.
 - 2. Size: 200 sq. ft. of each substrate to demonstrate surface preparation, joint and crack treatment, thickness, texture, color, and standard of workmanship.
 - 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.

1.8 FIELD CONDITIONS

- A. Environmental Limitations: Apply traffic coatings within the range of ambient and substrate temperatures recommended in writing by manufacturer. Do not apply traffic coatings to damp or wet substrates, when temperatures are below 40 deg F, when relative humidity exceeds 85 percent, or when temperatures are less than 5 deg F above dew point.
 - 1. Do not apply traffic coatings in snow, rain, fog, or mist, or when such weather conditions are imminent during the application and curing period. Apply only when frost-free conditions occur throughout the depth of substrate.
- B. Do not install traffic coating until items that penetrate membrane have been installed.
- C. Pavement-Marking Paint: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 40 deg F for oil-based materials 50 deg F for water-based materials, and not exceeding 95 deg F.

1.9 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace traffic coating that fails in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Adhesive or cohesive failures.
 - b. Abrasion or tearing failures.
 - c. Surface crazing or spalling.
 - d. Intrusion of water, oils, gasoline, grease, salt, deicer chemicals, or acids into deck substrate.
 - 2. Warranty Period: Ten years from date of Substantial Completion.

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PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations:

1. Obtain traffic coatings from single source from single manufacturer.
2. Obtain primary traffic-coating materials, including primers, from traffic-coating manufacturer. Obtain accessory materials including aggregates, sheet flashings, joint sealants, and substrate repair materials of types and from sources recommended in writing by primary material manufacturer.
3. Obtain pavement-marking paint from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- #### A. Material Compatibility: Provide primers; base coat, intermediate coat, and topcoat; and accessory materials that are compatible with one another and with substrate under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

2.3 TRAFFIC COATING TC-1

- #### A. Traffic Coating: Manufacturer's standard, traffic-bearing, seamless, high-solids-content, cold liquid-applied, elastomeric, water-resistant membrane system with integral wearing surface for vehicular traffic service condition; according to ASTM C957/C957M.

1. Manufacturers: Design is based on **BASF Master Builders Solutions** - Master Seal Vehicular Traffic 2575 system. Alternative manufacturers who may match performance and warranty requirements include but are not limited to:
 - a. PPG Paints.
 - b. Tremco Incorporated.

- ~~B. Primer: Liquid adhesive primer as recommended in writing for substrate and conditions by traffic-coating manufacturer.~~

- ~~1. Product: Master Seal P 255 Polyurethane-Based Primer for Master Seal Traffic 2575 Deck Coating Systems.~~
- ~~2. Material: Two-component polyurethane adhesive primer.~~

- #### C. Preparatory and **Primer Integrated** Base Coats:

1. Product: Master Seal ~~M-265~~ **M 270 NP** Polyurethane Base Coat for Master Seal Traffic 2575 Deck Coating Systems.
2. Material: Two-component polyurethane-base coat.
3. Thicknesses: Minimum film thickness as recommended in writing by manufacturer for substrate and service conditions indicated.

- #### D. Intermediate Coat (**2-coats**):

1. Product: Master Seal TC 275 Aromatic Polyurethane Topcoat for Master Seal Traffic 2575 Deck Coating Systems.
2. Material: Aromatic two-component polyurethane topcoat.

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3. Thicknesses: Minimum film thickness as recommended in writing by manufacturer for substrate and service conditions indicated
4. Aggregate Content: As recommended in writing by traffic-coating manufacturer for substrate and service conditions indicated.

E. Topcoat:

1. Product: Master Seal TC ~~275 Aromatic Polyurethane~~ **295** Topcoat for Master Seal Traffic 2575 Deck Coating Systems.
2. Material: Aromatic two-component ~~polyurethane~~ **aliphatic** topcoat.
3. Thicknesses: Minimum film thickness as recommended in writing by manufacturer for substrate and service conditions indicated
4. Aggregate Content: As recommended in writing by traffic-coating manufacturer for substrate and service conditions indicated.
5. Color: As selected by Architect from manufacturer's full range.

F. Aggregate: Manufacturer's standard aggregate for each use indicated [or] of particle sizes, shape, and minimum hardness recommended in writing by traffic-coating manufacturer.

G. Fire-Test-Response Characteristics: Provide traffic-coating materials with the fire-test-response characteristics as determined by testing identical products according to test method below for deck type and slopes indicated by an independent testing and inspecting agency that is acceptable to authorities having jurisdiction.

1. Class A roof covering according to ASTM E108.

H. ENERGY STAR Listing: Provide traffic coating that is listed on the DOE's ENERGY STAR "Roof Products Qualified Product List" for low-slope roof products.

2.4 ACCESSORY MATERIALS

A. Joint Sealants: As specified in Section 079200 "Joint Sealants."

B. Sheet Flashing: Nonstaining sheet material recommended in writing by traffic-coating manufacturer.

1. Thickness: Minimum 80 mils.

C. Adhesive: Contact adhesive recommended in writing by traffic-coating manufacturer.

D. Reinforcing Strip: Fiberglass mesh recommended in writing by traffic-coating manufacturer.

2.5 PAVEMENT MARKINGS

A. Pavement-Marking Paint: Comply with Section 321723 "Pavement Markings."

B. Pavement-Marking Paint: Alkyd-resin type, lead and chromate free, ready mixed, complying with AASHTO M 248, Type F ; colors complying with FS TT-P-1952.

1. Color: White.

C. Glass Beads: AASHTO M 247, Type 1.

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PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, surface smoothness, and other conditions affecting performance of traffic-coating work.
- B. Verify that substrates are visibly dry and free of moisture.
 - 1. Test for moisture according to ASTM D4263.
 - 2. Test for moisture content by method recommended in writing by traffic-coating manufacturer.
- C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of traffic-coating work.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.
 - 1. Begin coating application only after substrate construction and penetrating work have been completed.
 - 2. Begin coating application only after minimum concrete-curing and -drying period recommended in writing by traffic-coating manufacturer has passed and after substrates are dry.
 - 3. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Clean and prepare substrates according to ASTM C1127 and manufacturer's written instructions to produce clean, dust-free, dry substrate for traffic-coating application. Remove projections, fill voids, and seal joints if any, as recommended in writing by traffic-coating manufacturer.
- B. Priming: Unless manufacturer recommends in writing against priming, prime substrates according to manufacturer's written instructions.
 - 1. Limit priming to areas that will be covered by traffic-coating material on same day. Reprime areas exposed for more time than recommended by manufacturer.
- C. Schedule preparation work so dust and other contaminants from process do not fall on wet, newly coated surfaces.
- D. Mask adjoining surfaces not receiving traffic coatings to prevent overspray, spillage, leaking, and migration of coatings. Prevent traffic-coating materials from entering deck substrate penetrations and clogging weep holes and drains.
- E. Concrete Substrates: Mechanically abrade surface to a uniform profile acceptable to manufacturer, according to ASTM D4259.
 - 1. Remove grease, oil, paints, and other penetrating contaminants from concrete.
 - 2. Remove concrete fins, ridges, and other projections.
 - 3. Remove laitance, glaze, efflorescence, curing compounds, concrete hardeners, form-release agents, and other incompatible materials that might affect coating adhesion.

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4. Remove remaining loose material to provide a sound surface, and clean surfaces according to ASTM D4258.

3.3 TERMINATIONS AND PENETRATIONS

- A. Prepare vertical and horizontal surfaces at terminations and penetrations through traffic coatings and at expansion joints, drains, and sleeves according to ASTM C1127 and manufacturer's written instructions.
- B. Provide sealant cants at penetrations and at reinforced and nonreinforced, deck-to-wall butt joints.
- C. Terminate edges of deck-to-deck expansion joints with preparatory base-coat strip.
- D. Install sheet flashings at deck-to-wall expansion and dynamic joints, and bond to deck and wall substrates according to manufacturer's written recommendations.

3.4 JOINT AND CRACK TREATMENT

- A. Prepare, treat, rout, and fill joints and cracks in substrates according to ASTM C1127 and manufacturer's written recommendations. Before coating surfaces, remove dust and dirt from joints and cracks according to ASTM D4258.
 1. Comply with recommendations in ASTM C1193 for joint-sealant installation.
- B. Apply reinforcing strip in traffic-coating system where recommended in writing by traffic-coating manufacturer.

3.5 TRAFFIC-COATING APPLICATION

- A. Apply traffic coating according to ASTM C1127 and manufacturer's written instructions.
- B. Apply coats of specified compositions for each type of traffic coating at locations as indicated on Drawings.
- C. Start traffic-coating application in presence of manufacturer's technical representative.
- D. Verify that wet-film thickness of each coat complies with requirements every 600 sq. ft..
- E. Uniformly broadcast and embed aggregate in each coat indicated to receive aggregate according to manufacturer's written instructions. After coat dries, sweep away excess aggregate.
- F. Apply traffic coatings to prepared wall terminations and vertical surfaces to height indicated; omit aggregate on vertical surfaces.
- G. Cure traffic coatings. Prevent contamination and damage during coating application and curing.

3.6 PAVEMENT MARKINGS

- A. Do not apply pavement-marking paint for striping and other markings until layout, colors, and placement have been verified with Architect and traffic coating has cured.

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- B. Sweep and clean surface to eliminate loose material and dust.
- C. Apply pavement-marking paint with mechanical equipment to produce markings of dimensions indicated with uniform straight edges. Apply at manufacturer's recommended rates for a minimum wet-film thickness of 15-mils.
 - 1. Apply graphic symbols and lettering with paint-resistant, die-cut stencils, firmly secured to surface. Mask an extended area beyond edges of each stencil to prevent paint application beyond stencil. Apply paint so that it cannot run beneath stencil.
 - 2. Broadcast glass beads uniformly into wet pavement-marking paint at a rate of 6 lb/gal..

3.7 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform the following field tests and inspections:
 - 1. Materials Testing:
 - a. Samples of material delivered to Project site shall be taken, identified, sealed, and certified in presence of [Owner and]Contractor.
 - b. Testing agency shall perform tests for characteristics specified, using applicable referenced testing procedures.
 - c. Testing agency shall verify thickness of coatings during traffic-coating application for each 600 sq. ft. of installed traffic coating or part thereof.
 - 2. Electronic Leak-Detection Testing:
 - a. Testing agency shall test each deck area for leaks using an electronic leak-detection method that locates discontinuities in the traffic-coating membrane.
 - b. Testing agency shall perform tests on abutting or overlapping smaller areas as necessary to cover entire test area.
 - c. Testing agency shall create a conductive electronic field over the area of traffic coating to be tested and electronically determine locations of discontinuities or leaks, if any, in the traffic coating.
 - d. Testing agency shall provide survey report indicating locations of discontinuities, if any.
- B. Final Traffic-Coating Inspection: Arrange for traffic-coating manufacturer's technical personnel to inspect membrane installation on completion.
 - 1. Notify Architect or Owner 48 hours in advance of date and time of inspection.
- C. Waterproofing will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.

3.8 PROTECTING AND CLEANING

- A. Protect traffic coatings from damage and wear during remainder of construction period.
- B. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 071800

SECTION 10 4400 - FIRE PROTECTION SPECIALTIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this Section.

1.02 GENERAL DESCRIPTION OF THE WORK OF THIS SECTION:

- A. Work shall include furnishing and installing fire extinguishers, cabinets, and accessories.

1.03 RELATED WORK OF OTHER SECTIONS:

- A. Coordinate work of this Section with work of other Sections as required to properly execute the Work and as necessary to maintain satisfactory progress of the work of other Sections.

1.04 QUALITY ASSURANCE:

- A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Standard for Portable Fire Extinguishers."
- B. Provide new portable fire extinguishers which comply with applicable UL standard and are labeled by UL.
- C. Provide portable fire extinguishers and cabinets by one manufacturer, unless otherwise acceptable to Architect.

1.05 SUBMITTALS:

- A. Submit manufacturer's technical data and installation instructions for all fire extinguishers and cabinets required. For fire extinguisher cabinets include roughing-in dimensions, and details showing mounting methods, relationships to surrounding construction, door hardware, cabinet type and materials, trim style and door construction, style, and materials. Where color selection is required include color charts showing full range of manufacturer's standard colors and designs available.

PART 2 - PRODUCTS

2.01 APPROVED MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Basis-of-Design Product: The design for fire extinguishers and fire extinguisher cabinets are based on the products manufactured by J.L. Industries, Inc. Subject to compliance with requirements, provide either the named products or a comparable products by one of the following manufacturers subject to approval by the Owner and the Architect.
 - a. Larsen's Manufacturing Co.
 - b. Potter-Roemer, Inc.

2.02 FIRE EXTINGUISHERS:

- A. Provide fire extinguishers for each location indicated on the Drawings, in colors and finishes selected from manufacturer's standard which comply with requirements of governing authorities. Fill and service extinguishers to comply with requirements of governing authorities and manufacturer's requirements. Abbreviations indicated below to identify extinguisher types relate to UL classification and ratings system and not, necessarily, to type and amount of extinguishing material contained in extinguisher.
- B. Provide fire extinguisher types as follows:
1. "MP10 Multipurpose Dry Chemical Extinguisher"

2.03 FIRE EXTINGUISHER CABINETS:

- A. Provide "~~Architectural Series~~ **Cosmopolitan Series FX2**" stainless steel recessed fire extinguisher cabinets where indicated. Size cabinets to accommodate scheduled fire extinguisher. Where wall conditions will not permit installation of recessed cabinets, provide matching semi-recessed model.
- B. Fire Rated Cabinets: Listed and labeled to meet requirements of ASTM E 814 for fire-resistance rating of wall where it is installed.
1. Construct fire-rated cabinets with double walls fabricated from 0.0478 inch thick, cold-rolled steel sheet lined with minimum 5/8 inch thick, fire-barrier material.
 2. Provide factory-drilled mounting holes.

2.04 MOUNTING UPPER-LOWER BRACKETS:

- A. Provide manufacturer's standard bracket designed to prevent accidental dislodgement of extinguisher, of proper size for type and capacity of extinguisher indicated, in manufacturer's standard plated finish.

PART 3 - EXECUTION

3.01 INSTALLATION:

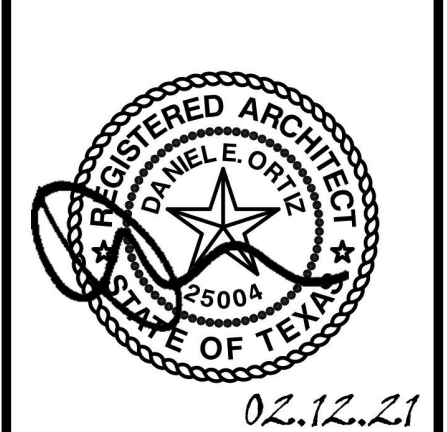
- A. Install items included in this Section in locations indicated on Drawings, and at heights complying with applicable regulations of governing authorities.
1. Securely fasten cabinet to substrate construction, square and plumb, to comply with manufacturer's instructions.
 2. Securely fasten mounting brackets to structure, square, and plumb, to comply with manufacturer's instructions.
 3. Where exact location of bracket-mounted fire extinguishers is not indicated, locate as directed by Architect.

END OF SECTION 10 4400

REVISIONS		
No.	DESCRIPTION	DATE
	ISSUE FOR PERMIT	7/31/20
	ISSUE FOR CONSTRUCTION	11/30/2
1	ADDENDUM #02	03/02/2
		2

DESIGN BY: DO
DRAWN BY: KD
CHECKED BY: SD
ISSUE DATE: 07/31/20
APPROVED BY: DO

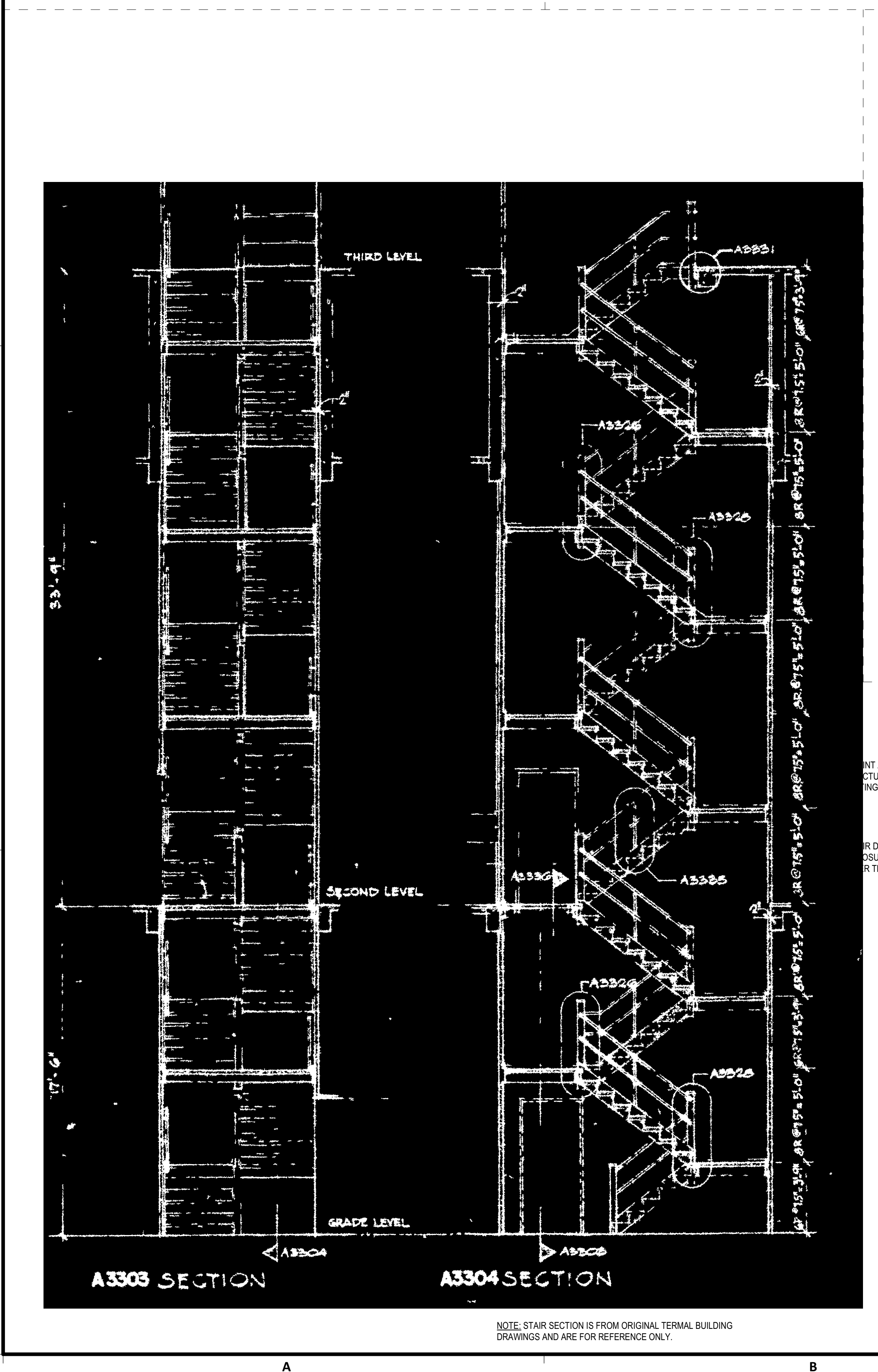
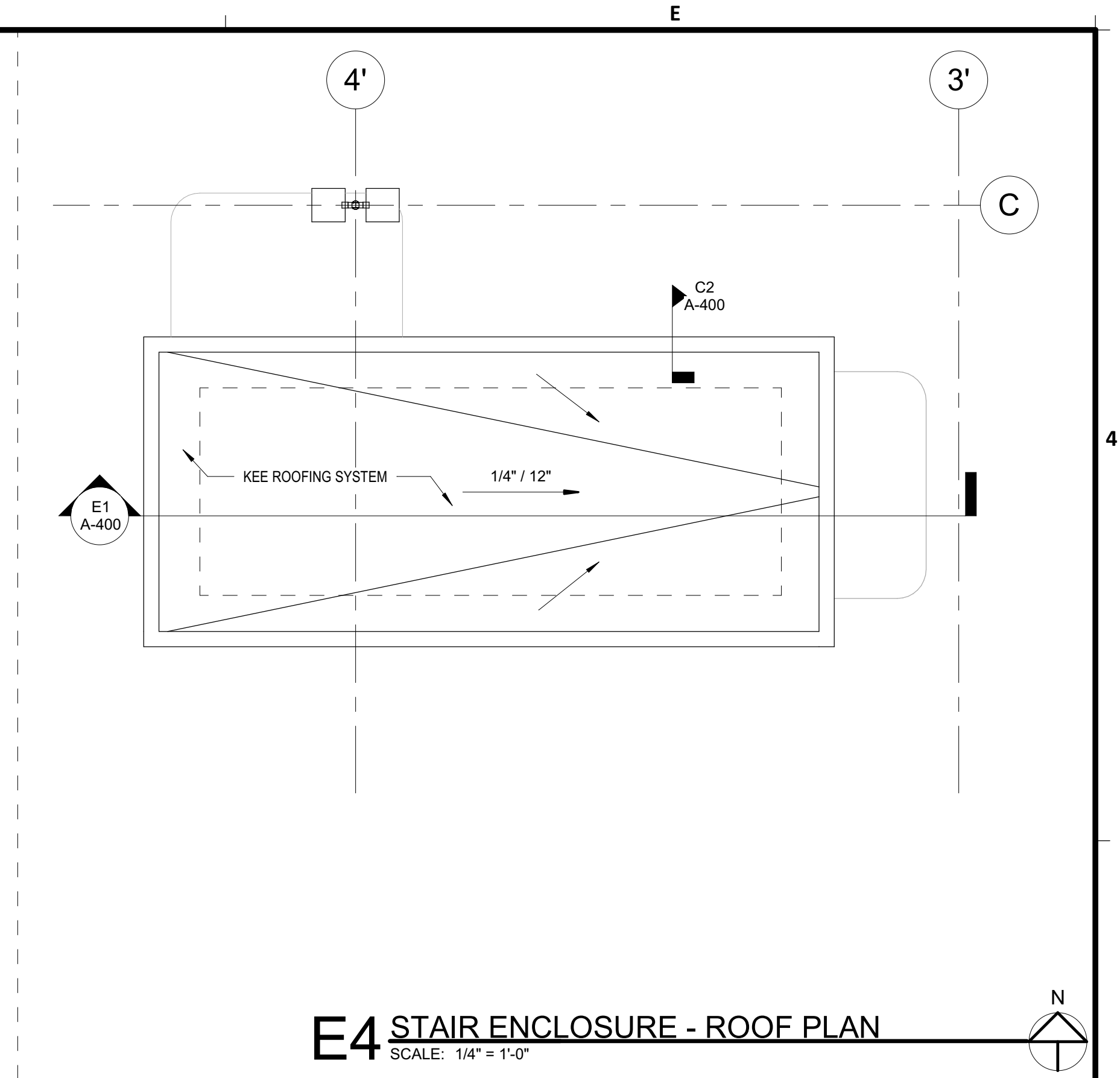
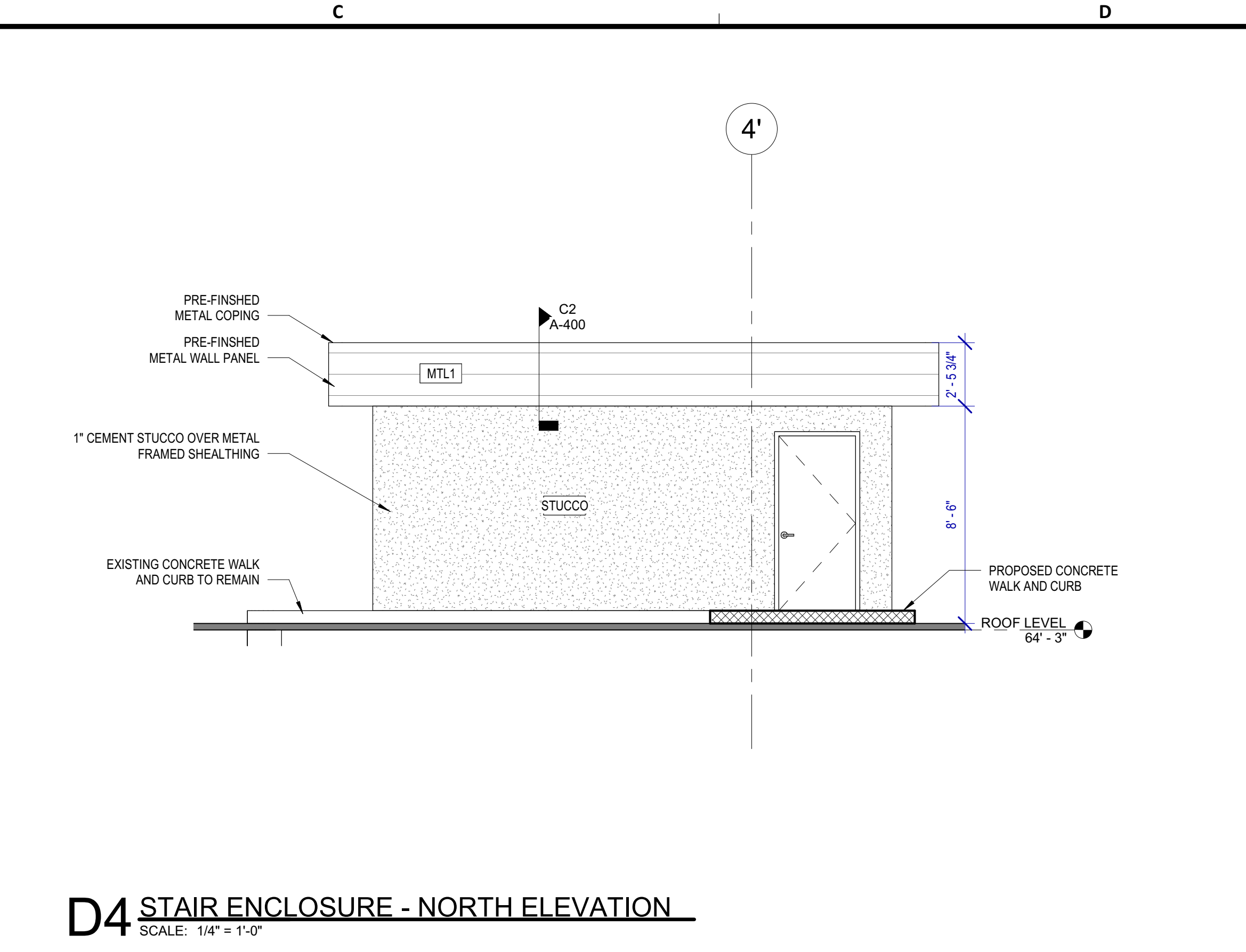
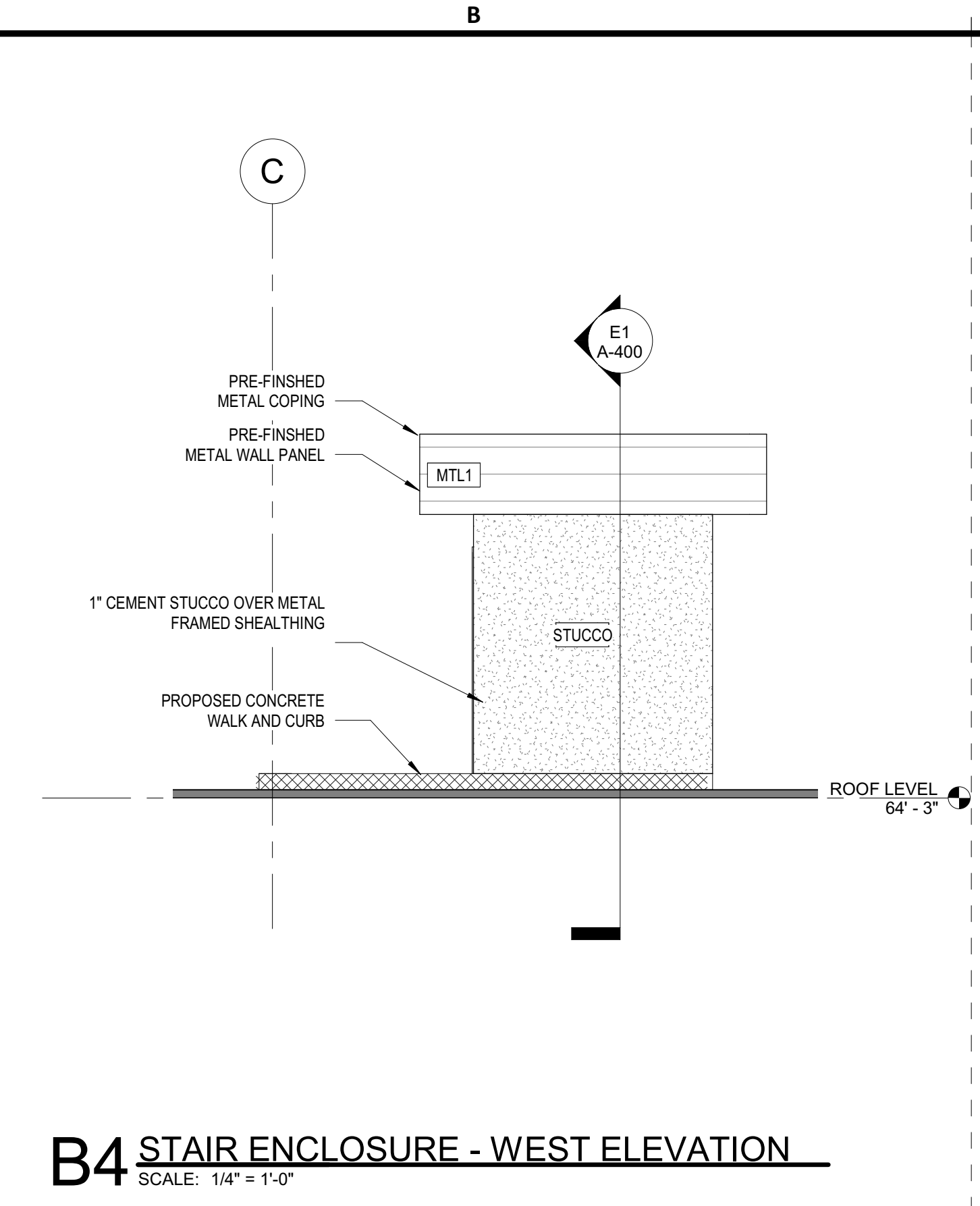
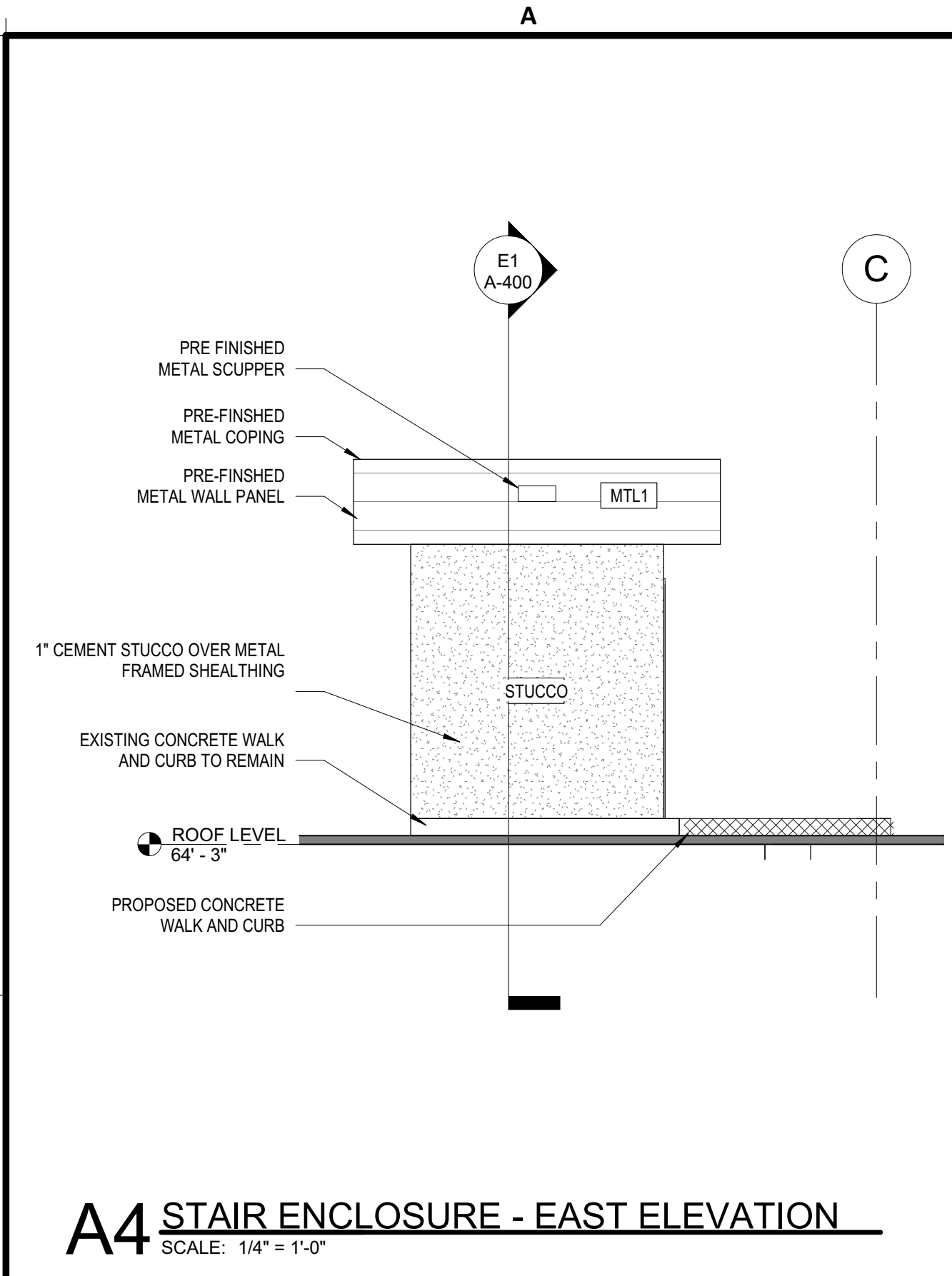
DIRECTOR
of
HOUSTON AIRPORT
SYSTEM



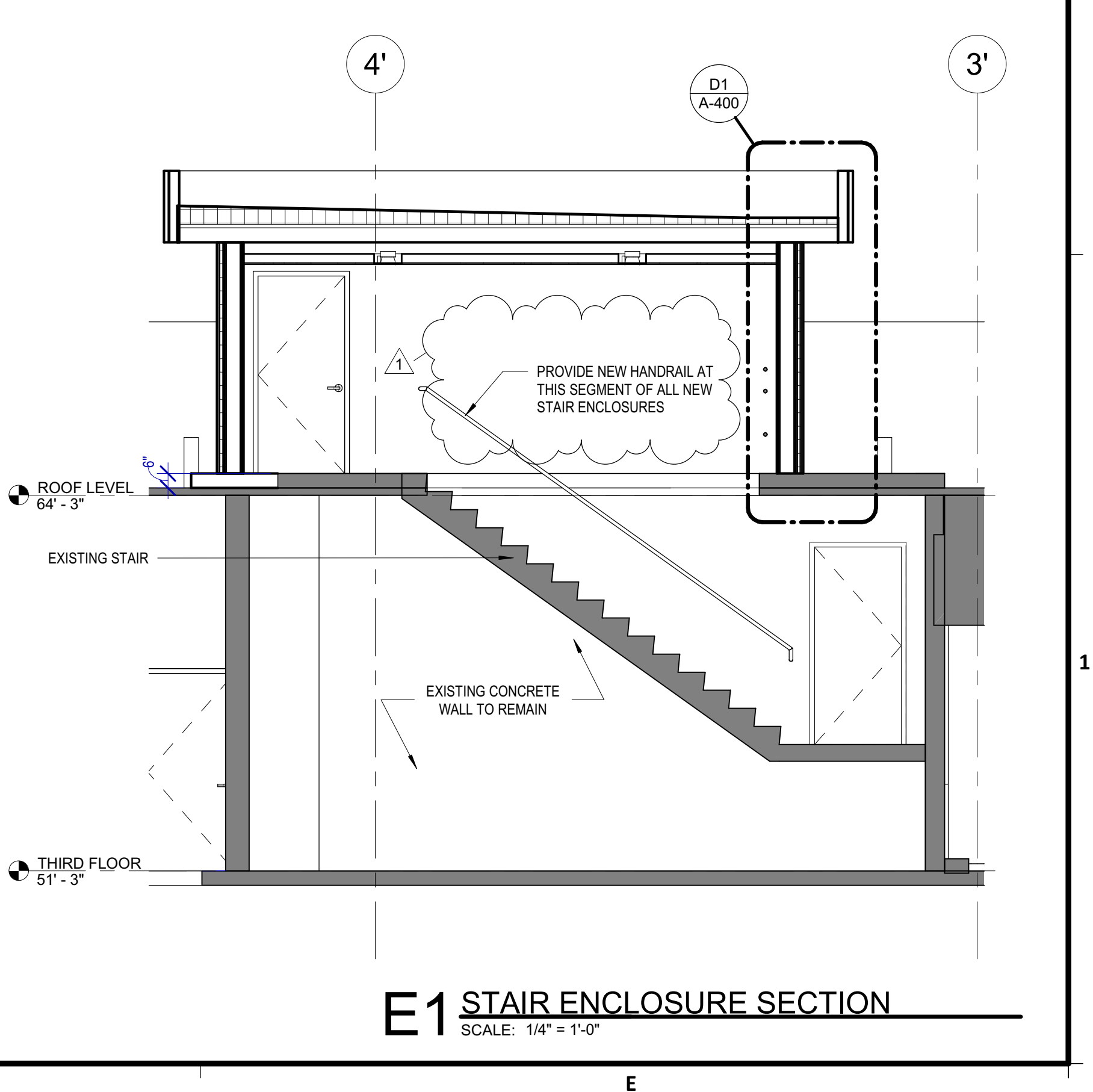
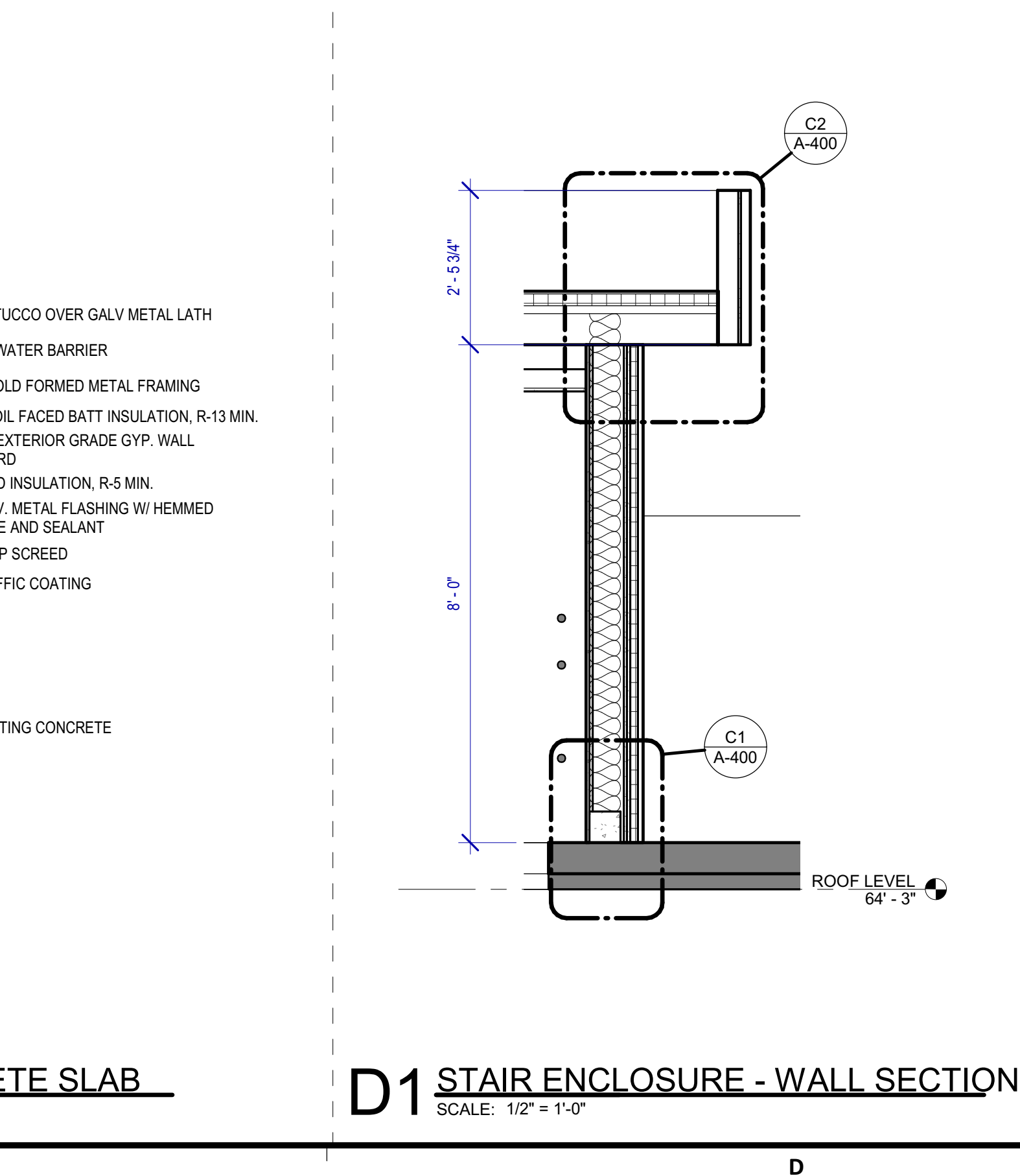
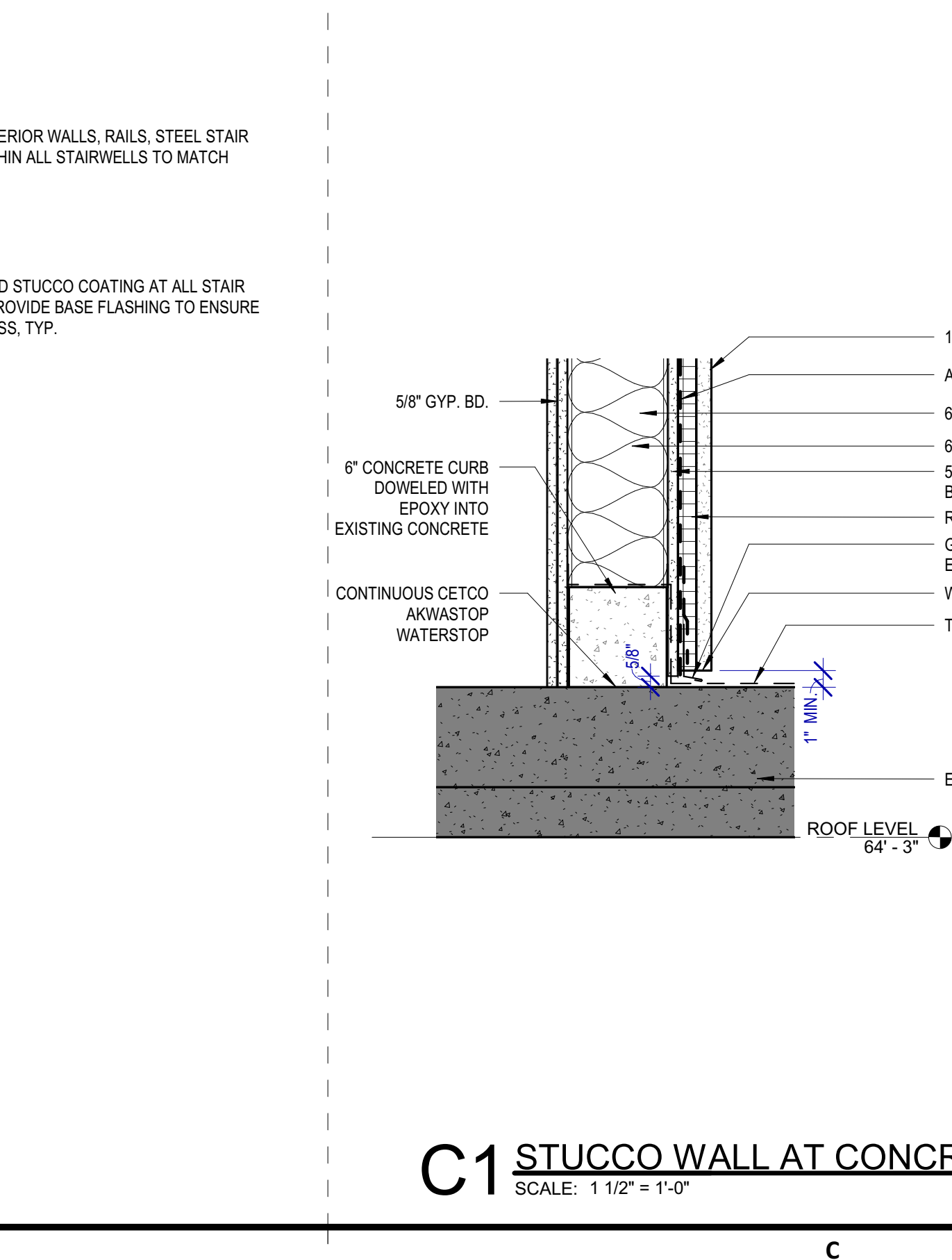
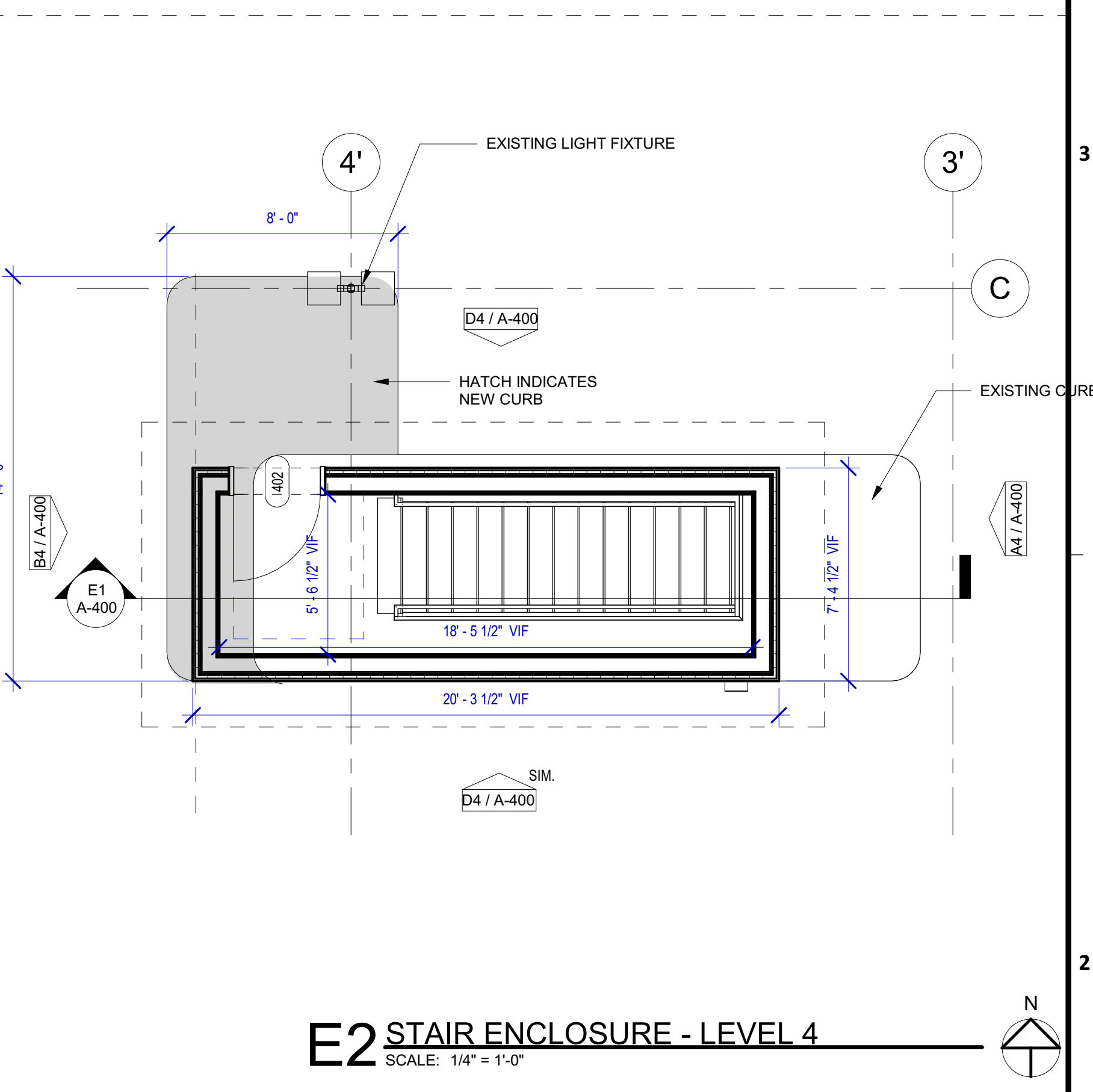
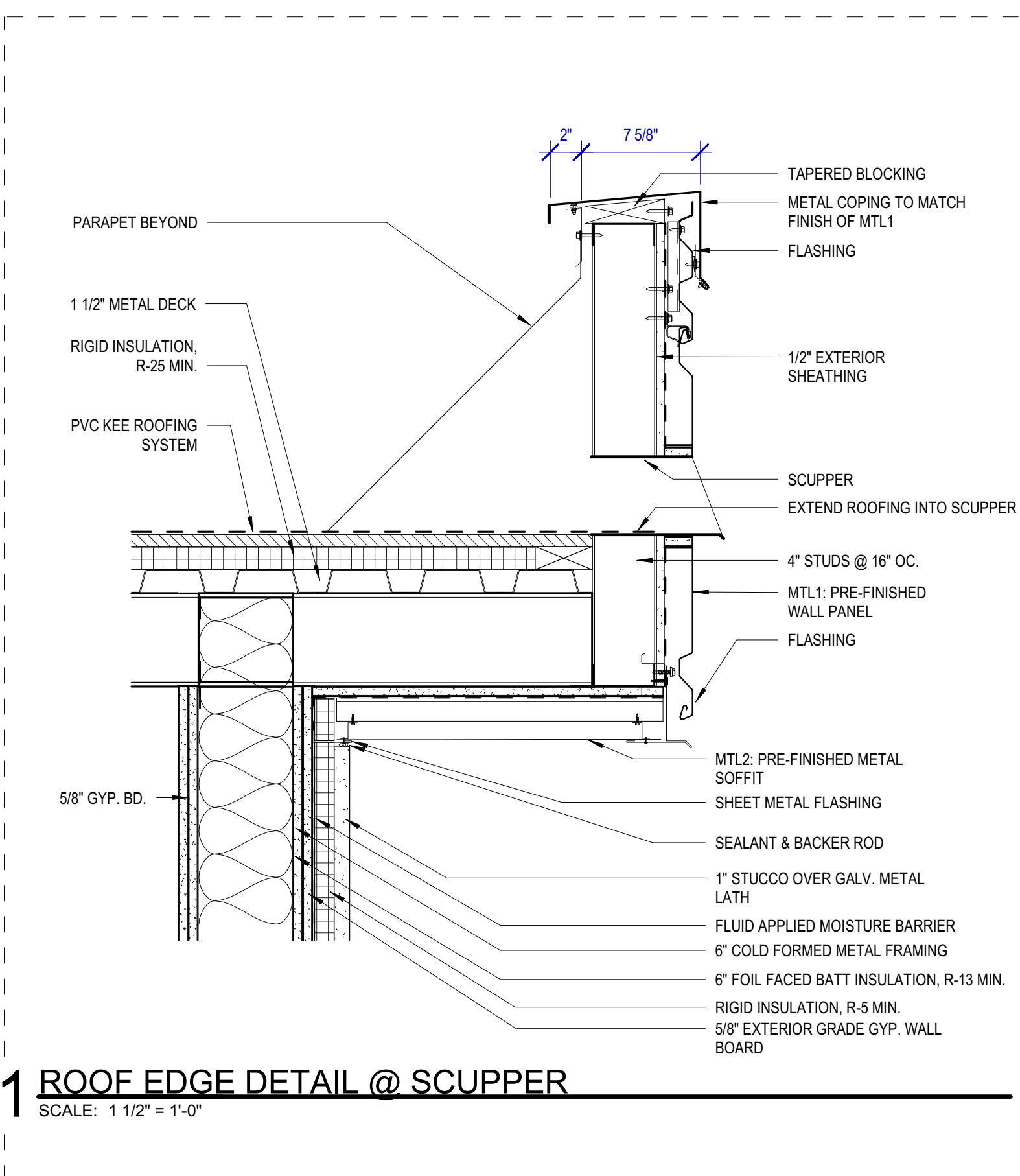
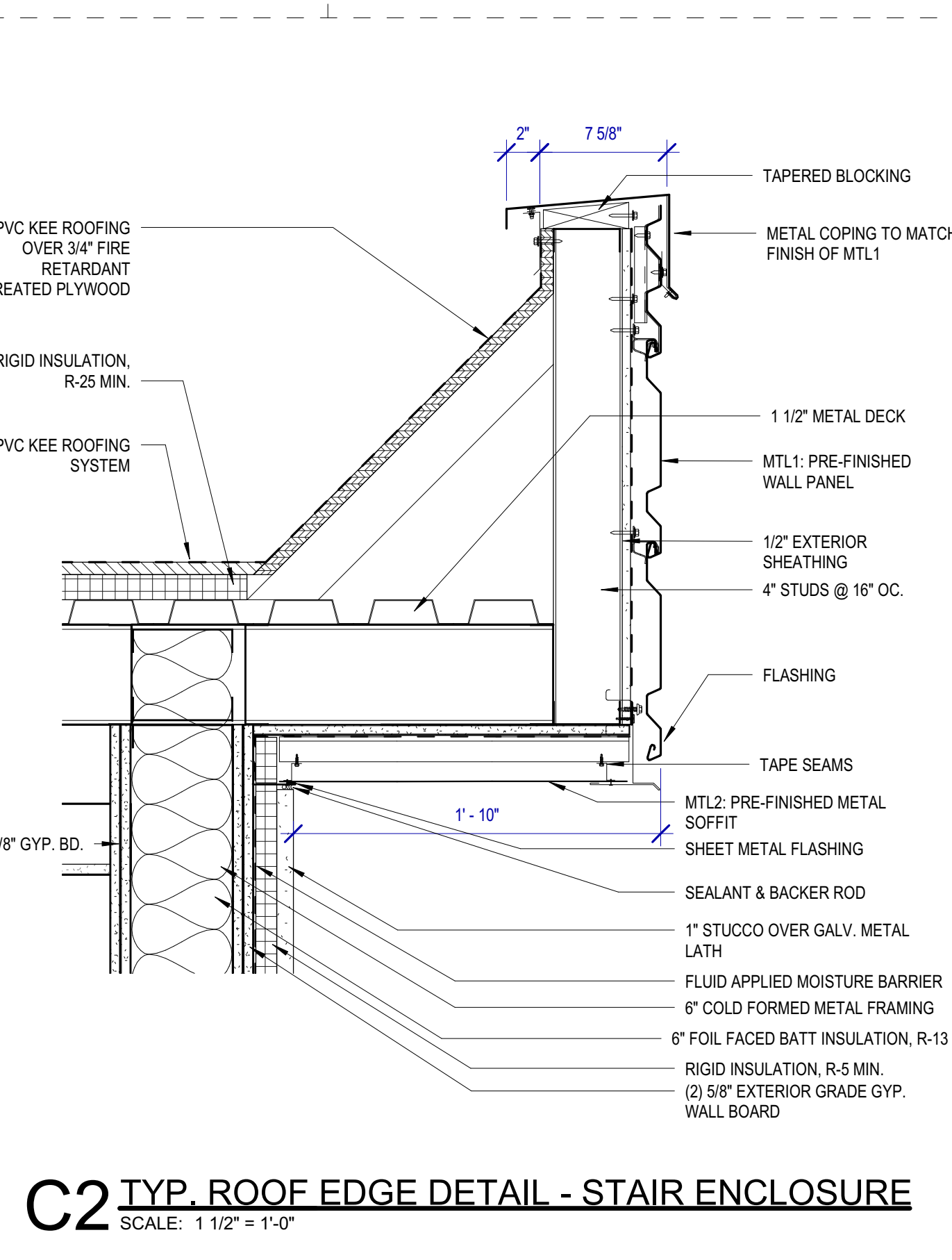
Review/Approval Category
IFC
Issued for Construction

SHEET NAME:
ENLARGED FLOOR PLANS
& DETAILS - STAIR
ENCLOSURE

SHEET No. A-400
SCALE: As indicated



NOTE: STAIR SECTION IS FROM ORIGINAL TERMINAL BUILDING DRAWINGS AND ARE FOR REFERENCE ONLY.



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HAS FILE: 1

**CITY OF HOUSTON
STANDARD DOCUMENT****WAGE SCALE
FOR BUILDING CONSTRUCTION****Document 00821****WAGE SCALE AND PAYROLL REQUIREMENTS FOR BUILDING CONSTRUCTION****Wage Scale Requirements**

- 1.1 Contractor and its Subcontractors must pay the general prevailing wage rates for building construction for each craft or type of worker or mechanic employed in the execution of any building construction or repair under the Contract in accordance with Chapter 2258 of the Texas Government Code and City of Houston, Texas Ordinance Nos. 85-2070, 2000-1114, 2001-152, 2006-91 and 2006-168, and 2009- 247 all as amended from time to time. City Council has determined the prevailing wage rate in the locality in which the work is being performed, which is set forth in Exhibit "A".
- 1.2 This prevailing wage rate does not prohibit the payment of more than the rates stated.
- 1.3 In bidding, Contractor warrants and represents that it has carefully examined the classifications for each craft or type of worker needed to execute the Contract and determined that such classifications in Exhibit "A" include all necessary categories to perform the work under the Contract.
- 1.4 The wage scale for building construction is to be applied to work on a building including an area within 5 feet of the exterior wall.
- 1.5 If Contractor believes that an additional classification for a craft or type of worker is necessary to perform work under the Contract, it must submit with its bid a request to the Contract Compliance Division of the Office of Business Opportunity ("OBO") to use an additional labor classification not listed in Exhibit "A" and specify the proposed new classification. OBO shall determine whether a proposed classification is already covered in Exhibit "A", and, if it is, specify which classification is appropriate. OBO's decision is conclusive. If OBO decides that a new classification is necessary, it will determine the appropriate prevailing wage rate for any resurveyed, amended, new, or additional craft or type of worker not covered by Exhibit "A". Such determination must be decided in accordance with procedures established by OBO, and in compliance with Chapter 2258 of the Texas Government Code and City of Houston, Texas Ordinance Nos. 85-2070, 2000-1114, 2001-152, 2006-91, 2006-168, and 2009-247 subject to City Council approval.
- 1.6 Contractor must not use any labor classification not covered by Exhibit "A" until such classification is established and approved for use by OBO.
- 1.7 A Contractor or Subcontractor who violates Chapter 2258 of the Texas Government Code must pay to the City, \$60 per each worker employed for each calendar day or part of the day that the worker is paid less than the wage rates set forth in Exhibit "A".
- 1.8 The City may withhold money required to be withheld under Chapter 2258 of the Texas Government Code from the final payment to Contractor or earlier payments if City Council makes a determination that there is good cause to believe that Contractor has not complied with these provisions and Chapter 2258 of the Government Code, in which case the City may

CITY OF HOUSTON
STANDARD DOCUMENT

**WAGE SCALE
FOR BUILDING CONSTRUCTION**

withhold the money at any time subsequent to the finding by City Council.

1.9 Contractor and Subcontractors must keep records specifying:

- (1) the name and classification of each worker employed under the Contract; and
- (2) the actual per diem wages paid to each worker, and the applicable hourly rate.

The records must be open at all reasonable hours for inspection by the officers and agents of the City.

1.10 The hourly cost of salary for non-exempt workers for labor in excess of 40 hours per worker per week, shall be calculated at 1.5 times the worker's base pay, plus 1.0 times fringe benefits, for the applicable craft and level.

Certified Payroll Requirements

- 2.1 Employees are paid weekly, and payrolls are submitted weekly using the City of Houston's electronic payroll submission module, unless the prime Contractor has been instructed to do otherwise by the Office of Business Opportunity. When no work is done after a Contractor has started work, the Contractor is required to submit a weekly compliance statement indicating no work was performed. The payrolls must reflect the exact work and classification of the workers, the exact amount that they were paid. Workers must be paid the contracted amount (prevailing wage rates). The Contractor will be penalized \$60.00 a day for each employee who is underpaid per Texas Government Code §2258-023 for all contracts.
- 2.2 Payrolls must be submitted electronically & indicate whether the worker worked inside or outside the building area when both wage rates are applicable to the project.
- 2.3 Payrolls must be submitted each week until all work by the contractor is complete and the electronic payroll submission is marked as final in the system.
- 2.4 Payrolls must cover a seven-day period from the start of the work week and must be consecutive seven-day periods until all work is complete.
- 2.5 Payrolls must have employees' names, addresses, last four digits of the social security numbers, and job classifications. The job classifications must be the same as the classifications on the prevailing wage rate schedule.
- 2.6 A payroll deduction authorization form must be submitted for each employee for any deductions other than Federal and FICA taxes and court ordered child support.
- 2.7 Employees must be paid overtime (time and a half) for all hours worked over 40 hours a week on both federally and City-funded contracts.
- 2.8 The Contractor has the responsibility to comply with all Internal Revenue Service rules and regulations. Contractors who submit certified payrolls with **Owner Operators (truckers)** must submit a signed tax liability statement from each Owner Operator acknowledging their responsibility for Federal Income Tax and FICA reporting obligations.
- 2.9 If the Contractor wants to use the apprentice wage rates for an employee, the apprenticeship

**CITY OF HOUSTON
STANDARD DOCUMENT**

**WAGE SCALE
FOR BUILDING CONSTRUCTION**

certificates must be submitted to the Office of Business Opportunity in advance of the employee working on the project and appearing on the payroll. Contractor must comply with posted number of journeymen to apprentices as listed on the wage rate.

- 2.10 A poster of the Prevailing Wage Rate Schedule should be clearly displayed on each job site from the time the project starts until the work is completed, or in case of annual service agreements, in the Contractor's office.
- 2.11 The Contractor shall submit the "Certificate from Contractor Appointing Officer or Employee to Supervise Payment of Employees" (Exhibit "B") to the Monitoring Authority listed in Document 00495 prior to final execution of the contract.
- 2.12 During the course of the work, Subcontractors shall submit the "Certificate from Subcontractor Appointing Officer or Employee to Supervise Payment of Employees" (Exhibit "C") to the Monitoring Authority listed in Document 00495.
- 2.13 Upon completion of the Project, as part of the contract-awarding department's total clearance process, the Office of Business Opportunity's Contract Compliance Section must review whether the Wage Rate and Payroll Requirements were met and report the results to the department.

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**CITY OF HOUSTON
STANDARD DOCUMENT**

**WAGE SCALE
FOR BUILDING CONSTRUCTION**

EXHIBIT "A"

**CITY OF HOUSTON, TEXAS
LABOR CLASSIFICATIONS AND PREVAILING WAGE RATES FOR BUILDING CONSTRUCTION
2022**

Worker Classification	Ratio	Base Rate	Fringe Benefit	Wage Total
Acoustical Ceiling Mechanic		\$17.27	\$3.98	\$21.25
Asbestos Abatement Worker (ceilings, walls, floors only)	Ratio 1/3	\$14.00	\$0.00	\$14.00
Asbestos Worker/ Heat & Frost Insulator (Duct, Pipe and Mechanical System Insulation) *	Ratio 1/1 – Apprentice	\$24.28	\$14.16	\$38.44
Boilermaker *	Ratio 5/1 – Apprentice	\$29.47	\$24.10	\$50.35
Bricklayer *	Ratio 1/3 – Mason Tender Brick	\$18.87	\$0.00	\$18.87
Carpenter (excludes acoustical ceiling installation, drywall hanging, form work and metal stud installation work) *	Ratio 2/1 – Apprentice	\$23.05	\$8.78	\$31.83
Caulker		\$15.36	\$0.00	\$15.36
Cement Mason/Concrete Finisher *	Ratio 1/3 – Mason Tender Concrete	\$13.93	\$0.00	\$13.93
Drywall Finisher/Taper *	Ratio 1/3 – Apprentice	\$16.27	\$3.66	\$19.93
Drywall Hanger and Metal Stud Installer *	Ratio 1/3 – Apprentice	\$17.44	\$3.93	\$21.37
Electrician (Excludes Low Voltage Wiring and Installation of Alarms)	Ratio 3/2 – Apprentice	\$32.55	\$10.35	\$42.90
Electrician (Alarm Installation Only) *	Ratio 1/1 – Apprentice	\$17.97	\$3.37	\$21.34
Electrician (Low Voltage Wiring Only) *		\$18.00	\$1.68	\$19.68
Elevator Mechanic *, **, **	Ratio 1/1 – Apprentice	\$45.48	\$36.365	\$81.845
Floor Layer: Carpet		\$20.00	\$0.00	\$20.00
Form worker *		\$12.77	\$0.00	\$12.77
Glazier *	Ratio 1/3 – Apprentice	\$23.27	\$7.12	\$30.39
Insulator – Batt *		\$14.87	\$0.73	\$15.60
Ironworker, Ornamental		\$25.14	\$7.43	\$32.57
Ironworker, Reinforcing *	Ratio 1/3 – Apprentice	\$12.14	\$0.00	\$12.14
Ironworker, Structural *	Ratio 1/3 – Apprentice	\$25.26	\$7.13	\$32.39
Laborer, Common or General		\$11.76	\$0.00	\$11.76
Laborer, Landscape and Irrigation		\$9.52	\$0.00	\$9.52
Laborer, Mason Tender - Brick		\$13.47	\$0.00	\$13.47
Laborer, Mason Tender - Cement /Concrete		\$10.48	\$0.00	\$10.48
Laborer, Pipelayer		\$12.94	\$0.00	\$12.94
Laborer, Roof Tearoff		\$11.28	\$0.00	\$11.28
Lather *	Ratio 1/3	\$19.73	\$0.00	\$19.73
Operator, Backhoe / excavator / trackhoe		\$13.94	\$0.00	\$13.94
Operator, Bobcat / skid steer / skid loader		\$13.93	\$0.00	\$13.93
Operator, Bulldozer		\$22.75	\$0.00	\$22.75
Operator, Drill		\$16.22	\$0.34	\$16.56
Operator, Forklift		\$16.00	\$0.00	\$16.00
Operator, Grader/blade		\$13.37	\$0.00	\$13.37
Operator, Loader		\$13.55	\$0.94	\$14.49
Operator, Mechanic		\$17.52	\$3.33	\$20.85

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**WAGE SCALE
FOR BUILDING CONSTRUCTION**

Operator, Paver (asphalt, aggregate, and concrete)		\$16.03	\$0.00	\$16.03
Operator, Roller		\$16.00	\$0.00	\$16.00
Painter * (brush, roller, and spray) excludes drywall finishing/taping	Ratio 1/3 – Apprentice	\$17.24	\$4.41	\$21.65
Pipe Fitter (including HVAC Pipe installation) *	Ratio 1/1 – Apprentice	\$35.68	\$12.46	\$48.14
Plasterer	Ratio 1/3 – Plasterer Tenders	\$26.04	\$9.02	\$35.06
Plumber *	Ratio 3/2 – Apprentice	\$36.15	\$11.88	\$48.03
Power Equipment Operator, Crane		\$34.85	\$9.85	\$44.70
Roofer *	Ratio 1/3 – Apprentice	\$15.40	\$0.00	\$15.40
Sheet Metal Worker (excludes HVAC Unit Installation) *	Ratio 2/1 – Apprentice	\$29.70	\$13.85	\$43.55
Sheet Metal Worker (HVAC Duct Installation only) *	Ratio 2/1 – Apprentice	\$29.70	\$13.85	\$43.55
Sheet Metal Worker (HVAC Unit Installation only) *	Ratio 2/1 – Apprentice	\$20.05	\$2.24	\$22.29
Sprinkler Fitter (Fire sprinklers) *	Ratio 1/1 – Apprentice	\$31.68	\$22.50	\$54.18
Tile Finisher *	Ratio 1/3 – Apprentice	\$12.00	\$0.00	\$12.00
Tile Setter *	Ratio 1/3 – Apprentice	\$16.17	\$0.00	\$16.17
Truck Driver, 1/Single Axle Truck		\$14.18	\$0.00	\$14.18
Truck Driver, Dump Truck		\$12.39	\$1.18	\$13.57
Truck Driver, Flatbed Truck		\$19.65	\$8.57	\$28.22
Truck Driver, Semi-Trailer Truck		\$12.50	\$0.00	\$12.50
Truck Driver, Water Truck		\$12.00	\$4.11	\$16.11
Waterproofers		\$14.39	\$0.00	\$14.39
Welders - Receive rate prescribed for craft performing operation in which welding is incidental.				
* Apprentices must be part of an approved Department of Labor apprenticeship program.				
* -- 6% under 5 years based on regular hourly rate for all hours worked. 8% over 5 years based on regular hourly rate for all hours worked.				
** -- Holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; Friday after Thanksgiving Day; Christmas Day; and Veterans Day.				

**CITY OF HOUSTON
STANDARD DOCUMENT****WAGE SCALE
FOR BUILDING CONSTRUCTION****Building Construction Prevailing Wages Classification Definitions**

Asbestos Worker/Insulator * - Ratio 1 Journeyman /1 Apprentice (1 Journeyman / 1 Apprentice)
(Including application of all insulating materials, protective coverings, coatings and finishing to all type of mechanical systems). Applies insulating material to exposed surfaces of structures, such as air ducts, hot and cold pipes, storage tanks, and cold storage rooms: Reads blueprints and selects required insulation material (in sheet, tubular, or roll form), such as fiberglass, foam rubber, styrofoam, cork, or urethane, based on material's heat retaining or excluding characteristics. Brushes adhesives on or attaches metal adhesive-backed pins to flat surfaces as necessary to facilitate application of insulation material. Measures and cuts insulation material to specified size and shape for covering flat or round surfaces, using tape measure, knife, or scissors. Fits, wraps, or attaches required insulation material around or to structure, following blueprint specifications. Covers or seals insulation with preformed plastic covers, canvas strips, sealant, or tape to secure insulation to structure, according to type of insulation used and structure covered, using staple gun, trowel, paintbrush, or caulking gun.

Asbestos Abatement Worker * (Ceilings, Floors, & Walls only)
Removes asbestos from ceilings, walls, beams, boilers, and other structures, following hazardous waste handling guidelines: Assembles scaffolding and seals off work area, using plastic sheeting and duct tape. Positions mobile decontamination unit or portable showers at entrance of work area. Builds connecting walkway between mobile unit or portable showers and work area, using hand tools, lumber, nails, plastic sheeting, and duct tape. Positions portable air evacuation and filtration system inside work area. Sprays chemical solution over asbestos covered surfaces, using tank with attached hose and nozzle, to soften asbestos. Cuts and scrapes asbestos from surfaces, using knife and scraper. Shovels asbestos into plastic disposal bags and seals bags, using duct tape. Cleans work area of loose asbestos, using vacuum, broom, and dustpan. Places asbestos in disposal bags and seals bags, using duct tape. Dismantles scaffolding and temporary walkway, using hand tools, and places plastic sheeting and disposal bags into transport bags. Seals bags, using duct tape, and loads bags into truck.

Boilermaker * - Ratio 5 Journeymen /1 Apprentice
Assembles, analyzes defects in, and repairs boilers, pressure vessels, tanks, and vats in field, following blueprints and using hand tools and portable power tools and equipment: Locates and marks reference points for columns or plates on foundation, using master straightedge, squares, transit, and measuring tape, and applying knowledge of geometry. Attaches rigging or signals crane operator to lift parts to specified position. Aligns structures or plate sections to assemble boiler frame, tanks, or vats, using plumb bobs, levels, wedges, dogs, or turnbuckles. Hammers, flame cuts, files, or grinds irregular edges of sections or structural parts to facilitate fitting edges together. Bolts or arc-welds structures and sections together. Positions drums and headers into supports and bolts or welds supports to frame. Aligns water tubes and connects and expands ends to drums and headers, using tube expander. Bells, beads with power hammer, or welds tube ends to ensure leak proof joints. Bolts or welds casing sections, uptakes, stacks, baffles, and such fabricated parts as chutes, air heaters, fan stands, feeding tube, catwalks, ladders, coal hoppers, and safety hatch to frame, using wrench. Installs manholes, hand holes, valves, gauges, and feed water connection in drums to complete assembly of water tube boilers. Assists in testing assembled vessels by pumping water or gas under specified pressure into vessel and observing instruments for evidence of leakage. Repairs boilers or tanks in field by unbolting or flame cutting defective sections or tubes, straightening plates, using torch or jacks, installing new tubes, fitting and welding new sections and replacing worn lugs on bolts. May rivet and caulk sections of vessels, using pneumatic riveting and caulking hammers.

**CITY OF HOUSTON
STANDARD DOCUMENT****WAGE SCALE
FOR BUILDING CONSTRUCTION****Bricklayer** * (See Mason Tender) - Ratio 1 Journeyman /3 Mason Tender Brick

Lays building materials, such as brick, structural tile, and concrete cinder, glass, gypsum, and terra cotta block (except stone) to construct or repair walls, partitions, arches, sewers, and other structures: Measures distance from reference points and marks guidelines on working surface to lay out work. Spreads soft bed (layer) of mortar that serves as base and binder for block, using trowel. Applies mortar to end of block and positions block in mortar bed. Taps block with trowel to level, align, and embed in mortar, allowing specified thickness of joint. Removes excess mortar from face of block, using trowel. Finishes mortar between brick with pointing tool or trowel. Breaks bricks to fit spaces too small for whole brick, using edge of trowel or brick hammer. Determines vertical and horizontal alignment of courses, using plumb bob, gauge line (tightly stretched cord), and level. Fastens brick or terra cotta veneer to face of structures, with tie wires embedded in mortar between bricks, or in anchor holes in veneer brick. May weld metal parts to steel structural members. May apply plaster to walls and ceiling, using trowel, to complete repair work.

Carpenter * (Including Acoustical Ceiling Work) - Ratio 2 Journeymen /1 Apprentice

Constructs, erects, installs, and repairs structures and fixtures of wood, plywood, and wallboard, using carpenter's hand tools and power tools, and conforming to local building codes: Studies blueprints, sketches, or building plans for information pertaining to type of material required, such as lumber or fiberboard, and dimensions of structure or fixture to be fabricated. Selects specified type of lumber or other materials. Prepares layout, using rule, framing square, and calipers. Marks cutting and assembly lines on materials, using pencil, chalk, and marking gauge. Shapes materials to prescribed measurements, using saws, chisels, and planes. Assembles cut and shaped materials and fastens them together with nails, dowel pins, or glue. Verifies trueness of structure with plumb bob and carpenter's level. Erects framework for structures and lays subflooring. Builds stairs and lays out and installs partitions and cabinetwork. Covers sub floor with building paper to keep out moisture and lays hardwood, parquet, and wood-strip-block floors by nailing floors to sub floor or cementing them to mastic or asphalt base. Applies shock-absorbing, sound-deadening, and decorative paneling to ceilings and walls. Fits and installs prefabricated window frames, doors, doorframes, weather stripping, interior and exterior trim, and finish hardware, such as locks, letter drops, and kick plates. Constructs forms and chutes for pouring concrete. Erects scaffolding and ladders for assembling structures above ground level. May weld metal parts to steel structural members.

Cement Mason/Concrete Finisher *(Mason Tender Cement/Concrete) - Ratio 1 Journeyman /3
Mason Tender Cement

Finisher; concrete floater Smooths and finishes surfaces of poured concrete floors, walls, sidewalks, or curbs to specified textures, using hand tools or power tools, including floats, trowels, and screeds: Signals concrete deliverer to position truck to facilitate pouring concrete. Moves discharge chute of truck to direct concrete into forms. Spreads concrete into inaccessible sections of forms, using rake or shovel. Levels concrete to specified depth and workable consistency, using hand held screed and floats to bring water to surface and produce soft topping. Smooths, and shapes surfaces of freshly poured concrete, using straightedge and float or power screed. Finishes concrete surfaces, using power trowel, or wets and rubs concrete with abrasive stone to impart finish. Removes rough or defective spots from concrete surfaces, using power grinder or chisel and hammer, and patches holes with fresh concrete or epoxy compound. Molds expansion joints and edges, using edging tools, jointers, and straightedge. May sprinkle colored stone chips, powdered steel, or coloring powder on concrete to produce prescribed finish. May produce rough concrete surface, using broom. May mix cement, using hoe or concrete-mixing machine. May direct sub grade work, mixing of concrete, and setting of forms.

Drywall Finisher/Taper

Wallboard and plasterboard; sheetrock taper; taper and bedder; taper and floater. Seals joints

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**WAGE SCALE
FOR BUILDING CONSTRUCTION**

between plasterboard or other wallboards to prepare wall surface for painting or papering; Mixes sealing compound by hand or with portable electric mixer, and spreads compound over joints between boards, using trowel, broad knife, or spatula. Presses paper tape over joint to embed tape into compound and seal joint, or tapes joint, using mechanical applicator that spreads compound and embeds tape in one operation. Spreads and smooth's cementing material over tape, using trowel or floating machine to blend joint with wall surface. Sands rough spots after cement has dried. Fills cracks and holes in walls and ceiling with sealing compound. Installs metal molding at corners in lieu of sealant and tape. Usually works as member of crew. May apply texturing compound and primer to walls and ceiling preparatory to final finishing, using brushes, roller, or spray gun. May countersink nails or screws below surface of wall prior to applying sealing compound, using hammer or screwdriver.

Drywall Hanger

Dry-wall installer; gypsum dry-wall systems installer. Plans gypsum drywall installations, erects metal framing and furring channels for fastening drywall, and installs drywall to cover walls, ceilings, soffits, shafts, and movable partitions in residential, commercial, and industrial buildings: Reads blueprints and other specifications to determine method of installation, work procedures, and material, tool, and work aid requirements. Lays out reference lines and points for use in computing location and position of metal framing and furring channels and marks position for erecting metalwork, using chalk line. Measures, marks, and cuts metal runners, studs, and furring channels to specified size, using tape measure, straightedge and hand and portable power cutting tools. Secures metal framing to walls and furring channels to ceilings, using hand and portable power tools.

Measures and marks cutting lines on drywall, using square, tape measure, and marking devices. Scribes cutting lines on drywall, using straightedge and utility knife and breaks board along cut lines. Fits and fastens board into specified position on wall, using screws, hand tools, portable power tools, or adhesive. Cuts openings into board for electrical outlets, vents, or fixtures, using keyhole saw or other cutting tools. Measures, cuts, assembles, and installs metal framing and decorative trim for windows, doorways, and vents. Fits, aligns, and hangs doors and installs hardware, such as locks and kick plates (Includes Installing Metal Studs).

Electrician * Ratio 3 Journeymen /2 Apprentice

Plans layout, installs, and repairs wiring, electrical fixtures, apparatus, and control equipment: Plans new or modified installations to minimize waste of materials, provide access for future maintenance, and avoid unsightly, hazardous, and unreliable wiring, consistent with specifications and local electrical codes. Prepares sketches showing location of wiring and equipment, or follows diagrams or blueprints, ensuring that concealed wiring is installed before completion of future walls, ceilings, and flooring. Measures, cuts, bends, threads, assembles, and installs electrical conduit, using tools, such as hacksaw, pipe threader, and conduit bender. Pulls wiring through conduit. Splices wires by stripping insulation from terminal leads, using knife or pliers, twisting or soldering wires together, and applying tape or terminal caps. Connects wiring to lighting fixtures and power equipment, using hand tools. Installs control and distribution apparatus, such as switches, relays, and circuit-breaker panels, fastening in place with screws or bolts, using hand tools and power tools. Connects power cables to equipment, such as electric range or motor, and installs grounding leads. Tests continuity of circuit to ensure electrical compatibility and safety of components, using testing instruments, such as ohmmeter, battery and buzzer, and oscilloscope. Observes functioning of installed equipment or system to detect hazards and need for adjustments, relocation, or replacement (Including Pulling Wire and Low Voltage Wiring and Installation of Fire Alarms, Security Systems, Telephones, and Computers).

Elevator Mechanic * - Ratio 1 Journeyman /1 Apprentice

FOOTNOTES: a. - Employer contributes 8% of basic hourly rate for over 5 years' service and 6% of

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basic hourly rate for 6 months to 5 years' service as Vacation Pay Credit. Paid Holidays: New Year's Day; Memorial Day; Independence Day Labor Day; Thanksgiving Day; Friday after Thanksgiving Day; Christmas Day.

Erector; elevator installer; elevator mechanic. Assembles and installs electric and hydraulic freight and passenger elevators, escalators, and dumbwaiters, determining layout and electrical connections from blueprints: Studies blueprints and lays out location of framework, counterbalance rails, motor pump, cylinder, and plunger foundations. Drills holes in concrete or structural steel members with portable electric drill. Secures anchor bolts or welds brackets to support rails and framework, and verifies alignment with plumb bob and level. Cuts prefabricated sections of framework, rails, and other elevator components to specified dimensions, using acetylene torch, power saw, and disk grinder. Installs cables, counterweights, pumps, motor foundations, escalator drives, guide rails, elevator cars, and control panels, using hand tools. Connects electrical wiring to control panels and electric motors. Installs safety and control devices. Positions electric motor and equipment on top of elevator shaft, using hoists and cable slings.

Formbuilder/Formsetter

Constructs built-in-place or prefabricated wooden forms, according to specifications, for molding concrete structures: Studies blueprints and diagrams to determine type and dimension of forms to be constructed. Saws lumber to blueprint dimensions, using handsaw or power saw, and nails lumber together to make form panels. Erects built-in-place forms or assembles and installs prefabricated forms on construction site according to blueprint specifications, using hand tools, plumb rule, and level. Inserts spreaders and tie rods between opposite faces of form to maintain specified dimensions. Anchors and braces forms to fixed objects, using nails, bolts, anchor rods, steel cables, planks, and timbers.

Glazier

Installs glass in windows, skylights, store fronts, and display cases, or on surfaces, such as building fronts, interior walls, ceilings, and tabletops: Marks outline or pattern on glass, and cuts glass, using glasscutter. Breaks off excess glass by hand or with notched tool. Fastens glass panes into wood sash with glazier's points, and spreads and smoothes putty around edge of panes with knife to seal joints. Installs mirrors or structural glass on building fronts, walls, ceilings, or tables, using mastic, screws, or decorative molding. Bolts metal hinges, handles, locks, and other hardware to prefabricated glass doors. Sets glass doors into frame and fits hinges. May install metal window and doorframes into which glass panels are to be fitted. May press plastic adhesive film to glass or spray glass with tinting solution to prevent light glare. May install stained glass windows.

Insulator (Batt and Foam)

Applies batt and form insulation to walls, ceilings and other surfaces according to manufacturers specifications and blue print instructions. May use sealants such as cement plaster or asphalt compound to seal insulation; may spread concrete over floor slabs to form wearing floor: brushes adhesives, cuts insulating materials to specified shape to cover surfaces; uses tape or other sealants to adhere insulation to surfaces. May use staple gun, towel, paintbrushes and caulking guns.

Ironworker (Reinforcing)

Positions and secures steel bars in concrete forms to reinforce concrete; places rods in forms, spacing and fastening together with wire and pliers. Cuts bars using hacksaw, bar cutters or acetylene torch. Bends steel rods with hand tools or rod bending machine; reinforces concrete with wire mesh; welds reinforcing bars together.

Ironworker (Structural)

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Erector; ironworker; steel erector; structural-iron erector; structural-iron worker; structural steel erector. Performs any combination of following duties to raise, place, and unite girders, columns, and other structural-steel members to form completed structures or structure frameworks, working as member of crew: Sets up hoisting equipment for raising and placing structural-steel members. Fastens steel members to cable of hoist, using chain, cable, or rope. Signals worker operating hoisting equipment to lift and place steel member. Guides member, using tab line (rope) or rides on member to guide it into position. Pulls, pushes, or pries steel members into approximate position while member is supported by hoisting device. Forces members into final position, using turnbuckles, crowbars, jacks, and hand tools. Aligns rivet holes in member with corresponding holes in previously placed member by driving drift pins or handle of wrench through holes. Verifies vertical and horizontal alignment of members, using plumb bob and level.

Lather

Fastens wooden, metal, or rockboard lath to walls, ceilings, and partitions of buildings to provide supporting base for plaster, fireproofing, or acoustical material, using hand tools and portable power tools: Erects horizontal metal framework to which laths are fastened, using nails, bolts, and studgun. Drills holes in floor and ceiling, using portable electric tool, and drives ends of wooden or metal studs into holes to provide anchor for furring or rockboard lath. Wires horizontal strips to furring to stiffen framework. Cuts lath to fit openings and projections, using hand tools or portable power tools. Wires, nails, clips, or staples lath to framework, ceiling joists, and flat concrete surfaces. Bends metal lath to fit corners, or attaches preformed corner reinforcements. Wires plasterer's channels to overhead structural framework to provide support for plaster or acoustical ceiling tile.

Painter (Brush, Roller, and Spray)

Applies coats of paint, varnish, stain, enamel, or lacquer to decorate and protect interior or exterior surfaces, trimmings, and fixtures of buildings and other structures: Reads work order or receives instructions from supervisor or homeowner regarding painting. Smooths surfaces, using sandpaper, brushes, or steel wool, and removes old paint from surfaces, using paint remover, scraper, wire brush, or blowtorch to prepare surfaces for painting. Fills nail holes, cracks, and joints with caulk, putty, plaster, or other filler, using caulking gun and putty knife. Selects premixed paints, or mixes required portions of pigment, oil, and thinning and drying substances to prepare paint that matches specified colors. Removes fixtures, such as pictures and electric switchcovers, from walls prior to painting, using screwdriver. Spreads dropcloths over floors and room furnishings, and covers surfaces, such as baseboards, doorframes, and windows with masking tape and paper to protect surfaces during painting. Paints surfaces, using brushes, spray gun, or paint rollers. Simulates wood grain, marble, brick, or tile effects. Applies paint with cloth, brush, sponge, or fingers to create special effects. Erects scaffolding or sets up ladders to perform tasks above ground level.

Pipe fitter * (HVAC Pipe Only) - Ratio 1Journeyman /1 Apprentice (See Schedule included)

Lays out, assembles, installs, and maintains pipe systems, pipe supports, and related hydraulic and pneumatic equipment for steam, hot water, heating, cooling, lubricating, sprinkling, and industrial production and processing systems, applying knowledge of system operation, and following blueprints: Selects type and size of pipe, and related materials and equipment, such as supports, hangers, and hydraulic cylinders, according to specifications. Inspects work site to determine presence of obstructions and to ascertain that holes cut for pipe will not cause structural weakness. Plans installation or repair to avoid obstructions and to avoid interfering with activities of other workers. Cuts pipe, using saws, pipe cutter, hammer and chisel, cutting torch, and pipe cutting machine. Threads pipe, using pipe threading machine. Bends pipe, using pipe bending tools and pipe bending machine. Assembles and installs variety of metal and nonmetal pipes, tubes, and fittings, including iron, steel, copper, and plastic. Connects pipes, using threaded, caulked, soldered, brazed, fused, or cemented joints, and hand tools. Secures pipes to structure with brackets, clamps,

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and hangers, using hand tools and power tools. Installs and maintains hydraulic and pneumatic components of machines and equipment, such as pumps and cylinders, using hand tools. Installs and maintains refrigeration and air-conditioning systems, including compressors, pumps, meters, pneumatic and hydraulic controls, and piping, using hand tools and power tools, and following specifications and blueprints. Increases pressure in pipe system and observes connected pressure gauge to test system for leaks.

Pipe Fitter * (Excluding HVAC Pipe)

Lays out, assembles, installs, and maintains pipe systems, pipe supports, and related hydraulic and pneumatic equipment for steam, hot water, heating, cooling, lubricating, sprinkling, and industrial production and processing systems, applying knowledge of system operation, and following blueprints: Selects type and size of pipe, and related materials and equipment, such as supports, hangers, and hydraulic cylinders, according to specifications. Inspects work site to determine presence of obstructions and to ascertain that holes cut for pipe will not cause structural weakness. Plans installation or repair to avoid obstructions and to avoid interfering with activities of other workers. Cuts pipe, using saws, pipe cutter, hammer and chisel, cutting torch, and pipe cutting machine. Threads pipe, using pipe-threading machine. Bends pipe, using pipe bending tools and pipe bending machine. Assembles and installs variety of metal and nonmetal pipes, tubes, and fittings, including iron, steel, copper, and plastic. Connects pipes, using threaded, caulked, soldered, brazed, fused, or cemented joints, and hand tools. Secures pipes to structure with brackets, clamps, and hangers, using hand tools and power tools. Installs and maintains hydraulic and pneumatic components of machines and equipment, such as pumps and cylinders, using hand tools. Installs and maintains refrigeration and air-conditioning systems, including compressors, pumps, meters, pneumatic and hydraulic controls, and piping, using hand tools and power tools, and following specifications and blueprints. Increases pressure in pipe system and observes connected pressure gauge to test system for leaks. May weld pipe supports to structural steel members. May observe production machines in assigned area of manufacturing facility to detect machinery malfunctions. May operate machinery to verify repair. May modify programs of automated machinery, such as robots and conveyors, to change motion and speed of machine, using teach pendant, control panel, or keyboard and display screen of robot controller and programmable controller. May be designated Steam Fitter (construction) when installing piping systems that must withstand high pressure

Plasterer * See Plaster Tender - Ratio 1 Journeyman /3 Plaster Tenders

Applies coats of plaster to interior walls, ceilings, and partitions of buildings, to produce finished surface, according to blueprints, architect's drawings, or oral instructions, using hand tools and portable power tools: Directs workers to mix plaster to desired consistency and to erect scaffolds. Spreads plaster over lath or masonry base, using trowel, and smoothes plaster with darby and float to attain uniform thickness. Applies scratch, brown, or finish coats of plaster to wood, metal, or board lath successively. Roughens undercoat with scratcher (wire or metal scraper) to provide bond for succeeding coats of plaster.

Plumber * (Excluding HVAC Pipe) - Ratio 3 Journeymen /2 Apprentice

Assembles, installs, and repairs pipes, fittings, and fixtures of heating, water, and drainage systems, according to specifications and plumbing codes: Studies building plans and working drawings to determine work aids required and sequence of installations. Inspects structure to ascertain obstructions to be avoided to prevent weakening of structure resulting from installation of pipe. Locates and marks position of pipe and pipe connections and passage holes for pipes in walls and floors, using ruler, spirit level, and plumb bob. Cuts openings in walls and floors to accommodate pipe and pipe fittings, using hand tools and power tools. Cuts and threads pipe, using pipe cutters, cutting torch, and pipe-threading machine. Bends pipe to required angle by use of pipe-bending machine or by placing pipe over block and bending it by hand. Assembles and installs valves, pipe

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fittings, and pipes composed of metals, such as iron, steel, brass, and lead, and nonmetals, such as glass, vitrified clay, and plastic, using hand tools and power tools. Joins pipes by use of screws, bolts, fittings, solder, plastic solvent, and caulks joints. Fills pipe system with water or air and reads pressure gauges to determine whether system is leaking. Installs and repairs plumbing fixtures, such as sinks, commodes, bathtubs, water heaters, hot water tanks, garbage disposal units, dishwashers, and water softeners. Repairs and maintains plumbing by replacing washers in leaky faucets, mending burst pipes, and opening clogged drains.

Roofer

Covers roofs with roofing materials other than sheet metal, such as composition shingles or sheets, wood shingles, or asphalt and gravel, to waterproof roofs: Cuts roofing paper to size, using knife, and nails or staples it to roof in overlapping strips to form base for roofing materials. Installs gutters and down spouts. Aligns roofing material with edge of roof, and overlaps successive layers, gauging distance of overlap with chalk line, gauge on shingling hatchet, or by lines on shingles. Fastens composition shingles or sheets to roof with asphalt, cement, or nails. Punches holes in slate, tile, terra cotta, or wooden shingles, using punch and hammer. Cuts strips of flashing and fits them into angles formed by walls, vents, and intersecting roof surfaces. When applying asphalt or tar and gravel to roof, mops or pours hot asphalt or tar onto roof base. Applies alternate layers of hot asphalt or tar and roofing paper until roof covering is as specified. Applies gravel or pebbles over top layer, using rake or stiff bristled broom.

Sheet metal worker * Ratio 2 Journeymen /1 Apprentice (Including Setting HVAC Duct & System Installs)

Fabricates, assembles, installs and repairs sheet metal products, including sheet metal roof (also see Roofer). Operates soldering and welding equipment to join together sheet metal parts. Seals seams and joints with sealant. Installs roof sheets, trims, flashing, gutters down spouts and other related items. Performs other related duties.

Sprinkler Fitter (Fire) * - Ratio 1 Journeyman /1 Apprentice

Lays out, assembles, installs, and maintains pipe systems, pipe supports, and related hydraulic and pneumatic equipment for steam, hot water, heating, cooling, lubricating, sprinkling, and industrial production and processing systems, applying knowledge of system operation, and following blueprints: Selects type and size of pipe, and related materials and equipment, such as supports, hangers, and hydraulic cylinders, according to specifications. Inspects work site to determine presence of obstructions and to ascertain that holes cut for pipe will not cause structural weakness. Plans installation or repair to avoid obstructions and to avoid interfering with activities of other workers. Cuts pipe, using saws, pipe cutter, hammer and chisel, cutting torch, and pipe cutting machine. Threads pipe, using pipe-threading machine. Bends pipe, using pipe bending tools and pipe bending machine. Assembles and installs variety of metal and nonmetal pipes, tubes, and fittings, including iron, steel, copper, and plastic. Connects pipes, using threaded, caulked, soldered, brazed, fused, or cemented joints, and hand tools. Secures pipes to structure with brackets, clamps, and hangers, using hand tools and power tools. Installs and maintains hydraulic and pneumatic components of machines and equipment, such as pumps and cylinders, using hand tools. Installs and maintains refrigeration and air-conditioning systems, including compressors, pumps, meters, pneumatic and hydraulic controls, and piping, using hand tools and power tools, and following specifications and blueprints. Increases pressure in pipe system and observes connected pressure gauge to test system for leaks. May weld pipe supports to structural steel members. May observe production machines in assigned area of manufacturing facility to detect machinery malfunctions. May operate machinery to verify repair. May modify programs of automated machinery, such as robots and conveyors, to change motion and speed of machine, using teach pendant, control panel, or keyboard and display screen of robot controller and programmable controller.

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Supplies and mixes construction materials for TILE SETTER (construction) 861.381-054, applies grout, and cleans installed tile: Moves tiles, tile setting tools, and work devices from storage area to installation site manually or using wheelbarrow. Mixes mortar and grout according to standard formulas and request from TILE SETTER (construction), using bucket, water hose, spatula, and portable mixer. Supplies TILE SETTER (construction) with mortar, using wheelbarrow and shovel. Applies grout between joints of installed tile, using grouting trowel. Removes excess grout from tile joints with wet sponge and scrapes corners and crevices with trowel. Wipes surface of tile after grout has set to remove grout residue and polish tile, using nonabrasive materials. Cleans installation site, mixing and storage areas, and installation machines, tools, and equipment, using water and various cleaning tools. Stores tile setting materials, machines, tools, and equipment. May apply caulk, sealers, acid, steam, or related agents to caulk, seal, or clean installed tile, using various application devices and equipment. May modify mixing, grouting, grinding, and cleaning procedures according to type of installation or material used. May assist TILE SETTER (construction) to position and secure metal lath, wire mesh, or felt paper prior to installation of tile. May cut marked tiles to size, using power saw or tile cutter.

Tile Setter

Applies tile to walls, floors, ceilings, and promenade roof decks, following design specifications: Examines blueprints, measures and marks surfaces to be covered, and lays out work. Measures and cuts metal lath to size for walls and ceilings with tin snips. Tacks lath to wall and ceiling surfaces with staple gun or hammer. Spreads plaster base over lath with trowel and levels plaster to specified thickness, using screed. Spreads concrete on sub floor, with trowel and levels it with screed. Spreads mastic or other adhesive base on roof deck, using serrated spreader to form base for promenade tile. Cuts and shapes tile with tile cutters and biters. Positions tile and taps it with trowel handle to affix tile to plaster or adhesive base.

Truck Driver

Drives truck with capacity of more than 3 tons, to transport materials to and from specified destinations: Drives truck to destination, applying knowledge of commercial driving regulations and area roads. Prepares receipts for load picked up. Collects payment for goods delivered and for delivery charges. May maintain truck log, according to state and federal regulations. May maintain telephone or radio contact with supervisor to receive delivery instructions. May load and unload truck. May inspect truck equipment and supplies, such as tires, lights, brakes, gas, oil, and water. May perform emergency roadside repairs, such as changing tires, installing light bulbs, tire chains, and spark plugs. May position blocks and tie rope around items to secure cargo during transit.

Laborers**Common Laborer**

Performs any combination of the following tasks in erecting, repairing and wrecking buildings; dig, spread and level dirt and gravel; lift carry and hold building materials, tools and supplies; clean tools, equipment, materials and work areas; mix, pour and spread concrete, asphalt, gravel and other materials; join, wrap and seal sections of pipe; routine non-machine tasks such as removing forms from set concrete, filling expansion joints with asphalt, and placing culverts in trench. May also signal construction equipment operators; measure distances from grade stakes, drive stakes and stretch lines; bolt, nail align and block up under forms; mix and finish poured concrete, erect scaffolding; spread paint or coating to seal surfaces; caulking compounds to seal surfaces; remove projections from concrete, and mount pipe hangers.

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FOR BUILDING CONSTRUCTION****Mason Tender Brick****Mason Tender Cement****Pipe layer**

Lay pipe for storm or sanitation sewers, drains, and water mains. Perform any combination of the following tasks: grade trenches or culverts, position pipe, or seal joints.

Plaster Tender

Tends machine that pumps plaster or stucco through spray gun for application to ceilings, walls, and partitions of buildings: Starts and stops machine on signals from PLASTERER (construction). Fills hopper of machine with plaster. Turns valves to regulate pump and compressor. Assists in erecting scaffolds.

Power Equipment Operator:**Asphalt Paver (operator)**

Operator; bituminous-paving-machine operator; blacktop-paver operator; blacktop spreader; mechanical-spreader operator; paving-machine operator, asphalt or bituminous. Operates machine that spreads and levels hot-mix bituminous paving material on sub grade of highways and streets: Bolts extensions to screed to adjust width, using wrenches. Lights burners to heat screed. Starts engine and controls paving machine to push dump truck and maintain constant flow of asphalt into hopper. Observes distribution of paving material along screed and controls direction of screed to eliminate voids at curbs and joints. Turns valves to regulate temperature of asphalt flowing from hopper when asphalt begins to harden on screed.

Backhoe (operator)

Operates power-driven machine, equipped with movable shovel, to excavate or move coal, dirt, rock, sand, and other materials: Receives written or oral instructions from supervisor regarding material to move or excavate. Pushes levers and depresses pedals to move machine, to lower and push shovel into stockpiled material, to lower and dig shovel into surface of ground, and to lift, swing, and dump contents of shovel into truck, car, or onto conveyor, hopper, or stockpile. Observes markings on ground, hand signals, or grade stakes to remove material, when operating machine at excavation site.

Crane (operator)

Operates electric-, diesel-, gasoline-, or steam-powered guy-derrick or stiff-leg derrick (mast supported by fixed legs or tripod), to move products, equipment, or materials to and from quarries, storage areas, and processes, or to load and unload trucks or railroad cars: Pushes and pulls levers and depresses pedals to raise, lower, and rotate boom and to raise and lower load line in response to signals.

Forklift (operator)

Drives gasoline-, liquefied gas-, or electric-powered industrial truck equipped with lifting devices, such as forklift, boom, scoop, lift beam and swivel-hook, fork-grapple, clamps, elevating platform, or trailer hitch, to push, pull, lift, stack, tier, or move products, equipment, or materials in warehouse, storage yard, or factory: Moves levers and presses pedals to drive truck and control movement of lifting apparatus. Positions forks, lifting platform, or other lifting device under, over, or around loaded pallets, skids, boxes, products, or materials or hooks tow trucks to trailer hitch, and transports load to

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designated area. Unloads and stacks material by raising and lowering lifting device.

Slab & Wall Saw (See Related Power Equipment Operator Above)

Use associated power equipment operators already defined.

Apprentices

Apprentices may be used in any of the crafts listed above where noted, if they are currently certified in a program recognized by the Bureau of Apprenticeship and Training, U.S. Department of Labor, providing the proper ratio between journeyman and apprentice is observed. Apprentice certification certificates must be supplied with the first weekly payroll upon which the apprentice's name appears.

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Welder - Receive rate prescribed for craft performing operation to which welding is incidental.

Pipe fitters * Apprentice Schedule (Excluding HVAC Pipe)

Journeyman	Indentured Apprentice	Apprentice Applicant	Total
1	1	0	1 to 1
3	2	1	3 to 3
5	3	2	5 to 5
8	4	3	8 to 7
12	5	4	12 to 9
16	6	5	16 to 11
20	7	6	20 to 13
25	8	7	25 to 15
30	9	8	30 to 17
40	10	9	40 to 19
50	11	10	50 to 21

NOTE: Continue after 50 Journeyman — ONE (1) Indentured Apprentice and one (1) Apprentice Applicant for every ten (10) Journeyman

*** When Apprentices are shown, Helpers cannot be utilized**

APPRENTICES (see definitions)

Registered Apprenticeship Ratios

For All Apprentices

Apprentice duties consist but are not limited to reading blue prints, lay out, fabrication, installation, and assembly. Other duties are the setting up and operation of fabrication machines, using hand tools, power tools, lifting/handling devices, sealing if necessary according to their particular craft. Apprentices also are trained in the preparation process of a job that include but not limited to staging, planning, distribution, and sectioning of materials. Apprentices may be used in any of the crafts listed where noted on the Prevailing Wage Rate Schedule, if they are currently certified in a program recognized by the Bureau of Apprenticeship and Training, U.S. Department of Labor, providing the proper ratio between journeyman and apprentice is observed. Apprentice certification certificates must be supplied with the first weekly payroll upon which the apprentice's name appears. Laborers cannot be utilized when Apprentices are shown

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Asbestos Worker / Insulator

City of Houston allows the use of 1 Journeyman and 1 Apprentice, the Apprentice can be used with the first Journeyman. No other Apprentices can be added until the 2th Journeyman is added. All Apprentices are to be under the direct supervision of a Journeyman.

- 1 Journeyman w/ 1 Apprentice
- 2 Journeymen w/ 2 Apprentices

Boilermakers

City of Houston allows the use of 5 Journeymen and 1 Apprentice, the Apprentice can be used with the first Journeyman. No other Apprentices can be added until the 6th Journeyman is added. All Apprentices are to be under the direct supervision of a Journeyman.

- 1-5 Journeymen w/ 1 Apprentice
- 6-10 Journeymen w/ 2 Apprentices

Carpenter

City of Houston allows the use of 2 Journeymen and 1 Apprentice, the Apprentice can be used with the first Journeyman. No other Apprentices can be added until the 4th Journeyman is added. All Apprentices are to be under the direct supervision of a Journeyman.

- 1-2 Journeymen w/ 1 Apprentice
- 3-4 Journeymen w/ 2 Apprentices
- 5-6 Journeymen w/ 3 Apprentices

Electrician

City of Houston allows the use of 3 Journeymen and 2 Apprentices, the Apprentice can be used with the first Journeyman. No other Apprentices can be added until the 3rd Journeyman is added. All Apprentices are to be under the direct supervision of a Journeyman. All Journeymen and Apprentices must hold a current license from the State of Texas.

- 1 Journeyman w/ 1 Apprentice
- 2 Journeymen w/ 1 Apprentice
- 3 Journeymen w/ 2 Apprentices
- 4 Journeymen w/ 3 Apprentices
- 5 Journeymen w/ 3 Apprentices
- 6 Journeymen w/ 4 Apprentices
- 7 Journeymen w/ 4 Apprentices
- 8 Journeymen w/ 4 Apprentices
- 9 Journeymen w/ 4 Apprentices
- 10 Journeymen w/ 5 Apprentices

Plumbers

City of Houston allows the use of 3 Journeymen and 2 Apprentices, the Apprentice can be used with the first Journeyman. No other Apprentices can be added until the 3rd Journeyman is added. All Apprentices are to be under the direct supervision of a Journeyman. All Journeymen and Apprentices must hold a current license from the State of Texas.

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- 1 Journeyman w/ 1 Apprentice
- 2 Journeymen w/ 1 Apprentice
- 3 Journeymen w/ 2 Apprentices
- 4 Journeymen w/ 3 Apprentices
- 5 Journeymen w/ 3 Apprentices
- 6 Journeymen w/ 4 Apprentices
- 7 Journeymen w/ 4 Apprentices
- 8 Journeymen w/ 4 Apprentices
- 9 Journeymen w/ 4 Apprentices
- 10 Journeymen w/ 5 Apprentices

Sprinkler Fitter

City of Houston allows the use of 1 Journeyman and 1 Apprentice, the Apprentice can be used with the first Journeyman. No other Apprentices can be added until the 2th Journeyman is added. All Apprentices are to be under the direct supervision of a Journeyman.

- 1 Journeyman w/ 1 Apprentice
 - 2 Journeymen w/ 2 Apprentices
- Sheetmetal Worker

City of Houston allows the use of 2 Journeymen and 1 Apprentice, the Apprentice can be used with the first Journeyman. No other Apprentices can be added until the 4th Journeyman is added. All Apprentices are to be under the direct supervision of a Journeyman.

- 1-2 Journeymen w/ 1 Apprentice
- 3-4 Journeymen w/ 2 Apprentices
- 5-6 Journeymen w/ 3 Apprentices

Pipefitter

City of Houston allows the use of 1 Journeymen and 1 Apprentice, the Apprentice can be used with the first Journeyman. No other Apprentices can be added until the 4th Journeyman is added. All Apprentices are to be under the direct supervision of a Journeyman.

- 1 Journeyman w/ 1 Apprentice
- 2 Journeymen w/ 1 Apprentice
- 3 Journeymen w/ 2 Apprentices
- 4 Journeymen w/ 3 Apprentices
- 5 Journeymen w/ 3 Apprentices
- 6 Journeymen w/ 4 Apprentices
- 7 Journeymen w/ 4 Apprentices
- 8 Journeymen w/ 4 Apprentices
- 9 Journeymen w/ 4 Apprentices
- 10 Journeymen w/ 5 Apprentices

Welders

Receive rate prescribed for craft performing operation in which welding is incidental

Pipefitters * Apprentice Schedule (Excluding HVAC Pipe)

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FOR BUILDING CONSTRUCTION**

NOTE: Continue after 50 Journeyman - ONE (1) Indentured Apprentice and one (1) Apprentice Applicant for every ten (10) Journeyman

Journeyman	Indentured Apprentice	Apprentice Applicant	Total
1	1	0	1 to 1
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5	3	2	5 to 5
8	4	3	8 to 7
12	5	4	12 to 9
16	6	5	16 to 11
20	7	6	20 to 13
25	8	7	25 to 15
30	9	8	30 to 17
40	10	9	40 to 19
50	11	10	50 to 21

When Apprentices are shown, Helpers cannot be utilized

If there are questions as to the classification of a worker, contact the Contract Compliance Officer in writing with a description of the work to be performed. After reviewing the Contract Compliance Officer will respond in writing with the classification and wage rate to be paid the worker in question.

CITY OF HOUSTON
STANDARD DOCUMENT

WAGE SCALE
FOR BUILDING CONSTRUCTION

EXHIBIT "B"

CERTIFICATE FROM CONTRACTOR APPOINTING OFFICER OR EMPLOYEE
TO SUPERVISE PAYMENT OF EMPLOYEES

Project Name _____

Project WBS#: _____ Date _____

Email Address: _____

(I) (We) hereby certify that (I am) (we are) the **Prime Contractor** for _____

(specify type of job)

in connection with construction of the above-mentioned Project, and that (I) (we) have appointed _____, whose signature appears below, to supervise the payment of (my) (our) employees beginning _____, 20____; that he/she is in a position to have full knowledge of the facts set forth in the payroll documents and in the statement of compliance required by the Copeland Act and the City of Houston, which he/she is to execute with (my) (our) full authority and approval until such time as (I) (we) submit to the City of Houston a new certificate appointing some other person for the purposes hereinabove stated.

(Identifying Signature of Appointee) Phone: _____

Attest: _____
(Name of Firm or Corporation)

By: _____
(Signature)

By: _____
(Signature)

(Title)

(Title)

NOTE: This certificate must be executed by an authorized officer of a corporation or by a member of a partnership, and shall be executed prior to and be submitted with the first payroll. Should the appointee be changed, a new certificate must accompany the first payroll for which the new appointee executes a statement of compliance required by the Copeland Act and the City of Houston.

CITY OF HOUSTON
STANDARD DOCUMENT

WAGE SCALE
FOR BUILDING CONSTRUCTION

EXHIBIT "C"

CERTIFICATE FROM SUBCONTRACTOR APPOINTING OFFICER OR EMPLOYEE TO
SUPERVISE PAYMENT OF EMPLOYEES

Project Name _____

Project WBS#: _____ Date _____

Email Address: _____

(I) (We) hereby certify that (I am) (we are) the **Sub Contractor** for _____

(specify type of job)

in connection with construction of the above-mentioned Project, and that (I) (we) have appointed _____, whose signature appears below, to supervise the payment of (my) (our) employees beginning _____, 20____; that he/she is in a position to have full knowledge of the facts set forth in the payroll documents and in the statement of compliance required by the Copeland Act and the City of Houston, which he/she is to execute with (my) (our) full authority and approval until such time as (I) (we) submit to the City of Houston a new certificate appointing some other person for the purposes hereinabove stated.

(Identifying Signature of Appointee) Phone: _____

Attest: _____
(Name of Firm or Corporation)

By: _____
(Signature)

By: _____
(Signature)

(Title)

(Title)

NOTE: This certificate must be executed by an authorized officer of a corporation or by a member of a partnership, and shall be executed prior to and be submitted with the first payroll. Should the appointee be changed, a new certificate must accompany the first payroll for which the new appointee executes a statement of compliance required by the Copeland Act and the City of Houston.

END OF DOCUMENT

IAH TB Garage Repairs
Project No: PN466B

ELASTOMERIC COATING

SECTION 099653 - ELASTOMERIC COATINGS

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 surface preparation and application of elastomeric coatings to the following exterior substrates:
 - 1. Stucco.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
 - 2. Indicate VOC content.
- B. Samples for Initial Selection: For each type of elastomeric coating.

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. Quantity: Furnish an additional 10 percent but not less than 1 gal. of each material, color, and texture 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.

IAH TB Garage Repairs
Project No: PN466B

ELASTOMERIC COATING

- 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.
 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 coatings only when temperature of surfaces to be coated and ambient air temperatures are between 50 and 90 deg F unless otherwise permitted by manufacturer's written instructions.
- B. Do not apply coatings 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.
- C. Allow wet surfaces to dry thoroughly and attain temperature and conditions specified before starting or continuing coating operation.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace elastomeric coatings that fail within specified warranty period.
 1. Failures include, but are not limited to, the following:
 - a. Water penetration through the coating.
 - b. Deterioration of coating beyond normal weathering.
 - c. Cracking of coating.
 2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers:
 1. PPG Industries, Inc.
 2. Sika AG
 3. The Valspar Corporation

IAH TB Garage Repairs
Project No: PN466B

ELASTOMERIC COATING

- B. Products: Subject to compliance with requirements, provide PPG Perma-Crete Exterior system.
 - 1. Primer: Perma-Crete Exterior Concrete & Stucco Primer
 - 2. Elastomeric Paint: Perma-Crete Matte-Flex
 - 3. Topcoat: Perma-Crete High Build

2.2 MATERIALS

- A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products List."
- B. 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 manufacturers of topcoat for use in paint system and on substrate indicated.
- C. Colors: As selected by Architect from manufacturer's full range.
- D. Crack Fillers: Elastomeric coating manufacturer's recommended, factory-formulated crack fillers or sealants, including crack filler primers, compatible with substrate and other materials indicated.
- E. Primer: Elastomeric coating manufacturer's recommended, factory-formulated, alkali-resistant primer compatible with substrate and other materials indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with manufacturer's requirements for maximum moisture content, alkalinity, and other conditions affecting performance of work.
- B. Begin coating only when moisture content of substrate is 12 percent or less when measured with an electronic moisture meter.
- C. Begin coating no sooner than 28 days after substrate is constructed and is visually dry on both sides.
- D. Verify that substrate is within the range of alkalinity recommended by manufacturer.
- E. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- F. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.

IAH TB Garage Repairs
Project No: PN466B

ELASTOMERIC COATING

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in the "MPI Architectural Painting Specification Manual" applicable to substrates and coating systems indicated.
- B. Remove hardware and hardware accessories, plates, machined surfaces, light fixtures, and similar items already installed that are not to be coated. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and coating.
 - 1. After completing coating 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 coatings, including dirt, oil, grease, and incompatible paints and encapsulants. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
 - 1. Remove incompatible primers and reprime substrate with compatible primers as required to produce coating systems indicated.
 - 2. Perform cleaning and coating application so dust and other contaminants from cleaning process will not fall on wet, newly coated surfaces.
- D. Crack Repair: Fill cracks according to manufacturer's written instructions before coating surfaces.

3.3 APPLICATION

- A. Apply elastomeric coatings according to manufacturer's written instructions.
 - 1. Use equipment and techniques best suited for substrate and type of material being applied.
 - 2. Coat surfaces behind movable items the same as similar exposed surfaces.
 - 3. Apply each coat separately according to manufacturer's written instructions.
- B. Primers: Apply at a rate to ensure complete coverage.
- C. Elastomeric Finish Coat(s): Manufacturer's recommended number of coats and total dry film thickness for condition of substrate.
- D. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats similar to color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- E. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform finish, color, and appearance.
- F. Apply coatings 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.
- G. Apply coatings to prepared surfaces as soon as practicable after preparation and before subsequent surface soiling or deterioration.

IAH TB Garage Repairs
Project No: PN466B

ELASTOMERIC COATING

- H. Spray Application: Use spray equipment for application only when permitted by authorities having jurisdiction. Wherever spray application is used, do not double back with spray equipment to build up film thickness of two coats in one pass.

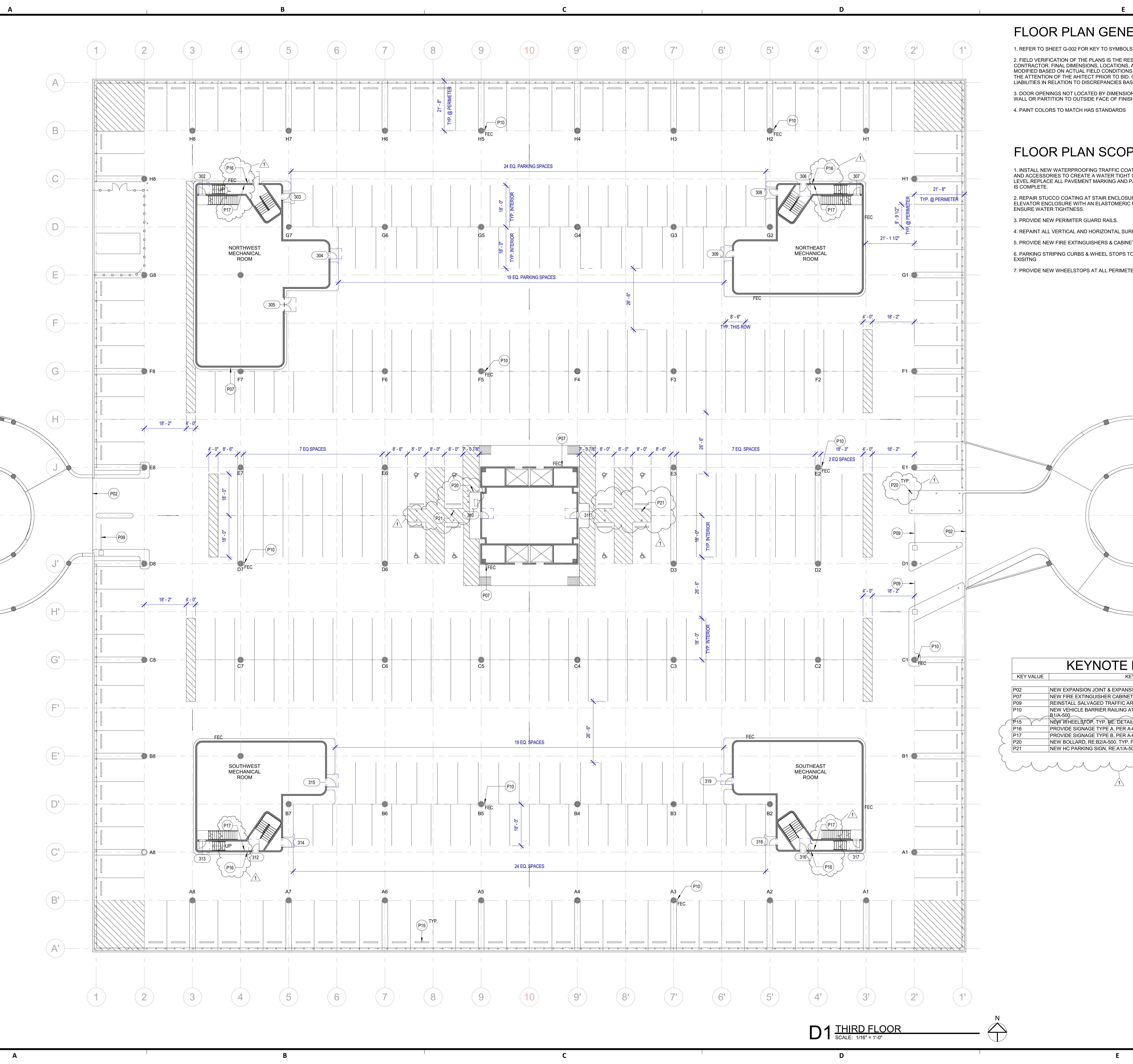
3.4 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from coating 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, touch up and restore damaged or defaced coated surfaces.

END OF SECTION 099653

FILE PATH: BIM 360/1429.01-B Garage Repairs/1429.01_Terminal B Parking Garage (1).rvt

HAS FILE:



FLOOR PLAN GENERAL NOTES

- REFER TO SHEET G-002 FOR KEY TO SYMBOLS LEGEND AND ABBREVIATIONS
- FIELD VERIFICATION OF THE PLANS IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. FINAL DIMENSIONS, LOCATIONS, AND ELEVATIONS MAY NEED TO BE MODIFIED BASED ON ACTUAL FIELD CONDITIONS. DISCREPANCIES MUST BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO BID. ONCE BID, THE G.C. TAKES ON ALL LIABILITIES IN RELATION TO DISCREPANCIES BASED ON FIELD CONDITIONS.
- DOOR OPENINGS NOT LOCATED BY DIMENSION SHALL BE LOCATED 4" FROM FINISHED WALL OR PARTITION TO OUTSIDE FACE OF FINISHED JAMB.
- PAINT COLORS TO MATCH HAS STANDARDS

FLOOR PLAN SCOPING NOTES

- INSTALL NEW WATERPROOFING TRAFFIC COATING, REPLACE ALL EXPANSION JOINTS, AND ACCESSORIES TO CREATE A WATER TIGHT CONDITION THROUGHOUT THE LEVEL. REPLACE ALL PAVEMENT MARKING AND PARKING STRIPING ONCE WATERPROOFING IS COMPLETE.
- REPAIR STUCCO COATING AT STAIR ENCLOSURES. REPAIR ENTIRE STAIR AND ELEVATOR ENCLOSURE WITH AN ELASTOMERIC PAINT, PROVIDING BASE FLASHING TO ENSURE WATER TIGHTNESS.
- PROVIDE NEW PERIMETER GUARD RAILS.
- REPAIR ALL VERTICAL AND HORIZONTAL SURFACE.
- PROVIDE NEW FIRE EXTINGUISHERS & CABINETS AT EXISTING LOCATIONS
- PARKING STRIPING CURBS & WHEEL STOPS TO BE PAINTED "YELLOW" TO MATCH EXISTING
- PROVIDE NEW WHEELSTOPS AT ALL PERIMETER PARKING SPACES.

KEYNOTE LEGEND

KEY VALUE	KEYNOTE TEXT
P02	NEW EXPANSION JOINT & EXPANSION JOINT COVER
P07	NEW FIRE EXTINGUISHER CABINET
P09	REINSTALL SALVAGED TRAFFIC ARM AND OPERATOR
P10	NEW VEHICLE BARRIER RAILING AT PERIMETER PARKING LOCATIONS, TYP. RE: R-1(A)-600
P15	NEW WHEELSTOP, TYP. RE: DETAIL E41A-500
P16	PROVIDE SIGNAGE TYPE A, PER A-620
P17	PROVIDE SIGNAGE TYPE B, PER A-620
P20	NEW BOLLARD, RE: B2/A-500, TYP. FOR THIS SYMBOL
P21	NEW HC PARKING SIGN, RE: A1/A-500, TYP. AT ALL HC SPACES

D1 THIRD FLOOR
SCALE: 1/16" = 1'-0"



3100 N. TERMINAL ROAD
HOUSTON, TX 77032

IAH - TERMINAL B PARKING GARAGE RENOVATION

A.I.P. No.
C.I.P. No.
C.O.H. No.
D.O.A. No.

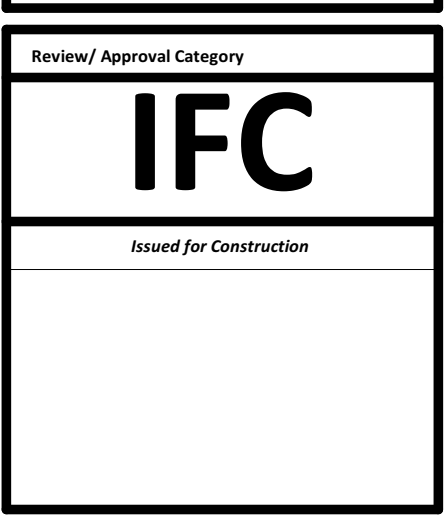
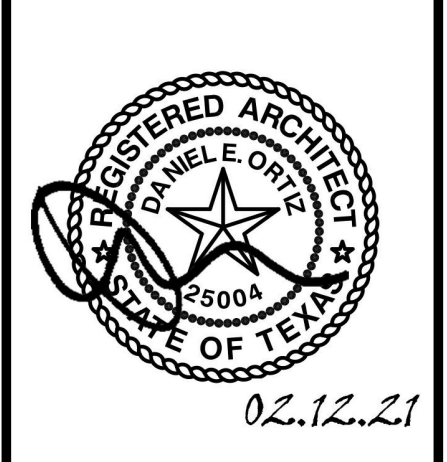
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PROJECT STATUS: 100% CDs

REVISIONS

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	TYP COMMENTS 1	9/09/20
	ISSUE FOR CONSTRUCTION	11/30/20
		1
1	ADDENDUM #02	03/02/21
		2

DESIGN BY: DO
DRAWN BY: KD
CHECKED BY: SD
ISSUE DATE: 07/31/20
APPROVED BY: DO

DIRECTOR
of
HOUSTON AIRPORT
SYSTEM



SHEET NAME:
FLOOR PLAN - LEVEL 3
PARKING DECK

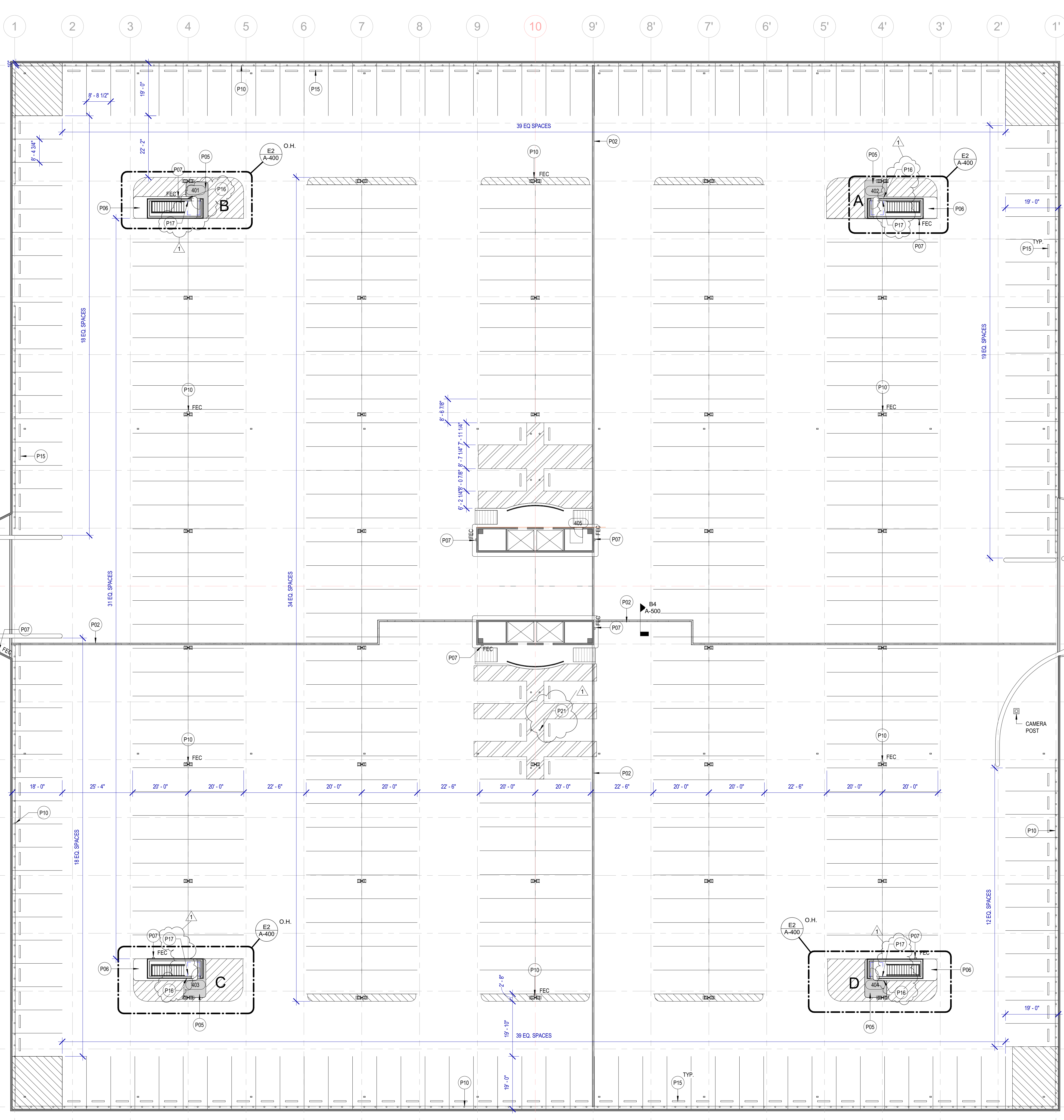
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A B C D E



FLOOR PLAN GENERAL NOTES

- REFER TO SHEET G-002 FOR KEY TO SYMBOLS LEGEND AND ABBREVIATIONS
- FIELD VERIFICATION OF THE PLANS IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. FINAL DIMENSIONS, LOCATIONS, AND ELEVATIONS MAY NEED TO BE MODIFIED BASED ON ACTUAL FIELD CONDITIONS. DISCREPANCIES MUST BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO BID. ONCE BID, THE G.C. TAKES ON ALL LIABILITIES IN RELATION TO DISCREPANCIES BASED ON FIELD CONDITIONS.
- DOOR OPENINGS NOT LOCATED BY DIMENSION SHALL BE LOCATED 4" FROM FINISHED WALL OR PARTITION TO OUTSIDE FACE OF FINISHED JAMB.

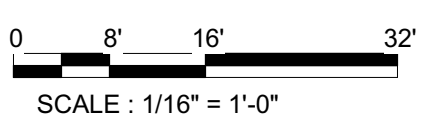
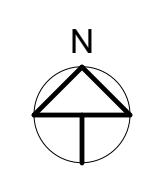
FLOOR PLAN SCOPING NOTES

- INSTALL NEW WATERPROOFING TRAFFIC COATING, REPLACE ALL EXPANSION JOINTS, AND ACCESSORIES TO CREATE A WATER TIGHT CONDITION THROUGHOUT THE LEVEL REPLACE ALL PAVEMENT MARKINGS AND PARKING STRIPING ONCE WATERPROOFING IS COMPLETE. RE: A-500 FOR TYPICAL DETAILS.
- CONSTRUCTION OF STAIR ENCLOSURE AND ROOFING AT EACH STAIR.
- REPAINT ENTIRE ELEVATOR CLOSURE WITH AN ELASTOMERIC PAINT, PROVIDING BASE FLASHING TO ENSURE WATER TIGHTNESS.
- PROVIDE NEW PERIMETER GUARD RAILS.
- REPAINT ALL VERTICAL AND HORIZONTAL SURFACE.
- PROVIDE NEW FIRE EXTINGUISHERS & CABINETS AT EXISTING LOCATIONS
- PARKING STRIPING CURBS & WHEEL STOPS TO BE PAINTED "YELLOW" TO MATCH EXISTING
- PROVIDE NEW WHEELSTOPS AT ALL PERIMETER PARKING SPACES.

KEYNOTE LEGEND

KEY VALUE	KEYNOTE TEXT
P02	NEW EXPANSION JOINT & EXPANSION JOINT COVER
P05	HATCH INDICATES NEW 6" CONCRETE CURB, RE: STRUCTURAL
P06	EXISTING 6" CONCRETE CURB
P07	NEW FIRE EXTINGUISHER CABINET
P09	REINSTALL SALVAGED TRAFFIC ARM AND OPERATOR
P10	NEW VEHICLE BARRIER RAILING AT PERIMETER PARKING LOCATIONS, TYP. RE: B1A-500
P15	NEW WHEELSTOP, TYP. RE: DETAIL 647A-600
P16	PROVIDE SIGNAGE TYPE A, PER A-620
P17	PROVIDE SIGNAGE TYPE B, PER A-620
P20	NEW BOLLARD, RE: B2A-500, TYP. FOR THIS SYMBOL
P21	NEW HC PARKING SIGN, RE: A1A-500, TYP. AT ALL HC SPACES

D1 LEVEL 4 PLAN
SCALE: 1/16" = 1'-0"



3100 N. TERMINAL ROAD
HOUSTON, TX 77032

IAH - TERMINAL B PARKING GARAGE RENOVATION

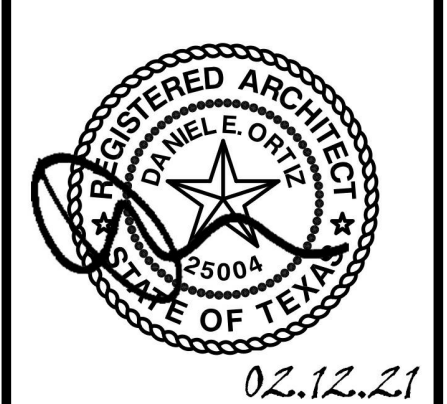
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C.I.P. No.
C.O.H. No.
D.O.A. No.

PROJECT No.: 1429.01
PROJECT STATUS: 100% CDs

REVISIONS		
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DESIGN BY: DO
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APPROVED BY: DO

DIRECTOR
of
HOUSTON AIRPORT
SYSTEM



Review/Approval Category
IFC
Issued for Construction

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PARKING DECK

SHEET No. A-114
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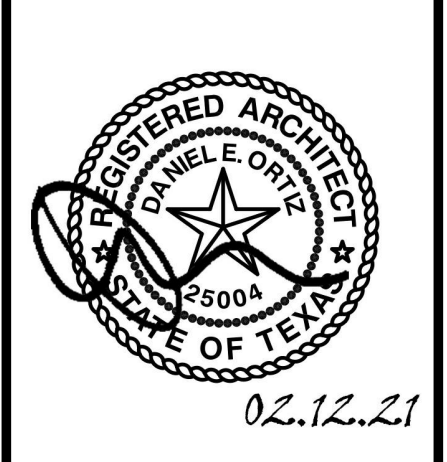
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	ISSUE FOR CONSTRUCTION	11/30/21
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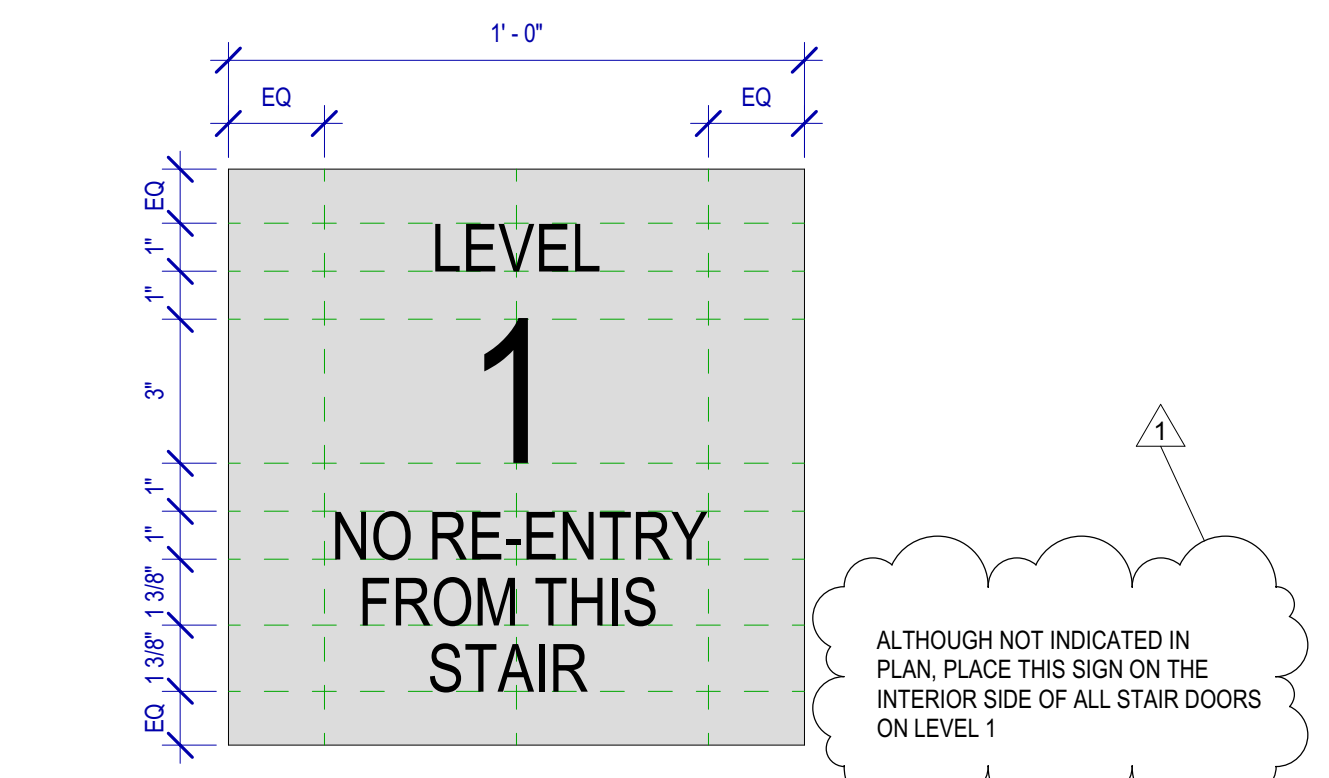
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 of
 HOUSTON AIRPORT
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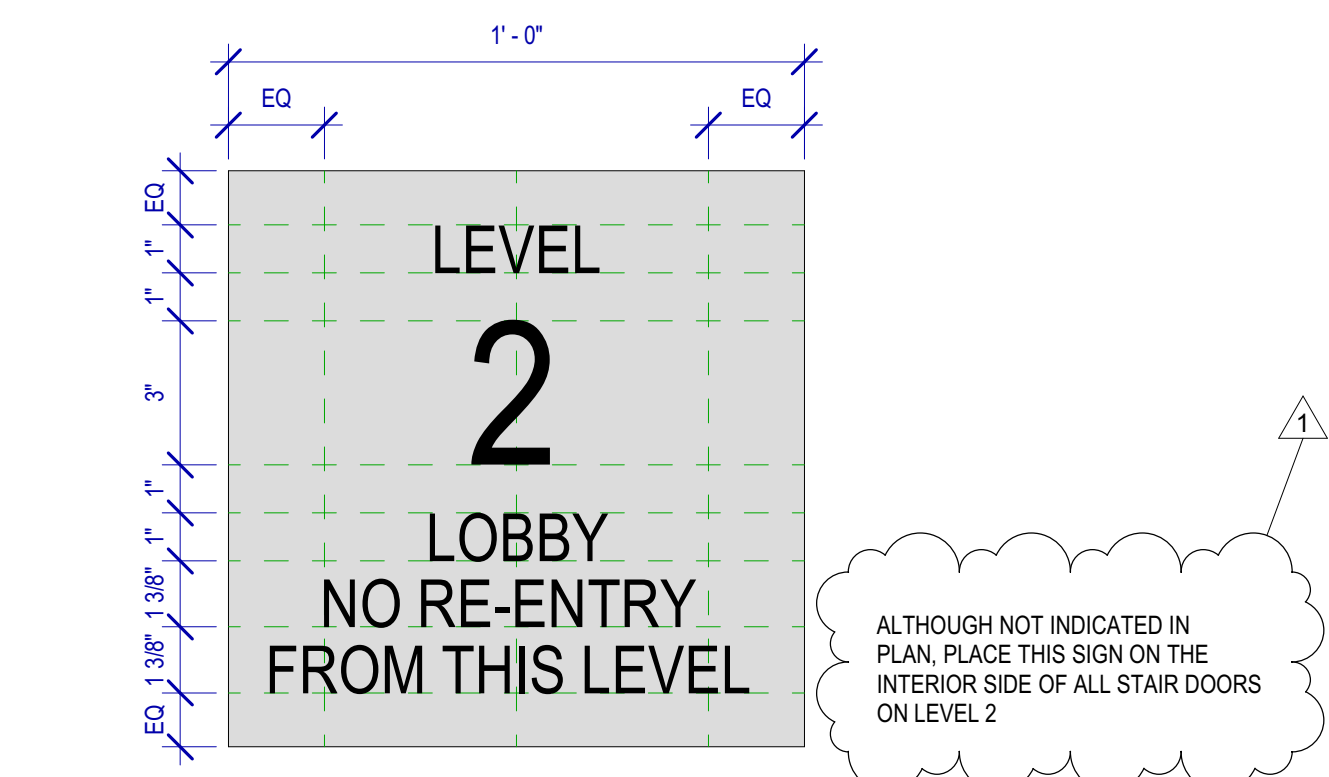
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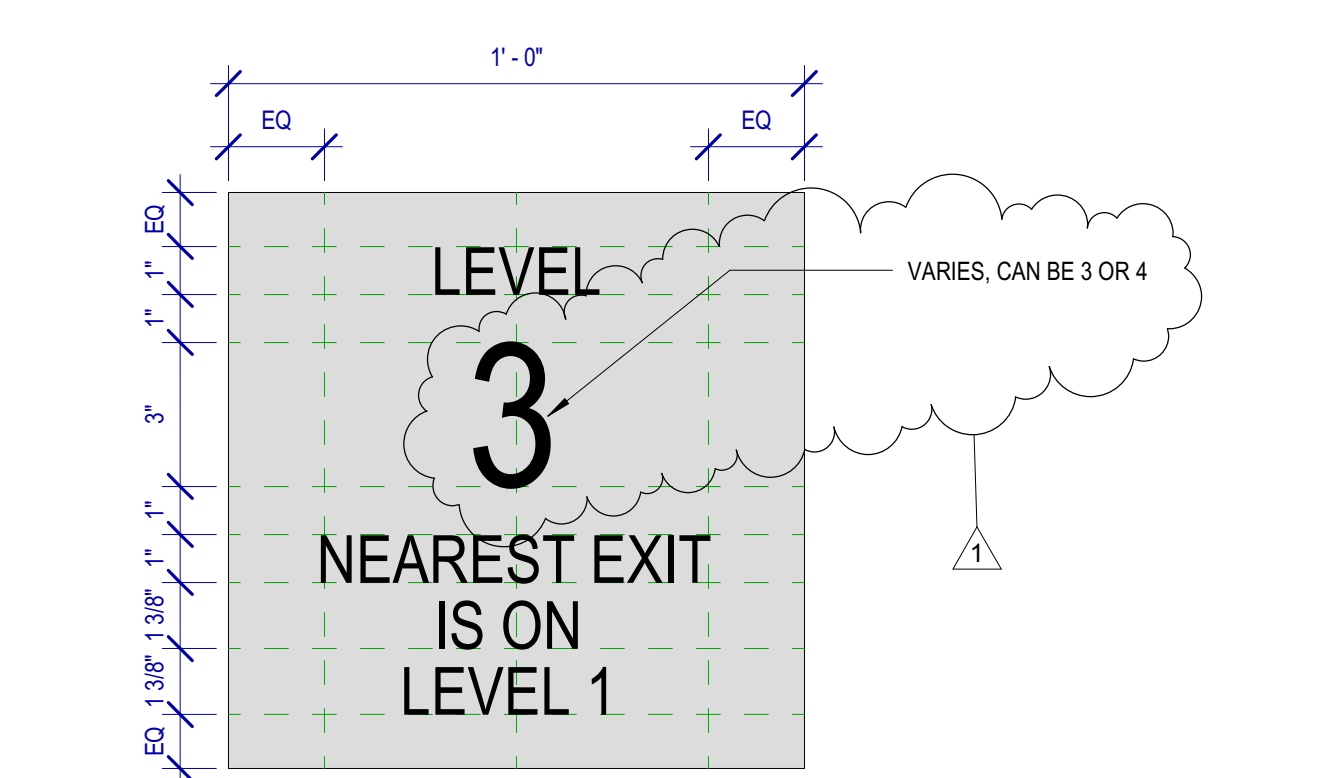
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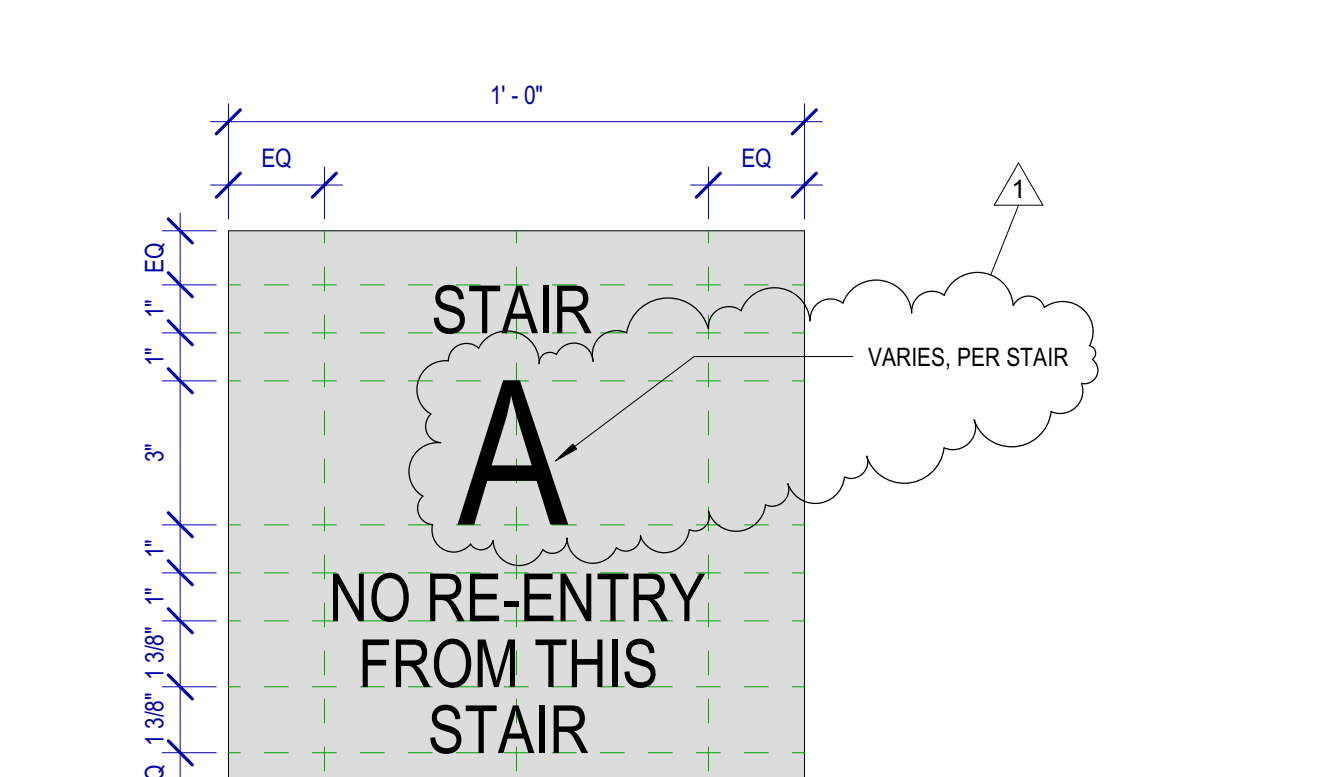
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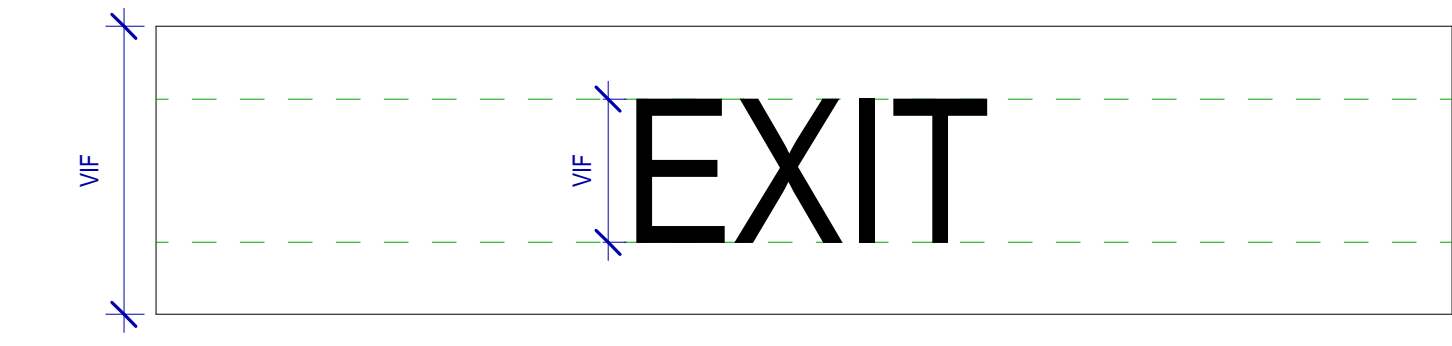
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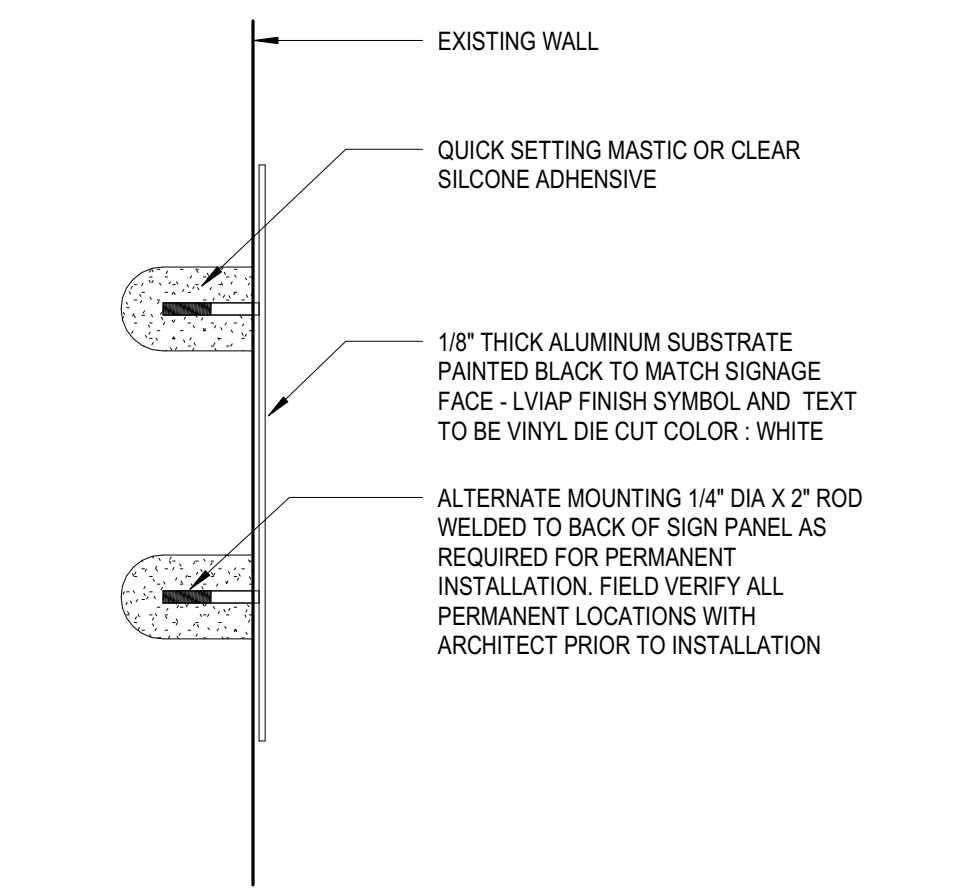
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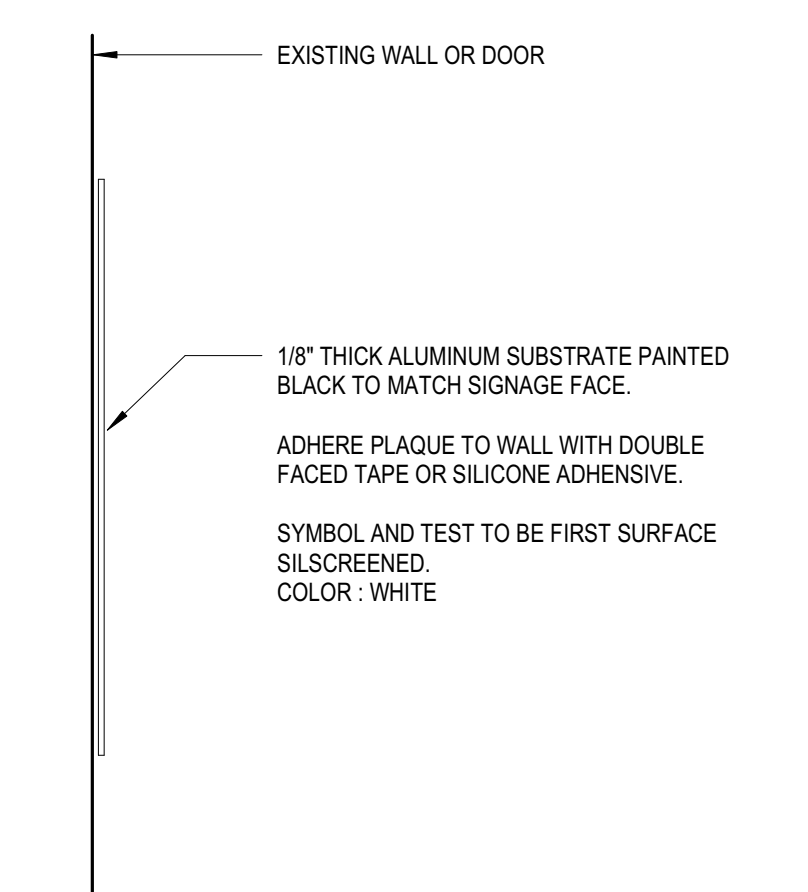
1 SIGNAGE TYPE A
 SCALE: 3" = 1'-0"



8 OVERHEAD SIGNAGE
 SCALE: 3/4" = 1'-0"



6 SIGNAGE MOUNTING DETAIL
 SCALE: 3" = 1'-0"



5 SIGNAGE MOUNTING DETAIL
 SCALE: 3" = 1'-0"

MANUFACTURER: ASI SIGNAGE
 SIGNAGE MODEL: INTOUCH
 SIGNAGE DIMENSIONS: 1'-2"W x 1'-2"H
 SIGNAGE BKG COLOR: PMS-425

MANUFACTURER: ASI SIGNAGE
 SIGNAGE MODEL: INTOUCH
 SIGNAGE DIMENSIONS: 1'-2"W x 1'-2"H
 SIGNAGE BKG COLOR: PMS-425

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 SIGNAGE MODEL: INTOUCH
 SIGNAGE DIMENSIONS: 1'-2"W x 1'-2"H
 SIGNAGE BKG COLOR: PMS-425

MANUFACTURER: ASI SIGNAGE
 SIGNAGE MODEL: INTOUCH
 SIGNAGE DIMENSIONS: 1'-2"W x 1'-2"H
 SIGNAGE BKG COLOR: PMS-425

SIGNAGE FONT: AVERNLT 65 MEDI
 RM NAME FONT SIZE: VARIES
 FONT COLOR: PMS-WHITE
 BRAIL COLOR: PMS-WHITE

SIGNAGE FONT: AVERNLT 65 MEDI
 RM NAME FONT SIZE: VARIES
 FONT COLOR: PMS-WHITE
 BRAIL COLOR: PMS-WHITE

SIGNAGE FONT: AVERNLT 65 MEDI
 RM NAME FONT SIZE: VARIES
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SIGNAGE FONT: AVERNLT 65 MEDI
 RM NAME FONT SIZE: VARIES
 FONT COLOR: PMS-WHITE
 BRAIL COLOR: PMS-WHITE

IAH – Terminal B Garage, 3rd & 4th Levels Rehab
Project No. PN466B

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Doc.
No. **Document Title**

Document 00010

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NOTE: Bold capitalized Specification Sections are included in <https://www.houstonpermittingcenter.org/media/6386/download> and are incorporated in Project Manuals by reference as if copied verbatim. Documents listed "for filing" are to be provided by Bidder and are not included in this Project Manual unless indicated for example only. The Document numbers and titles hold places for actual documents to be submitted by Contractor during Bid, post-bid, or construction phase of the Project. Specification Sections marked with an asterisk (*) are amended by a supplemental specification, printed on blue paper and placed in front of the Specification it amends. Documents in the 200, 300 and 400 series of Division 00, except for Document 00410B – Bid Form, Part B, are not part of the Contract.

Doc.
No. **Document Title**

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00210 Supplementary Instructions to Bidders
00220 Request for Bid Information

INFORMATION AVAILABLE TO BIDDERS

00340 Environmental Information

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00430 Bidder's Bond (For filing; Example Form)
00450 Bidder's Statement of MWBE/PDBE/DBE Status
00454 Affidavit of Non-interest
00455 Ownership Information Form
00457 Conflict of Interest Questionnaire
00460 POP Program Acknowledgement Form
00461 Hire Houston First Affidavit

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 00471 Pre-Bid Good Faith Efforts
 00472 Bidder's Goal Deviation Request
 00480 Form SCM-1 Reference Verification
 00481 Anti-Collusion Statement

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00495 Post-bid Procedures

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 00520 Agreement
 00570 Contractor's Revised MWSBE Participation Plan
 00571 Post-Bid Good Faith Efforts
 00572 Contractor's Plan Deviation Request

BONDS AND CERTIFICATES: NOTE: TO BE PROVIDED AFTER RECEIPT OF NOTICE OF INTENT TO AWARD)

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 00601 Drug Policy Compliance Agreement
 00602 Contractor's Drug Free Workplace Policy (For filing by contractor)
 00604 History of OSHA Actions and List of On-the-job Injuries
 00605 List of Safety Impact Positions
 00609 List of Nonroad Diesel Equipment
 00610 Performance Bond
 00611 Statutory Payment Bond
 00612 One-year Maintenance Bond
 00613 One-year Surface Correction Bond
 00620 Affidavit of Insurance
 00621 ACORD Certificate of Insurance Form
 00622 Name and Qualifications of Proposed Superintendent (For filing)
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00700 General Conditions

IAH – Terminal B Garage, 3rd & 4th Levels Rehab
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IAH TB Garage Repairs
Project No: PN466B

LEAD REMEDIATION

SECTION 028300 – LEAD REMEDIATION

PART 1 - GENERAL

1.1 SUMMARY

1. See the following report “Removal and Disposal of Lead-Containing Paint Components – George Bush Intercontinental Airport Terminal B Parking Garage Level 3 & 4” dated May 4th, 2022. This scope of work is to be incorporated into the construction documents.

END OF SECTION 028300



REMOVAL AND DISPOSAL OF LEAD-CONTAINING PAINT COMPONENTS

GEORGE BUSH INTERCONTINENTAL AIRPORT TERMINAL B PARKING GARAGE LEVEL 3 & 4 3100 North Terminal Road Houston, Texas 77032

PART 1 GENERAL

1.1 SUMMARY

The George Bush Intercontinental Airport (IAH) Project consists of Terminal B Parking Garage Level 3 and 4 located at 3100 North Terminal Road in Houston, Texas. A lead paint inspection was conducted by Separation Systems Consultants, Inc. (SSCI) on October 15, 2019, and November 21, 2019. PSI developed these specifications for the removal/demolition of intact and damaged surfaces coated with lead-based paint (LBP) and lead-containing paint (LCP) as part of this project. The specifications are based on the Lead-based Paint Inspection Report dated November 27, 2019, provided by SSCI. The abatement methods to be used include component removal by disassembly and/or intact removal and feathering edges of LBP to prepare for repainting or encapsulation as required for historical preservation and safe work practices. Chemical stripping and mechanical paint removal methods are also included as alternatives to be selected by the Contractor when disassembly or intact removal cannot be employed on certain surfaces, such as “no-parking” demarcation painted zones on the parking garage floors. The specifications will also include the removal/demolition of intact and damaged surfaces coated with LCP. The quantifications of LBP and LCP will be tabulated separately and should be field verified by the remediation contractor prior to bidding the project.

The estimated quantifications of LBP and LCP are presented in the following tables for the Terminal B Parking Garage Levels 3 and 4 measured in the field on April 8, 2022, by PSI personnel. Table 1 lists Lead-Based Paint per the SSCI Survey and Table 2 lists Lead-Containing Paint per the SSCI Survey. For the purposes of this specification, LBP is defined as paint or other surface coatings that contain lead equal to or exceeding 0.5 percent by weight and LCP as paint or other surface coatings that have detectable levels of lead below the LBP definition.





TABLE 1 – SUMMARY OF LEAD-BASED PAINT ASSESSMENT TERMINAL B EMPLOYEE PARKING GARAGE				
Level 4 - Roof Top				
HA	Confirmed Lead-Based Paint Component/Location	Condition	Quantity Estimate	AAS Result (Lead by Weight)
5	Yellow Concrete Parking Blocks (Wheel Stops)	Good	10 - 6 ft block 8 - 2 ft blocks	1.50%
Level 3				
HA	Confirmed Lead-Based Paint Component/Location	Condition	Quantity Estimate	AAS Result (Lead by Weight)
2	Yellow Concrete Parking Blocks (Wheel Stops)	Good	8 - 6 ft Blocks	2.60%
3	Yellow Parking Guard Rail	Good	4 - 52 ft ²	4.90%
4	Yellow Entry Rails	Good	2 - 30 linear ft	2.70%
15	Red No Parking Zone Paint	Fair	4 - 270 ft ²	0.55%
18	Yellow Entry Curb, East and West	Fair	1,407 ft ²	0.71%
Quantifications of materials are estimates and should be field verified by contractor prior to bidding on the project.				

TABLE 2 – SUMMARY OF LEAD-CONTAINING PAINT TERMINAL B EMPLOYEE PARKING GARAGE				
Level 4 - Roof Top				
HA	Confirmed Lead-Containing Paint Component/Location	Condition	Quantity Estimate	AAS Result (Lead by Weight)
3	Yellow Concrete Divider Columns	Good	12 - 8 ft ²	0.059%
6	Yellow Parking Stripe Paint	Fair	937 ft ²	0.10%
11	Blue/White Handicap Paint	Fair	10 - 16 ft ²	0.0058%
15	Gray Membrane	Poor	83,321 ft ²	0.0066%
LBP1	Yellow Light Pole Column Base	Fair	304 ft ² (38 Tot.)	0.082%
Level 3				
HA	Confirmed Lead-Containing Paint Component/Location	Condition	Quantity Estimate	AAS Result (Lead by Weight)
1	Gold Column	Fair	64 - 43 ft ²	0.0052%
5	Yellow Curb, Inclusive of Elevator Bank, Stairwell/Mechanical Rooms, and Column Curbs	Good	6,682 ft ²	0.057%
6	Yellow Parking Stripe Paint	Fair	1,563 ft ²	0.18%
7	Yellow Ramp	Fair	4 - 32 ft ²	0.045%
8	White Plaster Wall	Fair	13,695 ft ²	0.037%
11	Black Wall Paint	Fair	4 ft ²	0.064%
12	Blue Handicap Paint	Fair	8 - 16 ft ²	0.018%
14	Purple and White "Stair C" Door	Poor	170 ft ²	0.029%



**TABLE 2 – SUMMARY OF LEAD-CONTAINING PAINT
 TERMINAL B EMPLOYEE PARKING GARAGE**

17	Gray Membrane	Fair	112,798 ft ²	0.009%
Quantifications of materials are estimates and should be field verified by contractor prior to bidding on the project.				

- 1.2** Applicable Publications: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

American National Standards Institute (ANSI)	ANSI Z88.2	1980 Respiratory Protection
Department of Housing and Urban Development (HUD)	Lead Based Paint	2012 Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1910.134	1988 Respiratory Protection
29 CFR 1926.55	Gases, Vapors, Fumes, Dusts, and Mists
29 CFR 1926.59	1988 Hazard Communication
29 CFR 1926.62	Lead (Interim Final Rule, 5/93)
40 CFR 260	Hazardous Waste Management System General
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Standards for Generators of Hazardous Waste
40 CFR 263	Standards for Transport of Hazardous Waste
40 CFR 264	Standard for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 266	Standard for Management of Specific Hazardous Waste and Facilities
49 CFR 172	Hazardous Materials Tables and Hazardous Materials Communications Regulations
49 CFR 178	Shipping Container Specifications



1.3 Definitions

- 1.3.1 Action Level: Employee exposure, without regard to use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air averaged over an 8-hour period. As used in this section, "30 micrograms per cubic meter of air" refers to the action level.
- 1.3.2 Area Monitoring: Sampling of lead concentrations within the lead control area and outside the lead control area which is representative of the airborne lead concentrations that may reach the breathing zone of personnel potentially exposed to lead.
- 1.3.3 Physical Boundary: Area physically roped or partitioned off around an enclosed lead control area to limit unauthorized entry of personnel. As used in this section, "inside boundary" shall mean the same as "outside lead control area".
- 1.3.4 Industrial Hygienist (IH): As used in this section refers to an Industrial Hygienist employed by the Contractor and is highly trained to reduce safety risks and hazards in an industrial setting.
- 1.3.5 Decontamination Unit: Room for decontamination of equipment, contaminated debris and personnel. Decontamination unit shall consist of five chambers including dirty room, air lock, shower room, air lock and clean room. Provisions shall be made for storage of worker's personal possessions in the clean room.
- 1.3.6 Eight-Hour Time Weighted Average (TWA): Airborne concentration of lead averaged over an 8-hour workday to which an employee is exposed.
- 1.3.7 High Efficiency Particulate Air (HEPA) Filter Equipment: HEPA filtered vacuuming equipment with an UL-586 filter system capable of collecting and retaining lead-contaminated paint dust. A high efficiency particulate filter means 99.97 percent efficient against 0.3-micron size particles.
- 1.3.8 Lead: "Lead" means metallic lead, inorganic lead compounds, and organic lead soaps. Excluded from this definition are other organic lead compounds.
- 1.3.9 Lead Control Area: A lead control area isolated by physical boundaries to prevent unauthorized entry of personnel.

UNDERWRITERS LABORATORY (UL)	
UL 586	1985 (R 1988) High-Efficiency, Particulate, Air Filter Units, Sixth Edition
ASTM E1908 – 20	Standard Practice for Sample Selection of Debris Waste from a Building Renovation or Lead Abatement Project for Toxicity Characteristic Leaching Procedure (TCLP) Testing for Leachable Lead (Pb)

- 1.3.10 Lead Permissible Exposure Limit (PEL): Fifty micrograms per cubic meter of air as an 8-hour time weighted average as determined by 29 CFR 1926.62. If an employee is exposed for more than 8 hours in a workday, the PEL shall be determined by the following formula:
- $$\text{PEL (micrograms/cubic meter of air)} = 400/\text{number of hours worked per day}$$
- 1.3.11 Personal Monitoring: Sampling of lead concentrations within the breathing zone of an employee to determine the 8-hour time weighted average concentration in accordance with 29 CFR 1926.62. Samples shall be representative of the employee's work tasks. Breathing zone shall be considered an area within a hemisphere, forward of the shoulders, with a radius of 6 to 9 inches and the center at the nose or mouth of an employee.
- 1.3.12 Description of Work: The work covered by this section includes procedures and equipment required to remove, handle and dispose of designated lead contaminated paint and lead contaminated debris and to



limit occupational and environmental exposure to lead when same lead containing paint is removed. Perform work in accordance with 29 CFR 1926.62 and the requirements specified herein. Structural components to be abated include both intact and damaged areas (e.g., water intrusion).

1.4 Quality Assurance

1.4.1 Medical Examinations: Before exposure to lead contained dust, provide workers with a comprehensive medical examination as required by 29 CFR 1926.62 and 29 CFR 1926.59 including lead in blood levels. This examination will not be required if adequate records show the employees have been examined as required by 29 CFR 1926.62 within the last year.

1.4.1.1 Medical Records: Maintain complete and accurate medical records of employees for a period of at least 40 years or for the duration of employment plus 20 years, whichever is longer.

1.4.2 IH Responsibilities:

- a. Certify training
- b. Review and approve lead-containing paint removal plan for conformance to the applicable referenced standards
- c. Inspect lead-containing paint removal work for conformance with the approved plan
- d. Direct monitoring
- e. Ensure work is always performed in strict accordance with specifications

Ensure hazardous exposure to personnel and to the environment are adequately controlled at all times

The IH may delegate some of these responsibilities if approved by the Contracting Officer.

1.4.3 Training: Train each employee performing paint removal and disposal prior to the time of initial job assignment, in accordance with 29 CFR 1926.62.

1.4.3.1 Training Certification: Submit certifications signed and dated by the IH and by each employee stating that the employee has received training.

1.4.4 Respiratory Protection Program

- a. Furnish each employee required to wear a respirator with a respirator fit test at the time of initial fitting and at least every 12 months thereafter as required by 29 CFR 1910.134.
- b. Establish and implement a respiratory protection program as required by ANSI Z88.2, 29 CFR 1910.134, 29 CFR 1926.62 and 29 CFR 1926.55.

1.4.5 Hazard Communication Program: Establish and implement a Hazard Communication Program as required by 29 CFR 1926.59 and 49 CFR 172.

1.4.6 Hazardous Waste Management: Submit a Hazardous Waste Management Plan within five (5) calendar days after award of contract for Contracting Officer's approval. The Hazardous Waste Management plan shall comply with applicable requirements of federal, state, and local hazardous waste regulations and address:

- a. Identification of hazardous wastes associated with the work.
- b. Estimated quantities of wastes to be generated and disposed of.
- c. Names and qualifications (experience and training) of personnel who will be working on-site with hazardous wastes.



- d. List of waste handling equipment to be used in performing the work.
- e. Spill prevention, containment, and cleanup contingency measures to be implemented.

Work plan and schedule for waste containment, removal, and disposal. Wastes shall be cleaned up and containerized daily. Wastes produced during paint removal may be highly concentrated, but low in volume. The toxic characteristic leaching procedure (TCLP) test should be used to determine if the waste is hazardous. Many local jurisdictions pick up small amounts of hazardous waste on certain days. If off-site paint removal is performed, the waste is the responsibility of the facility performing the removal.

The Contractor is responsible for disposal of properly containerized lead contaminated waste and debris.

- 1.4.7 Safety and Health Compliance”: In addition to the detailed requirements of this specification, comply with laws, ordinances, rules, and regulations of federal, state, and local authorities regarding removing, handling, storing, transporting, and disposing of lead waste materials. Comply with the applicable requirements of the current issues of 29 CFR 1926.62. Submit matters of interpretation of standards to the Contracting Officer for resolution before starting work. Where specification requirements and the referenced documents vary, the most stringent requirement shall apply.

The following guidelines and regulations regarding removing, handling, storing, transporting and disposing of lead contaminated materials apply:

- a. Lead-Based Paint: Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing; U.S. Department of Housing and Urban Development.
- b. OSHA Lead Standard (29 CFR 1926.62) and Working with Lead in the Construction Industry, OSHA 3126
- c. OSHA Hazard Communication Standard (29 CFR 1926.59)
- d. NIOSH Alert: Preventing Lead Poisoning in Construction Workers

- 1.4.8 Pre-Construction Conference: Along with the IH, or his designated representative, meeting with the Contracting Officer to discuss in detail the lead-containing paint removal work plan, including work procedures and precautions.

1.5. Submittals

Submit to the Contracting Officer for approval prior to commencing paint removal work.

1.5.1 Manufacturer's Catalog Data

- a. Respirators
- b. Paint removal materials and equipment and applicable material safety data sheets (SDS)

1.5.2 Statements

- a. Lead-containing paint removal plan
- b. Rental equipment notification
- c. Completed and signed hazardous waste manifest form for transfer of containerized lead contaminated waste and debris to the Government.
- d. Hazardous waste management plan

- 1.5.2.1 Lead Containing Component Removal Plan: Submit a detailed job-specific plan of the work procedures to be used in the removal of lead containing components.



After the method is approved, the plan shall include a sketch showing the location, size, and details of lead control areas and location and details of decontamination unit including decontamination procedures. Include in the plan, eating, drinking, smoking and restroom procedures, sequencing of lead related work, collected wastewater and paint debris disposal plan, air sampling plan, respirators, and protective equipment. Include air sampling, training and strategy, sampling methodology, frequency, duration of sampling, and qualifications of air monitoring personnel in the air-sampling portion of the plan. Obtain approval of the plan prior to the start of component removal work. Discarded architectural components must still be properly managed. All building components coated with lead-based paint should be stored in a secure, locked area, as should all lead-contaminated waste until it is disposed of. They should not be sold or released to anyone who might reinstall them in another dwelling unless all the lead-based paint is removed first. Therefore, it is important to identify where all components coated with lead-based paint will be stored and how these items will be secured during the project.

METHODS OF ABATEMENT

In performing removal or selected demolition work, workers may potentially generate lead dust. One method of dust control is misting or wet spraying of components and surrounding areas before removal work is started. The Contractor shall insure no visible dust is created by their operations at any time.

Below are some alternatives the Contractor should implement for the project to be protective against lead exposures. Regardless of the method selected, chiseling marks or other mechanical abrasions on painted surfaces from which paint will be removed is prohibited. Contractor should be cognizant that dust wipe clearances will be performed at the end of abatement inside the work areas, following the clearance criteria established by the EPA, as follows:

EPA's new clearance levels are 10 micrograms (μg) of lead in dust per square foot (ft^2) for floors and 100 $\mu\text{g}/\text{ft}^2$ for windowsills significantly lower than the previous levels of 40 $\mu\text{g}/\text{ft}^2$ for floors and 250 $\mu\text{g}/\text{ft}^2$ for windowsills.

24-hour Surveillance of Containments: Make all necessary provisions for 24-hour security for areas designated for this project. The Abatement Contractor shall be responsible for maintaining security of the abatement areas under containment including interior and exterior materials that comprise the containment.

Surface Preparation/Encapsulation (Preferred Option): The preferred option for addressing lead-based paint is removal of loose and flaking paint combined with smoothing or feathering of edges. Lead paint should not be dry scraped due to dust generation, which can be minimized by wet methods and high efficiency particulate air (HEPA) sanders and vacuums. Encapsulation should be done after smoothing surfaces, as this does not generate significant amounts of lead dust but does not permanently remove the lead paint. Components that have significant water damage, rot or disrepair beyond future use can be removed.

Component Disassembly or Intact Removal (Optional): potentially elevated levels of airborne lead can be produced and dispersed by demolition activities, by either component disassembly/removal, or destructive demolition, therefore respirator protection is required. Monitoring the breathing zone of workers performing work on lead-containing components should be done to quantify airborne concentrations of lead during renovation/demolition activities. In addition, upwind/downwind monitoring of the regulated area should also be performed on exterior work. This data may be used to justify a negative exposure assessment if the measured levels are below the applicable action levels. Note that the negative exposure assessment is only valid for that method of removal, i.e. component disassembly data cannot be used for destructive demolition by heavy equipment.



Heat-Based Removal Methods (Optional): Because high levels of airborne lead can be produced and dispersed by heat guns, respirator protection is required. At the temperature expected to occur during paint removal operations with most currently available heat guns, some lead fume is likely to be generated. Heat guns should not be operated in excess of 700°F.

Open flame burning is prohibited, so removal methods using heat are limited to electric powered flameless heat guns. Before beginning work, fuses and an adequate electrical supply should be verified. Larger fuses should not be installed because of the possibility of creating a fire hazard. A portable electric generator may be needed, especially if several heat guns will be required. Care should be exercised around flammable materials.

Under OSHA regulations (29 CFR 1926.150), a fully charged ABC-type 20-pound (minimum) fire extinguisher must be available within 100 feet of the work area. Work should be conducted only in well-ventilated spaces. Other hazardous materials may be released when old painted surfaces are heated (NIOSH, 1992a). While there is little risk that dangerous levels of lead fumes will be produced at temperatures below 1,100°F, significant airborne particulate lead is generated by the accompanying scraping of the paint. Also, significant amounts of potentially harmful organic vapors can be released from the action of the heat upon the paint, even at temperatures below 1100 °F. For this reason, air-purifying respirators should be outfitted with both a HEPA filtered cartridge and an organic vapor cartridge. Organic vapor cartridges may not be available for some powered air-purifying respirators.

Depending on the size of the area and the substrate, paint removal by heat gun can be a slow, labor-intensive process and may result in a high final clearance failure rate if used extensively and without proper cleanup. Removing paint completely, particularly from crevices, requires attention to detail. Significant leaded residue may remain on surfaces unless cleanup is thorough.

Heat guns do not appear to be particularly effective on metal or masonry substrates, which are too porous to be scraped effectively; the heat may cause small particles to fly up and hit the worker, causing burns or eye damage. Although heat guns work well on wood, they will usually damage drywall and plaster.

Workers may tend to place the nozzle of the heat gun too close to the surface, burning out the heating elements prematurely, sometimes inadvertently even if they have been trained not to do so. One way to prevent this is to attach a small metal wire cage or extension tube to the end of the heat gun to prevent it from being placed too close. For most heat guns, the optimal distance from the surface is 3 to 6 inches. The heat gun is recommended only for limited surface areas in well-ventilated spaces.

Other problems with heat guns include additional fire hazards from dry rot, insulation, and dust, especially in window troughs, roof areas, and hollow porch columns. Scraping often leaves the substrate very rough.

To use heat guns properly, allow the heat stream leaving the gun to merely soften the paint. Do not allow the paint film to scorch or smoke. Scrape the loose paint off the surface at the very first sign of paint softening, blistering, or bubbling.

MECHANICAL REMOVAL METHODS

HEPA Sanding: HEPA sanders are valuable for surface preparation prior to repainting. As chemical stripping sometimes raises the grain of the wood and some removal methods are not effective at removing all visible traces of paint, some sanding prior to repainting may be needed. Manual sanding can generate significant levels of airborne and settled lead-dust; airborne levels more than 10 times OSHA's permissible exposure limit, have been observed (Zhu, 2012). Therefore, HEPA assisted sanders are recommended whenever sanding must be done. HEPA sanders do not work well on detailed moldings. In such situations, chemical stripping, use of a heat gun or offsite removal may be suggested. HEPA sanding uses traditional electric sanders, such as disc sanders or orbital or vibrating sanders, equipped with specially designed shrouds or containment systems that are placed under a partial vacuum (also known as local exhaust ventilation). All exhaust air is passed through a HEPA filter (often using an ordinary HEPA vacuum) to reduce the amount of airborne particulate lead. The HEPA vacuum must be correctly sized to provide



adequate airflow to permit the system to operate properly. If hoses are longer than normal, a larger HEPA vacuum may be needed to handle the increased pressure drop.

There are two main types of HEPA sanders. The first uses a flexible shroud to surround the sanding head, with the HEPA vacuum hose attached to the shroud. The shroud must be in constant contact with the surface to be effective. If the shroud extends beyond the surface being sanded, large amounts of particulate lead will be released into the air. In addition, this configuration makes it impossible to sand to the edge of protruding surfaces, such as baseboards or window and door casings.

The second type of HEPA sander pierces the sandpaper with holes through which the vacuum draws the dust. This allows the instrument to be used to the edge of protruding surfaces. However, care must be exercised to keep the sandpaper flat on the surface. Neither one of these methods is completely effective; respirators are always recommended. Worker fatigue can also prevent the worker from holding the tool flush with the surface, making it necessary to provide frequent breaks or rotate workers.

Wet Scraping: Wet scraping is feasible on most surfaces and results in lower lead exposures than dry scraping. Since surfaces near electrical outlets should never be moistened (due to the electrocution hazard), these areas should be dry scraped. Wet scraping can be performed by using a spray bottle or sponge attached to a paint scraper. Wet scraping is often used to remove loose and flaking paint before paint film stabilization or encapsulation. If wet scraping is employed as an abatement technique, a more durable covering than new paint is needed. Working a few square feet at a time, the worker should mist the surface lightly using a garden sprayer or plant mister. Loose material should be scraped from the surface and deposited on the containment plastic with a paint scraper. Damp paint chips should be cleaned up as soon as possible so that they are not tracked throughout the work area or crushed beneath the feet of workers. Scraper blades should be kept sharp to minimize abrasion and gouging. Additional scraper blades should be on hand and should be selected for the type of surface being scraped. To obtain a smooth finish, it may be necessary to follow wet scraping with wet sanding. A variety of scraping tools are available from hardware and paint supply stores.

HEPA Vacuum Blasting: HEPA vacuum blasting is simply abrasive blasting with a shroud under a vacuum that is attached to the blast head. All exhaust air is passed through a HEPA filter, using a properly sized HEPA vacuum system. Vacuum blasting is appropriate for metal, brick, concrete, and other masonry surfaces. To date, attempts to use the process on wood, plaster, and other soft materials have not been successful, as they usually cause severe substrate damage. Various blasting media can be used (e.g., aluminum oxide, metal shot, walnut shells) depending on the type of substrate. Blast heads, usually a brush-type arrangement, come in various sizes and shapes. The blast head must remain in continuous contact with the surface to avoid dispersal of both the blast medium and particulate lead. The equipment can be outfitted with a device that separates the blast media from the paint, effectively recycling the blast material, and dramatically reducing the volume of waste. This is particularly important because the blast material should be disposed of very carefully. Use of the equipment for long periods of time can result in worker fatigue, particularly if working with the arms above the head. Fatigue can cause a worker to momentarily lose contact with the surface, resulting in the release of leaded dust, so the goal is to minimize the degree to which workers must reach above their shoulders. Scaffolding and platforms should be constructed to minimize such stress, and frequent work breaks should be taken. Vacuum blasting is not typically used in interior residential work.

HEPA Vacuum Needle Gun: The HEPA vacuum needle gun is similar to vacuum blasting in concept but avoids the use of a blast medium. In the vacuum needle gun, metal needles rapidly pound against the painted surface, dislodging the paint. The HEPA vacuum, which is connected to the gun head, draws paint chips and dust into the vacuum, minimizing the dispersion of the particulate. The needle gun is appropriate for metal surfaces but may cause significant damage to masonry. Problems of worker fatigue are similar to those encountered in vacuum blasting. Losing shroud contact with the surface can cause the deposition of significant amounts of chips onto the containment surface. Chips should be cleaned up as soon as possible following the work to avoid tracking.



One way of maintaining the seal with the surface is to select the proper shroud for the shape of the surface treated. At least one manufacturer (Penntek) has developed different shrouds for corners, edges, and flat surfaces. Needle guns are not effective in capturing large paint chips, so use of plastic sheeting underneath is required.

Chemical Removal Methods: Chemical removal may result in less leaded dust generation than other removal methods. It is often used in situations where historic preservation requirements apply. However, it may leave leaded residues on porous surfaces. One study has demonstrated that windows treated with chemical paint removers had high leaded-dust levels a few months after treatment, even though cleanup and clearance had been conducted properly (Farfel, 1992). Other drawbacks to chemical removal include high cost and potential harm to workers from splashes and chemical burns if proper gloves, face shields, and clothing are not provided and used. Proper ventilation is necessary when using chemical paint removal. Plastic may not be effective in protecting floors and may have to be augmented by paper or cardboard. Chemical residues can be tracked into other areas on workers' shoes if proper decontamination is not conducted. Adjacent surfaces, especially plaster, can also be damaged. High humidity may retard the chemical remover's effectiveness. If protective clothing is penetrated and becomes matted against the skin, it must be removed immediately. A full shower is strongly recommended.

OFF-SITE PAINT REMOVAL:

Off-site paint removal is preferred so that most of the contamination and residues are generated away from the site. The general approach is as follows. Building components to be stripped must first be removed from the building. Misting with water prior to removal will help minimize the amount of airborne lead. The painted seam between the component and the wall should first be cut with a utility razor knife to minimize damage to the adjacent plaster. If there is more than one similar component, each component should be labeled to identify exactly where the component came from, eliminating the need for changing doors or other retrofitting problems. Potential damage to components during stripping includes damage to hardware (this should be removed before stripping), broken glass, loss of glue joints and fillers, damage to wood fibers (wood swelling), and raising of the wood grain. The component may even fall apart and have to be blocked and re-glued. The stripping firm should be instructed to *thoroughly* wash and neutralize the components after stripping. Before materials are returned from the paint stripper, they should be wrapped in heavy duty plastic and sealed with tape. This will minimize contamination of those handling the materials (leaded residue may remain on the surface). Materials should remain sealed until other on-site dust-generating activities are concluded, and the dust cleaned up. Before reinstallation, the treated components should be cleaned using the standard vacuum/wet clean/vacuum cycle to remove any residues left by the paint stripper. Components must be completely dry before repainting. Always check the pH (acidity or alkalinity) after cleaning and *before* repainting.

ON-SITE PAINT REMOVAL:

Many paint removers must be allowed to remain on the surface anywhere from 1 hour to a day or more to accomplish effective stripping. Most paint removers are efficient within a limited temperature range and may be completely ineffective in cold weather. The contractor must therefore be certain of weather conditions before outdoor application. Also, rain or snow can cause environmental contamination from the lead and the chemical remover.

Paint removers are either caustic (corrosive) or non-caustic. The non-caustic chemical removers are generally safer to use than the caustic ones (assuming they do not contain methylene chloride). Material Safety Data Sheets should always be consulted to determine potential chemical hazards. When using chemical strippers, securing the area where the strippers are used and the areas where they are stored is important, particularly with caustics, to prevent injuries to people who may gain access to the work area. Caustic paint removers can cause severe skin to burn and eye damage to workers or others who may gain access to the work area. Pain receptors in the eyes are not as sensitive to caustic substances as they are to acids, so workers may suffer damage without immediately realizing it. Personal protective equipment should be appropriate to the chemical paint stripping work being done.

An abundant source of water within the abatement area for quick drenching or flushing injurious corrosive chemicals from skin or eyes is required by OSHA regulations (29 CFR 1910.151(c)). The water can come from a tap or portable eyewash station(s). If contact with the eyes occurs, a full 15-minute rinse of the eyes is necessary on-site before the individual leaves to seek medical



attention because permanent damage to the eyes occurs quickly. While 15 minutes may seem excessive, a quick rinse is ineffective, and permanent damage usually occurs on the way to seek medical attention.

Usually, non-caustic strippers are not as effective at removing multiple layers of paint in a single application compared to the caustic products. When using non-caustic removers, small areas should be tested before full-scale treatment to determine their efficacy. For vertical surfaces, adhesion of the liquid or gel type paint removers should also be tested to determine runoff potential (particularly a problem in warm weather). Most caustic paint removers work best on nonporous surfaces such as steel. They generally should not be used on aluminum or glass surfaces.

Paint removers that contain volatile substances should be used only in areas equipped with mechanical ventilation and only when workers are properly equipped with gloves, face shields, protective clothing, and respirators, as needed. The paint remover should be applied with a spatula, trowel, brush, or spray gun. Spray gun use should be minimized because they increase worker exposures. The time the remover must stay on the surface will depend upon the number of layers of paint, the type of paint, the temperature, and the humidity, and can range from a few hours to a day or more. The paint remover should not be allowed to dry out. Some manufacturers provide a polyethylene or paper blanket that is pressed into the surface to retard drying; others contain a film that is formed on the surface of the paint remover as it sits to prevent drying. Caution must be used when applying the paint remover overhead to avoid its dripping onto workers below.

After the appropriate period, the softened paint should be removed using a scraper or putty knife and the material deposited in a watertight and corrosion-proof container (usually supplied by the manufacturer). The waste should be managed and disposed of in accordance with the guidance. With wood surfaces, it is important to complete the entire neutralization and cleaning process without letting the surface dry. If the wood dries before cleanup is complete, the pores in the wood may close, locking potentially significant leaded residues inside. When repainting, some of the leaded residue may leach into the new paint.

Alkali neutralization and residue removal are accomplished as follows. Immediately after paint removal (while wood surfaces are still damp), the surface should be thoroughly scrubbed with a solution of glacial acetic acid. Use of vinegar to neutralize the alkali should be avoided because vinegar may be inadequate as a neutralizing agent and will also result in a significantly larger volume of liquid (and potentially hazardous) waste.

Glacial acetic acid is hazardous and can cause skin burns and eye damage. It should be used carefully and only with neoprene, nitrile, rubber, or PVC gloves; chemical-resistant clothing; eye shields; a NIOSH-approved acid gas cartridge; and a HEPA filter on air-purifying respirators. The damp, stripped surface should be thoroughly scrubbed with the acetic acid solution. The solution should be monitored with pH litmus paper and discarded if the pH exceeds 6. After use, the solution should be placed in corrosion proof containers and treated as potentially hazardous waste. Sponges and other cleaning materials should not be reused but deposited in heavy duty (double 4-mil, or single 6-mil) trash bags that are sealed, labeled, and put in a secure waste storage area.

Following neutralization, the damp surface should be thoroughly scrubbed with a detergent and water. Scrubbing should continue until no residues are visible. The cleaning solution should be changed when it becomes dirty. Following the detergent scrub, a clean water wash should be performed to remove residue. The pH of the water wash should be checked after use. If the pH exceeds 8, further neutralization of the surface with the acetic acid solution is necessary prior to repainting since an alkaline surface will cause the new paint to fail in a matter of days or weeks.

Surfaces should be completely dry before repainting. For wood surfaces, this may take several days to a week. If the moisture has raised the grain and sanding of wood surfaces is required before repainting, a HEPA sander should be used. Since porous surfaces such as wood or masonry may still have slight alkali residues, some types of oil paints should not be used after caustic paint remover application. To do so may result in saponification (a “soap-making” reaction between the paint and the substrate, leading to rapid paint failure). Therefore, latex paints are probably most appropriate. Wood surfaces (especially exterior ones) can deteriorate after paint removers have been applied, making new paint difficult to apply. Also, the new paint may not last long on deteriorated substrates. Some old plasters with a high pH (that is, highly alkaline) may require primers that are no longer manufactured, so a special sealant may be needed on such surfaces. The specific paint remover manufacturer should be contacted for further guidance on appropriate paints to use.



High-pressure water removal of caustic paint removers should be avoided because control of solid and liquid contamination is difficult. Release of solids or liquids into the soil is likely to result in costly cleanup. Care must be used when applying caustic paint removers to friction surfaces, such as door jambs. Such surfaces are often weathered, making residue removal even more difficult. If these residues are embedded in a coat of new paint, the friction caused by opening and closing the windows can lead to the release of leaded dust.

PROHIBITED LEAD-BASED PAINT ABATEMENT METHODS.

HUD and EPA prohibit certain techniques (see 24 CFR 35.140, and 40 CFR 745.227(e)(6), respectively) because they are known to produce extremely high levels of lead exposure and make it difficult to clean up. State and local regulations may also prohibit some or all these techniques or other techniques.

This Specification recommends strongly against the use of uncontained hydro blasting. Removal of paint using this method can spread paint chips, dust, and debris beyond the work area. Pressure washing is also discouraged. Contained pressure washing at less than 5,000 pounds per square inch (PSI) can be done within a protective enclosure to prevent the spread of paint chips, dust, and debris. Water runoff should also be contained.

- a) Open flame burning or torching (includes propane-fueled heat grids).
- b) Machine sanding or grinding without HEPA local vacuum exhaust tool.
- c) Abrasive blasting or sandblasting without HEPA local vacuum exhaust tool.
- d) Heat guns operating above 1100° F or charring the paint.
- e) Dry scraping (except for limited surface areas).
- f) Paint stripping in a poorly ventilated space using volatile stripper.

Abrasive Blasting or Sandblasting: Traditional abrasive blasting or sandblasting is prohibited in residential structures, regardless of whether the abrasive material is recycled or if the area is fully contained. These methods produce widespread dust contamination; full containment is nearly impossible to maintain and guarantee in a residential environment. Abrasive blasting should only be done using HEPA vacuum local exhaust equipment, discussed in the previous work alternatives.

If abrasive blasting must be done in the Terminal B parking garage structure, the area must be sealed and placed under negative pressure with enough clean fresh air so at least 10 times the volume of air in the contained space is brought into the space and, after filtration, exhausted from it each hour (i.e., the ventilation rate is at least 10 air changes per hour) to ensure the dust can be controlled. If the exterior must be blasted, the entire work area must be covered with a tent (it can be in fractional work areas such as quadrants on each parking garage level) and placed under negative pressure with at least 10 air changes per hour. In both cases, all exhaust air must be passed through a HEPA filter. Fresh air should be provided to the containment zone at a lower rate than the exhaust airflow to maintain the negative pressure zone.

- 1.5.2.3 **Testing Laboratory:** Submit the name, address, and telephone number of the testing laboratory selected to perform the monitoring, testing, and reporting of airborne concentrations of lead and clearance sampling. Provide proper documentation that persons performing the analysis have been judged proficient by successful participation within the last year in the National Institute for Occupational Safety and Health (NIOSH) Proficiency Analytical Testing (PAT) Program.
- 1.5.3 **Test Reports:** Submit air monitoring and clearance sampling results to the owner's representative within 2-3 days, signed by the testing laboratory employee performing the air monitoring, the employee that analyzed



the sample, and the IH or his designated representative. Submit clearance sample analysis results from Laboratory immediately upon receipt.

1.5.4 Certificates, Miscellaneous

- a. Certification of medical examinations
- b. Employee training certifications
- c. Respiratory protection program
- d. Hazard communication program

1.6 Equipment

Furnish the owner's representative with sufficient sets of personal protective equipment daily, as required herein, for entry into and inspection of the paint removal work within the controlled area. Personal protective equipment shall include fitted respirators and disposable whole body covering, including appropriate foot, head, and hand protection. PPE shall remain the property of the Contractor.

1.6.1 Respirators: Furnish appropriate respirators, approved NIOSH, for use in atmospheres containing lead dust. Respirators shall comply with the requirements of 29 CFR 1926.62. Where chemical strippers are used, provide appropriate respirators including eye protection.

1.6.2 Special Protective Clothing: Furnish personnel who will be exposed to lead-contaminated debris and stripping chemicals appropriate disposable protective whole-body clothing, head covering, gloves, and foot coverings. Furnish appropriate disposable plastic or rubber gloves to protect hands.

1.6.3 Rental Equipment: If rental equipment is to be used during lead containing paint handling and disposal, notify the rental agency, in writing, concerning the intended use of the equipment. Furnish a copy of the notification to the Contracting Officer.

PART 2 PRODUCTS

2.1 Submit applicable Material Safety Data Sheets for products used in paint removal work. Use the least toxic product suitable for the job acceptable to the Industrial Hygienist.

PART 3 EXECUTION

3.1 Protection

3.1.1 Notification: Notify the owner's representative 10 days prior to the start of any paint removal work.

3.1.2 Lead Control Area Requirements: Establish a lead control area by sealing the windows in the work area and covering the ground beneath the work area with two layers of 6-mil plastic sheeting. Access to the work area shall be controlled by barriers and/or warning tape. The contractor/employer shall post the following warning signs in each work area where an employee's exposure to lead is above the PEL:

**WARNING
LEAD WORK AREA
POISON
NO SMOKING OR EATING**

Outside the work area and the secured waste storage area the warning signs will read as follows:



**CAUTION
LEAD HAZARD
DO NOT ENTER WORK AREA UNLESS AUTHORIZED**

The contractor/employer shall assure that signs required by this paragraph are illuminated and cleaned as necessary so that the legend is readily visible.

- 3.1.3 Protection of Existing Work to Remain: Perform paint removal work without damage or contamination of adjacent areas. Where existing work is damaged or contaminated, restore work to its original condition or better.
- 3.1.4 Boundary Requirements: Provide physical boundaries around the lead control area by barricading off the area designated on the plans. Provide warning signs at 15-foot intervals on barricade tape.
- 3.1.5 Decontamination Unit: Provide a decontamination unit with wash-down facilities within the physical boundary around the designated lead control area in accordance with requirements of 29 CFR 1926.62.
- 3.1.6 Personnel Protection: Personnel shall wear and use protective clothing and equipment as specified herein. Eating, smoking, or drinking is not permitted in the lead control area. No one will be permitted in the lead control area unless they have been given appropriate training and protective equipment.
- 3.1.7 Warning Signs: Provide warning signs at approaches to the lead control areas. Locate signs at such a distance that personnel may read the sign and take the necessary precautions before entering the area. Signs shall comply with the requirements of 29 CFR 1926.62.
- 3.2 Work Procedures: Perform removal of lead-containing components in accordance with approved lead-containing paint removal plan. Use procedures and equipment required to limit occupational and environmental exposure to lead when lead-containing paint is removed in accordance with 29 CFR 1926.62, except as specified herein. Dispose of removed paint and associated waste in compliance with Environmental Protection Agency (EPA), federal, state, and local requirements.
 - 3.2.1 Personnel Exiting Procedures: Whenever personnel exit the lead-controlled area, they shall perform the following procedures and shall not leave the workplace wearing any clothing or equipment worn during the workday:
 - a. Remove protective clothing in the decontamination unit dirty room and place them in an approved impermeable disposal bag.
 - b. Proceed to shower, still wearing respirator, and conduct a whole-body washdown.
 - c. Proceed to clean room and change to street clothes prior to leaving the physical boundary designated around the lead-contaminated job site.
 - 3.2.2 Monitoring: Monitoring of airborne concentrations of lead shall be in accordance with 29 CFR 1926.62 and as specified herein. Air monitoring, testing, and reporting shall be performed by an Industrial Hygiene (IH) Technician who is under the direction of the environmental consultant.
 - a. The IH Technician under the director of the environmental consultant shall be on the jobsite directing the monitoring and inspecting the lead-containing paint removal work to ensure that the requirements of the Contract have been satisfied during the entire lead-containing paint removal operation.
 - b. Take personal air monitoring samples on employees who are anticipated to have the greatest risk of exposure as determined by the environmental consultant. In addition, take air-monitoring



samples on at least 25 percent of the work crew or a minimum of two employees, whichever is greater, during each work shift.

- c. Submit results of air monitoring samples within 2-3 days after the air samples are taken. Notify the Contracting Officer immediately of exposure to lead at or in excess of the action level of 30 micrograms per cubic meter of air outside of the lead control area. This submittal schedule and subsequent air monitoring may be revised after exposure levels have been established and with the approval of the Contracting Officer.
- d. Personal air monitoring and area air monitoring to include upwind, downwind, and crosswind vectors will be required throughout the removal of lead-based paint and lead-containing paint (painted surfaces with any detectable lead quantity) on affected surfaces. Upwind, downwind, and crosswind monitoring will continue after lead-based paint and lead-containing paint have been removed from all surfaces during the renovation activities to document lead content (if any) in the dust issuing from the project. If lead is detected in the dust, additional control and engineering methods will be instituted (e.g., containment) to ensure no migration of lead-laden dust from the project boundaries.

- 3.2.2.1 Monitoring During Paint Removal Work: Perform personal and area monitoring during the entire lead component removal operation. Sufficient area monitoring shall be conducted at the physical boundary to ensure unprotected personnel are not exposed above 30 micrograms per cubic meter of air at all times. If the outside boundary lead levels are at or exceed 30 micrograms per cubic meter of air, work shall be stopped, and the Contractor shall immediately correct the condition(s) causing the increased levels and notify the Contracting Officer. The environmental consultant or his/her designated representative shall review the sampling data collected on that day to determine if condition(s) requires any further change in work methods. Removal work shall resume when the owner's representative gives approval. The Contractor shall control the lead level outside of the work boundary to less than 30 micrograms per cubic meter of air at all times. As a minimum, conduct area-monitoring daily on each shift in which lead paint removal operations are performed in areas immediately adjacent to the lead control area. For outdoor operations, at least one sample on each shift shall be taken on the downwind side of the lead control area. If adjacent areas are contaminated, clean and visually inspect contaminated areas. Air monitoring protocols may be revised after ambient air lead levels have been established (below 30 micrograms per cubic meter of air) and with the approval of the Contracting Officer. The IH or his/her designated representative shall certify that the area has been cleaned of lead contamination.

ABATEMENT MONITORING

Work Area Isolation: The purpose of the Owner's abatement monitoring is to detect faults in the work area isolation such as:

- a) Contamination of the area outside of the work area with elevated airborne lead particles.
- b) Failure of filtration or rupture in the differential pressure system (if used) causing contamination of air outside the work area with airborne lead dust.

Should any of the above occur immediately cease lead abatement activities until the fault is corrected. Do not recommence work until authorized by the Owner's Representative.



Work Area Airborne Lead Levels: The Owner will monitor airborne lead dust levels in the Work Area. The purpose of this monitoring will be to detect airborne lead concentrations which may challenge the ability of the Work Area isolation procedures to protect the balance of the building or outside of the building from contamination by airborne lead particles.

Note: Air samples analysis will be conducted in accordance with method NIOSH 7082

Work area clearance: To determine if the elevated airborne lead levels encountered during abatement operations have settled and subsequently been removed by cleaning, the Owner will collect and analyze wipe samples per the US EPA's Hazard Standards and Clearance Levels for Lead in Paint, Dust and Soil (TSCA Sections 402 and 403).

Note: Wipe sample analysis will be conducted in accordance with Method-EPA 7421

Stop Action Levels: If at any time in the abatement process the outside work area air monitoring results indicate that the concentration is at or above the OSHA PEL (50 ug/cubic meter), or 25 ug/m³ above the background level, whichever is lesser, cease all work except corrective action. After correcting cause of high lead levels outside the work area, HEPA vacuum all surfaces that potentially could be contaminated; wet wipe using TSP solution, all wettable surfaces; and HEPA vacuum a second time. If cause of high lead levels is inconclusive, or if a second outside high lead level sample is obtained, Contractor will immediately go to next higher containment level (i.e., from containment to containment with negative air, etc.)

CONTAINMENT LEVEL				
8-hour Air Monitoring Average (ug/m ³)	<50	>50 ≤500	>500 ≤2,500	>2,500 ≤50,000
Containment Level	plastic on floor (1 foot out/each foot up)	full plastic enclosure (critical seals, 2 layers of plastic on all surfaces except ceiling)	full plastic enclosure with negative air	same with attached shower facility
Respiratory Protection	Minimum of half-face, cartridge HEPA respirator		PAPR	Type C

GENERAL: Provide worker protection as required by the most stringent OSHA and/or HUD standards applicable to the work. The following procedures are minimums to be adhered to regardless of lead dust levels in the Work Area.

Respirators and protective clothing are required in the Work Area from the time any lead-based paint surface is broken until Work Area has been clearance tested.

3.3 Lead-Containing Abatement, Surface Preparation or Component Removal

METHODS OF ABATEMENT

In performing feathering of edges, removal or selected demolition work, workers will potentially generate lead dust. One method of dust control is misting or wet spraying of components and surrounding areas before removal work is started. The Contractor shall insure no visible dust is created by their operations at any time.



Surface Preparation/Encapsulation (Preferred Option): The preferred option for addressing lead-based paint is removal of loose and flaking paint combined with smoothing or feathering of edges. Lead paint should not be dry scraped due to dust generation, which can be minimized by wet methods and high efficiency particulate air (HEPA) sanders and vacuums. Encapsulation should be done after smoothing surfaces, as this does not generate significant amounts of lead dust but does not permanently remove the lead paint. Components that have significant water damage, rot or disrepair beyond future use can be removed.

Component Disassembly or Intact Removal (Optional): Potentially elevated levels of airborne lead can be produced and dispersed by component removal by disassembly and/or intact removal or feathering edges of lead-based paint to prepare for repainting or encapsulation as required for historical preservation and safe work practices. Monitoring the breathing zone of workers performing renovation/demolition of lead-containing components should be done to quantify airborne concentrations of lead during work activities. In addition, upwind/downwind monitoring of the regulated area should also be performed for exterior components. This data may be used to justify a negative exposure assessment if the measured levels are below the applicable action levels. Note that the negative exposure assessment is only valid for that method of removal, i.e. component disassembly data cannot be used for destructive demolition by heavy equipment.

Heat-Based Removal Methods (Optional): Because high levels of airborne lead can be produced and dispersed by heat guns, respirator protection is required. At the temperature expected to occur during paint removal operations with most currently available heat guns, some lead fume is likely to be generated. Heat guns should not be operated in excess of 700°F.

3.4 Clean Up and Disposal

- 3.4.1 Cleanup: Maintain surfaces of the lead control area free of accumulations of lead paint debris. Keep waste from being distributed over the work area. At the end of each shift and when the paint removal operation has been complete, clean the area of visible lead paint debris. After clearances have been obtained, collect all layers of plastic sheeting and dispose of as contaminated waste.

Final Inspection: After the final cleanup is complete, the final inspection will take place. The objective of the inspection is to ensure abatement completeness and verify low, surface dust levels.

Post-abatement Visual Inspection: Confirms job completeness by determining whether all surfaces have been abated according to the approved abatement plan. Special attention will be given to connections, junction boxes, light fixtures, etc. where lead dust has accumulated.

Pre-clearance Dust Test: The inspector will determine whether the work area has been adequately cleaned by examining all surfaces for dust and debris. A damp cloth (or baby wipe) will be used to collect dust from surfaces such as floors or windowsills. If dust is found in the work area, reclean the entire area and repeat the damp cloth test.

INTERIOR CLEARANCE CRITERIA:

In each area within an individual unit, compare the wipe sample results with the clearance criteria below. If any of the wipe samples exceed the clearance criteria, the area must be cleaned again and retested until the criteria are met. In the case of exterior abatement, the standard for floors shall be applied to porches.

EPA's new clearance levels are 10 micrograms (µg) of lead in dust per square foot (ft²) for floors and 100 µg/ft² for windowsills, significantly lower than the previous levels of 40 µg/ft² for floors and 250 µg/ft² for windowsills.



If all wipe sample results for each area meet the clearance criteria, the area is cleared for re-occupancy. A unit may be cleared for re-occupancy only after all areas within that unit have been cleared according to the criteria above.

3.4.2 Certification: After receipt of site clearance samples, the environmental consultant or his/her designated representative shall certify in writing that the lead control area air monitoring samples are less than 30 micrograms per cubic meter of air, the respiratory protection for the employees was adequate, the work procedures were performed in accordance with 29 CFR 1926.62 and that there were no visible or residual accumulations of lead-contaminated paint debris on the worksite. Do not remove the lead control area or barricades and warning signs prior to the Contracting Officer's receipt of this certification. Reclean areas showing residual paint or paint debris.

3.4.3 Disposal:

- a. Collect lead-contaminated waste, scrap, debris, bags, containers, equipment, and lead-contaminated clothing and place in U.S. Department of Transportation approved containers (49 CFR 178). Label the containers in accordance with 29 CFR 1926.62.
- b. Handle, store, transport, and dispose lead or lead-contaminated waste in accordance with 40 CFR 260, 30 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, and 40 CFR 266. Comply with land disposal restriction notification requirements as required by 40 CFR 268.
- c. Dispose of material, whether hazardous or non-hazardous in accordance with all laws and provisions and all Federal, State or Local regulations. Ensure all waste is properly characterized. The result of each waste characterization (TCLP for RCRA materials) will dictate disposal requirements.

--End of Section--



OSHA Written Compliance Plan

Date: 12/4/19

This plan has been developed to comply with the OSHA Construction Lead Standard, 29 CFR 1926.62.

1. Location of Project:

This job will take place at the IAH Terminal B Parking Garage Level 3 & 4, 3100 North Terminal Road in Houston, Texas. Separation System Consultants, Inc. (SSCI) conducted a lead-based paint surveys of the Terminal B Parking Garage levels 3 and 4 in October and November 2019.

2. Brief Description of Job:

The abatement job will involve either component removal by disassembly and/or intact removal, feathering edges of lead-based paint to prepare for repainting or encapsulation as required for historical preservation and safe work practices. Abrasive products, high-pressure washes, and methods that generate large amounts of airborne dust are not to be used. Depending upon job requirements and safe operations, destructive removal can be done in conjunction with appropriate monitoring, if negative exposure assessment data is obtained.

3. Schedule:

The job is expected to start on _____ (date) and end on _____ (date). This compliance plan will take effect immediately on _____ (date). The competent person will conduct worksite visual inspections on a daily basis.

Work will proceed according to the following schedule:

Day 1: Initial setup, followed by: (name all tasks to be completed)

Daily cleanup: wet mopping, HEPA vacuuming.



Day 2 through Final Cleaning: (name all tasks to be completed)

Daily cleanup: wet mopping, HEPA vacuuming

4. Equipment and Materials:

The primary activities that are expected to generate lead dust are manual scraping and cleaning involved with damaged paint removal, and surface preparation. Equipment to be used may include, but not necessarily limited to the following: HEPA vacuums, cleaning detergents, protective clothing, cotton work gloves, plastic sheeting, rollers, nylon brushes, butyl rubber gloves, respirators, cutting shears, mops, plastic sheeting, paintbrushes, and paint rollers.

5. Crew:

The work will be completed by a crew of _____(insert number) workers. Crew assignments are

as follows:

Crew 1 _____(name) _____(task)

Crew 2 _____(name) _____(task)

6. Competent Person:

_____(Name), a certified lead abatement supervisor, will be onsite at all times and will act as the competent person for occupational health and safety issues. The lead supervisor license (or certificate) number is:_____. The lead supervisor will conduct daily inspections of the work areas to ensure that control measures, work practices, personal protective equipment, and hygiene facilities are used as prescribed in this document.

7. Control Measures: The primary control methods for this project are (check all that apply):

method substitution (building component replacement, enclosure)

wet methods

chemical stripping methods

wrapping materials to be discarded in plastic

respiratory protection



local exhaust ventilation (needle guns, vacuum blasting)

general room ventilation

on-the-job training

HEPA vacuums

containment or regulated areas (use of plastic barriers)

8. Technology Considered in Meeting the Permissible Exposure Limit:

The HUD Guidelines for Evaluation and Control of Lead Hazards in Housing and Protecting Workers and Their Communities from Lead Hazards: A Guide for Protective Work Practices, published by the Society of Occupational and Environmental Health, and other publications were reviewed to determine the appropriate engineering controls to be used in this project.

The only specialized equipment that will be utilized for this project are HEPA filtered vacuum cleaners and _____ (name all special equipment).

9. Respirators:

All individuals in the work area will be provided with a NIOSH/MSHA-approved half-mask, air-purifying respirator equipped with HEPA cartridges or a powered air-purifying respirator (if so requested). Respirators will be provided in the context of a complete respiratory protection program; the written respirator program is attached.

Respirators will be required during (name phases of job for which respirators will be required):

Respirator use during other activities, including initial setup (laying down plastic for containment), and enclosure and encapsulation after surface preparation is not necessary, unless other workers nearby (same work area) are performing activities for which respirators are required.

10. Protective Clothing:

Disposable protective clothing will be worn at all times inside the work area. Protective clothing will be made of breathable fabric to reduce the potential for worker heat stress. If visibly contaminated with dust or paint chips, protective clothing will be vacuumed before it is removed.



11. Hygiene Facilities: Hand washing facilities will be used to decontaminate workers, since lead dust levels are expected to be low. Showers are used on jobs that generate high lead dust levels. The facilities will be located in a portable trailer, which will be parked in the driveway of the building. The trailer will contain two sinks, a fresh-water tank, hot water heater, wastewater collection tank, and easily cleanable floors and benches. Labeled plastic bins with covers will be used to separate disposable protective clothing from street clothing. Hot water, soap, and towels will be provided. Hands and face will be washed before all breaks and at the end of the day. Wastewater will be collected, pretreated onsite with filtration, and disposed of in accordance with prior arrangements made with

_____ (name of local water and sewage authority).

12. Air Monitoring Data:

Previous data for lead hazard control projects conducted with similar controls, environmental conditions, personnel, and methods were unavailable for review. Air sampling will therefore be performed on this job since typical exposures for this type of work are unknown.

The major exposures to lead are anticipated to occur during _____ (name tasks during which substantial exposures are likely to occur). The following table illustrates the required actions under the OSHA Rules according to the exposure levels:

CATEGORY I	CATEGORY II	CATEGORY III
30 $\mu\text{g}/\text{m}^3$ * and under (below the action level)	30–50 $\mu\text{g}/\text{m}^3$ (above the action level, but below the PEL).	50 $\mu\text{g}/\text{m}^3$ and over (above the PEL).
Train employees. Conduct exposure monitoring. Maintain records.	Same as category I, plus: Provide respirator at employee request. Conduct exposure monitoring every 3 months. Conduct blood lead monitoring.	Same as category II, plus: Enforce respirator use. Enforce use of protective clothing. Develop monitoring every 6 months. Enforce housekeeping. Provide hygiene facilities and enforce washing.

* All exposure levels are 8-hour, time-weighted averages.

13. Medical Surveillance Program:

A medical surveillance program is already in place for this work crew. It is supervised by:

Dr. _____
 (name, address, and phone number of physician and/or firm).

Worker blood lead levels are measured initially before the onset of work, each month for the first 6 months of employment, and every 6 months thereafter. Blood lead levels for current employees who will be assigned to this job are between: _____ $\mu\text{g}/\text{dL}$ to _____ $\mu\text{g}/\text{dL}$ (list range of blood lead levels) based on the report dated _____ (add date for latest medical monitoring report). Worker blood lead increases of 10 $\mu\text{g}/\text{dL}$ or greater or any blood lead level greater than 25 $\mu\text{g}/\text{dL}$ will trigger an investigation of protective equipment and work practices. All workers on this project are informed of their blood lead levels as soon as they are received.

14. Training:



Workers are to be trained in accordance with the OSHA lead standard, 29 CFR 1926.62, in the dangers inherent in handling lead and breathing lead dust and in proper abatement work procedures and personal and area protective measures. Training should include, but not limited to the following: methods of recognizing lead; health effects associated with lead; nature of operations that could result in exposure to lead; and engineering controls and abatement work practices associated with the worker’s job assignment. Evidence of training must be submitted to prove the workers have been trained, certified, and accredited a required by state or local code or regulation.


All workers have been trained using the EPA Worker Training Curriculum. The training was conducted by _____, a licensed Texas Department of State Health Services (Texas DSHS) training provider with _____, the competent person, on _____, (Date)

Workers trained include:

TRAINEE	SOCIAL SECURITY NUMBER

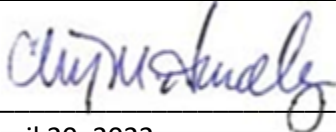
Plan completed by:

Name: Steven Bohannon, Project Designer (Texas DSHS Lic. No. 2090090)


Signature: 
Date: April 20, 2022

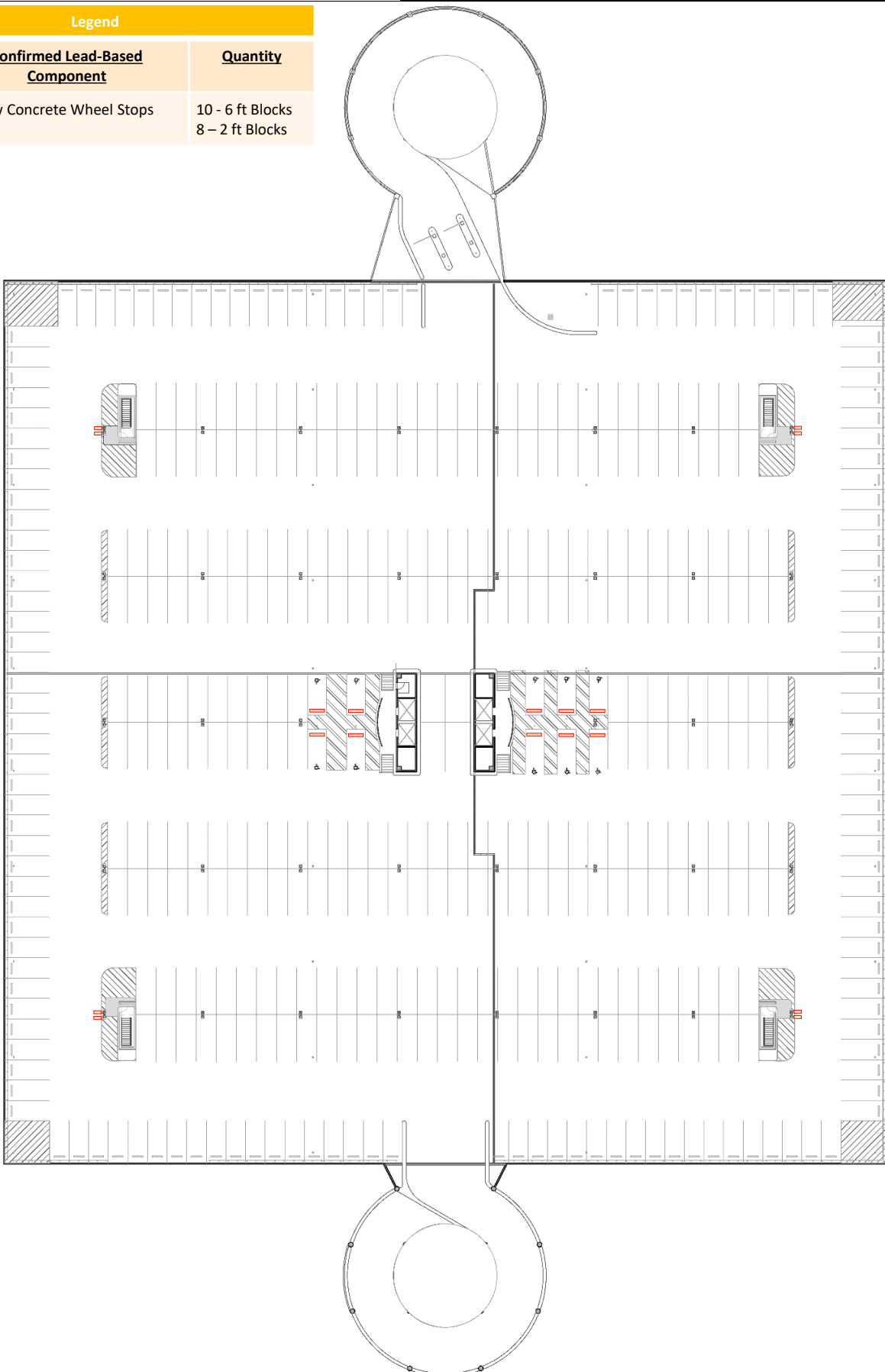
Plan Reviewed by:

Name: Christopher M. Hundley, Principal Consultant

Signature: 
Date: April 20, 2022

Legend

Color	Confirmed Lead-Based Component	Quantity
	Yellow Concrete Wheel Stops HA: 5	10 - 6 ft Blocks 8 - 2 ft Blocks








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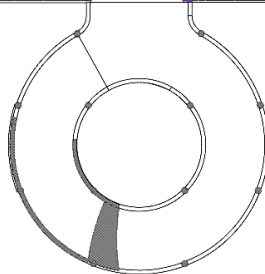
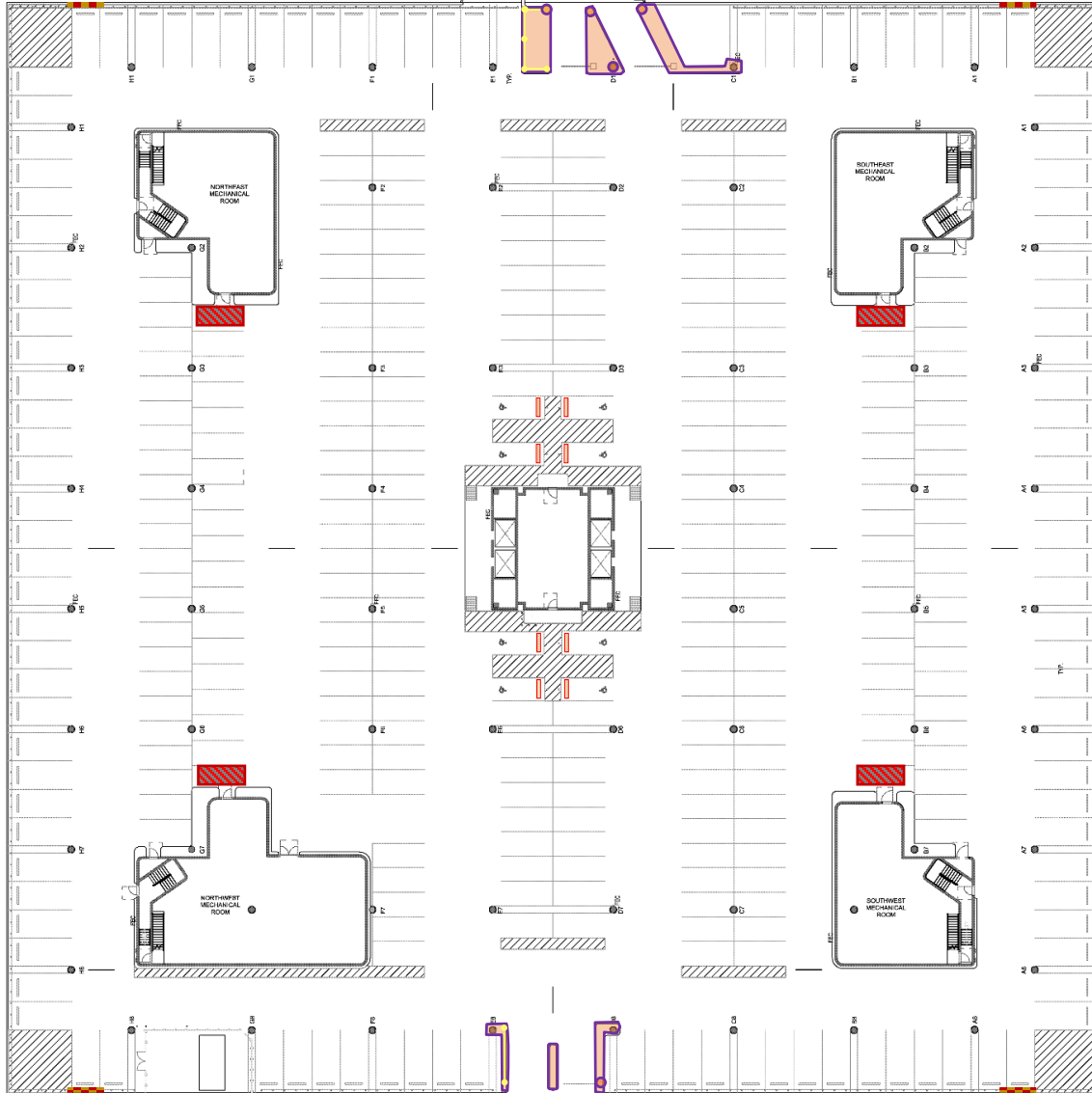
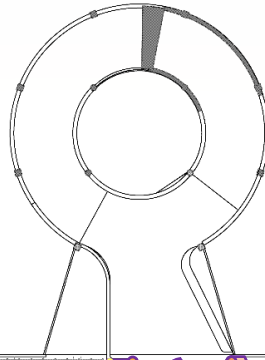
Exhibit: Lead-Based Paint Diagram
 1 of 4
 CLIENT: Freese & Nichols

Terminal B Parking Garage
 Level 4 - Roof
 3100 North Terminal Road
 Houston, Texas 77032
 PSI Project No. 052321846-5



Legend		
Color	Confirmed Lead-Based Material	Quantity
	Yellow Concrete Wheel Stops HA: 2	8 - 6 ft Blocks
	Yellow Metal Guard Rails HA: 3	204 ft ² (4 Tot.)
	Yellow Entry Rails (2 Rails) HA: 4	60 Linear Feet

Legend		
Color	Confirmed Lead-Based Material	Quantity
	Red No Parking Zone Paint HA: 15	1,080 ft ² (4 Tot.)
	Yellow Entry Curbs with Metal Bumper Poles, East and West Helices HA: 18	1,407 ft ²





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Exhibit: Lead-Based Paint Diagram
2 of 4



CLIENT: Freese & Nichols

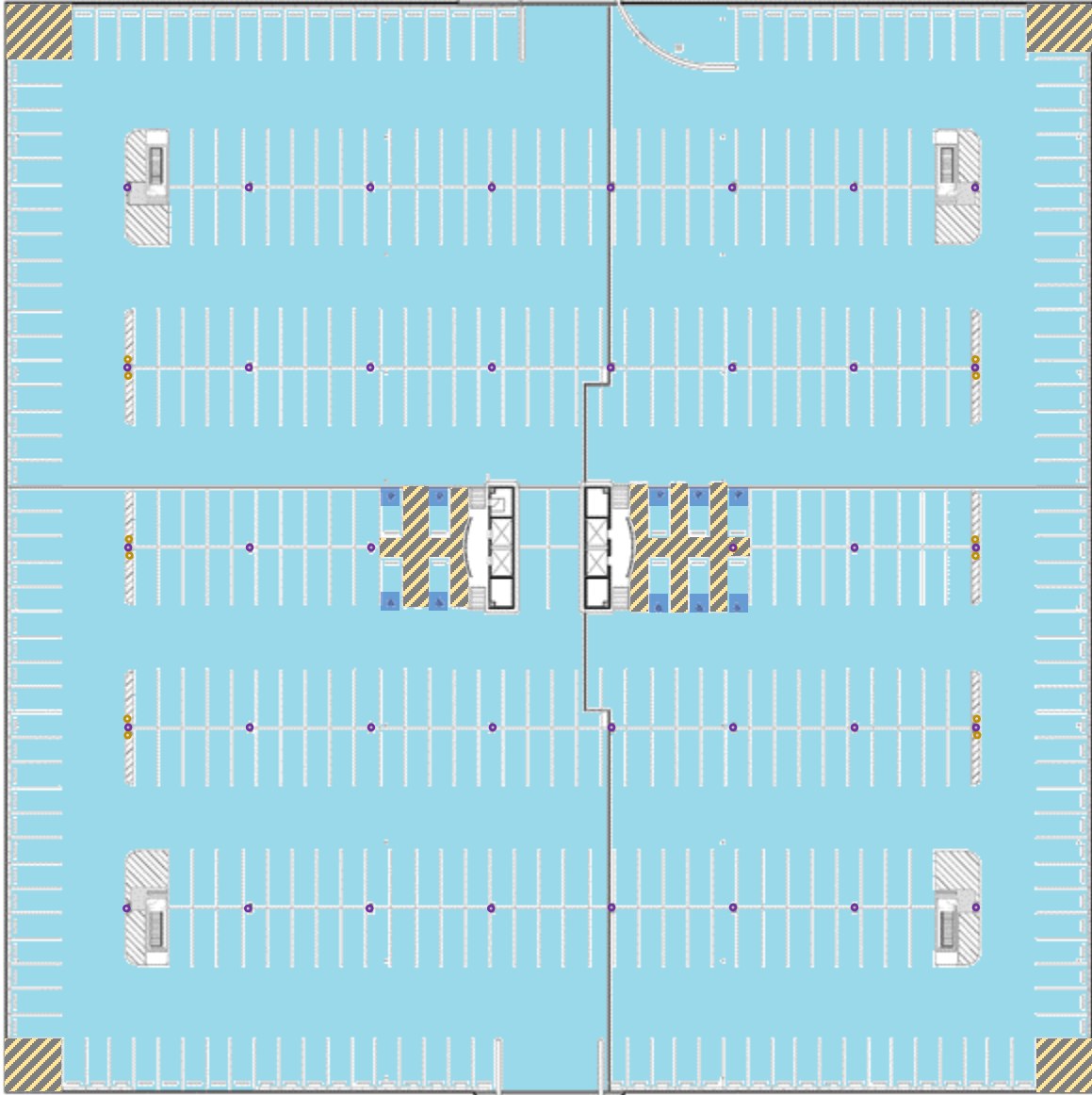
Terminal B Parking Garage
Level 3
3100 North Terminal Road
Houston, Texas 77032
PSI Project No. 052321846-5



Legend		
Color	Confirmed Lead-Based Material	Quantity
	Yellow Concrete Divider Columns HA: 3	96 ft ² (12 Tot.)
	Yellow Parking Stripes HA:6	937 ft ²



Legend		
Color	Confirmed Lead-Based Material	Quantity
	Blue Concrete Handicap Signage HA: 11	160 ft ² (10 Tot.)
	Gray Membrane HA: 15	83,321 ft ²
	Yellow Concrete Light Column HA: LBP1	304 ft ² (38 Tot.)



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Exhibit: Lead-Containing Paint Diagram
3 of 4

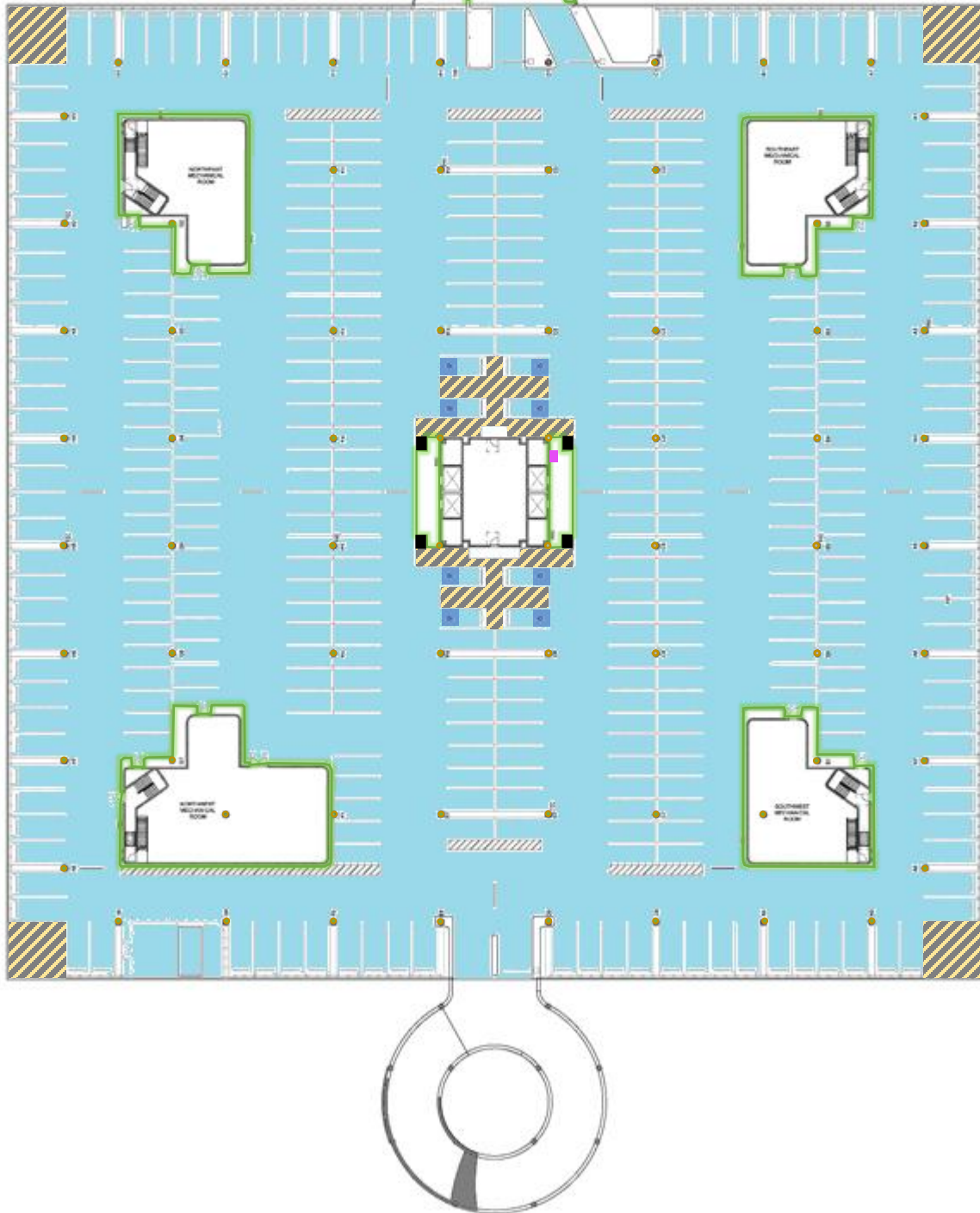
CLIENT: Freese & Nichols

Terminal B Parking Garage
Level 4 - Roof
3100 North Terminal Road
Houston, Texas 77032
PSI Project No. 052321846-5



Legend		
Color	Confirmed Lead-Based Material	Quantity
	Gold Columns HA: 1	2,752 ft ² (64 Tot.)
	Yellow Curb, Includes Elevator Bank, Column Curbs, & Stairwell/Mech. Rooms HA: 5	6,682 ft ²
	Yellow Parking Stripes HA: 6	1,563 ft ²
	Yellow Ramp (Now Black) HA: 7	128 ft ² (4 Tot.)

Legend		
Color	Confirmed Lead-Based Material	Quantity
	White Plaster Wall Paint HA: 8	13,695 ft ²
	Black Wall Paint HA: 11	4 ft ²
	Blue Concrete Handicap Signage HA: 12	128 ft ² (8 Tot.)
	Mechanical Room Door Paint HA: 14	170 ft ²
	Gray Membrane HA: 17	112,798 ft ²



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Exhibit: Lead-Containing Paint Diagram
4 of 4

CLIENT: Freese & Nichols

Terminal B Parking Garage
Level 3
3100 North Terminal Road
Houston, Texas 77032
PSI Project No. 052321846-5





Professional Service Industries, Inc.
6700 Portwest Drive
Houston, Texas 77024
Phone: (713) 479-8527

November 5, 2019

City of Houston
900 Bagby Street
2nd Floor General Services Department
Houston, Texas 77002

Attn: Mr. Gabriel Mussio
Office: (832) 393-8079
Email: Gabriel.mussio@cityofhouston.gov

Re: **Environmental Consulting Services**
George Bush Intercontinental Airport (IAH)
Terminal B Parking Garage – Level 3 and 4
3100 North Terminal Road
Houston, Harris County, Texas 77032
PSI Project Number: 0523-1706

Dear Mr. Mussio:

Thank you for choosing Professional Service Industries, Inc. (PSI), an Intertek company. As requested, attached are the renovation surveys for asbestos and lead-based paint at the above-mentioned location. The surveys were conducted by PSI's subconsultant, Separation Systems Consultants, Inc. (SSCI), in general accordance with the Environmental Consulting Services Contract and PSI's Proposal 0523-289901 dated September 16, 2019. PSI transmits one (1) copy of the two (2) final reports with this letter.

We thank you for your business and we look forward to finding ways to grow our partnership, expand our services, and continue Building Better Together.

Sincerely,
PROFESSIONAL SERVICES INDUSTRIES, INC.

A handwritten signature in blue ink, appearing to read "Emem Abia".

Emem Abia, LEED AP
Environmental Dept. Manager

A handwritten signature in blue ink, appearing to read "Jack Marshall".

Jack Marshall
Principal Consultant

ATTACHMENTS: Asbestos Survey Report
Lead-based Paint Inspection Report





**Environmental, Construction
and Engineering Services**

Asbestos Survey Report

IAH Terminal B Level 3 & 4 Parking Garage
3100 North Terminal Road
Houston, Texas 77032
SSCI Project No. 53326



Prepared for

PSI Intertek
6700 Portwest Drive
Houston, Texas 77024

Prepared by



**Environmental, Construction
and Engineering Services**

Separation Systems Consultants, Inc.
17041 El Camino Real, Suite 200
Houston, Texas 77058
281-486-1943
www.sscienvironmental.com

Brandon Lopez
TDSHS Asbestos Inspector License No. 603699

Helen I. Hodges
TDSHS Asbestos Management Planner No. 20-5058

October 31, 2019

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Appendices:

Appendix A: Sampling Table and Laboratory Reports

Appendix B: Site Diagram and Photographs

Appendix C: Licenses



1.0 Introduction

Separation Systems Consultants, Inc. (SSCI) has performed an Asbestos Survey of the IAH Terminal B Level 3 & 4 Parking Garage located at 3100 North Terminal Road in Houston, Texas 77032 (Site). The objective of the Asbestos Survey was to identify and sample suspected Asbestos-Containing Materials (ACM) to be disturbed during demolition or renovation activities of the on-site building(s). The survey was conducted in accordance with the Texas Asbestos Health Protection Rules (TAHPR) and National Emissions Standards for Hazardous Air Pollutants (NESHAP).

The objective of the Asbestos Survey was to determine the presence and quantities of suspected ACM, to analyze the samples, and to present the findings in a report. SSCI exercised reasonable efforts to accomplish the investigation objectives, applying professional standards applicable to similar work performed in the industry. The survey was conducted in accordance with TAHPR and NESHAP.

The objective of the asbestos survey was to determine the presence of ACM. Confirmed ACM is categorized as friable or non-friable. Friable ACM is defined as any materials containing greater than one percent (1%) asbestos that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. Non-friable ACM is defined as any materials containing greater than one percent (1%) asbestos that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. Regulated ACM (RACM) are those materials that contain greater than one percent (1%) asbestos and are friable or will become friable due to renovation, demolition, or other disturbances.

Suspected ACM is categorized as surfacing, thermal system insulation (TSI), or miscellaneous. Surfacing material is defined as any material that is sprayed-on, troweled-on, or otherwise applied to surfaces. TSI is defined as any material applied to pipes, fittings, boilers, breeching, tanks, ducts, or other interior structural components to prevent heat loss or gain. Miscellaneous materials are defined as any material not including surfacing or TSI, such as floor tiles and ceiling tiles.

The sampling was conducted on October 23, 2019 by Mr. Brandon Lopez, a Texas Department of State Health Services (TDSHS) Asbestos Inspector (No. 603699). SSCI is a TDSHS-certified Asbestos Management Planner Organization (No. 20-0059). Work was performed under the direction of an Individual Asbestos Management Planner (No. 20-5058). Certifications and TDSHS licenses are presented in Appendix C. The samples taken were collected in accordance with state and federal regulations.

This survey included the entirety of the interior and exterior portions of the Site. Sample locations and photographs of the Site are provided in Appendix B.

A total of twenty-seven (27) samples of suspected ACM representing nine (9) homogeneous areas were collected from accessible interior and exterior portions of the on-site building(s). Samples were collected using destructive methods necessary to identify suspected ACM. None of the materials sampled were identified to contain asbestos.



2.0 Site Description

The Site consists of two (2) parking garage areas on Terminal B at IAH located at 3100 North Terminal Road, Houston, TX 77032. The Site is identified on the Harris County Appraisal District (HCAD) as Property ID No. 0441130001004. The Site building was constructed in 1975. According to the HCAD, the Site is currently owned by the City of Houston Airport Facilities.

3.0 Asbestos Sampling

This survey began with visual observation of the areas to be impacted by the proposed demolition or renovation activities. Homogenous areas were identified prior to the start of sampling activities. Homogenous areas are defined as areas consisting of suspected ACM which are similar in color, texture, and assumed or actual date of installation.

A total of twenty-seven (27) samples of suspected ACM representing nine (9) homogeneous areas were collected from accessible interior and exterior portions of the on-site building(s). None of the materials sampled were identified to contain asbestos. A table detailing the suspected ACM samples collected is included in Appendix A of this report. The materials identified as non-friable may become friable during the course of the proposed demolition or renovation activities. Building materials such as fiberglass insulation, wood, metal, plastic, concrete, and glass are assumed to be non-ACM and were not sampled.

The ACM samples were submitted to J3 Resources, Inc. (J3) for bulk asbestos analysis. The samples were first examined for homogeneity and preliminary characterization using a stereomicroscope. The samples were then analyzed by Polarized Light Microscopy (PLM) with dispersion staining at 100X magnification in accordance with the Environmental Protection Agency (EPA) "Method for the Determination of Asbestos in Bulk Building Materials" (EPA-600/R-93/116). Percentages for the samples were determined by visual estimation. J3 is a TDSHS-certified asbestos laboratory (No. 30-2073) and an AIHA-Laboratory Accreditation Programs (LAP)-accredited laboratory (No.15-7714).

The asbestos laboratory analytical results and the chain-of-custody form are provided in Appendix A. Photographs of the Site are provided in Appendix B.

4.0 Limitations

Although reasonable effort was made to survey and locate accessible suspect materials, additional suspect materials may be located in walls, voids, or other concealed areas that will be impacted by the proposed demolition or renovation activities. Should suspect materials other than those identified within this report be uncovered during the demolition or renovation process, those materials should be assumed to be asbestos containing until sampling and analysis demonstrates otherwise.

SSCI exercised reasonable efforts to accomplish the investigation objectives, applying professional standards applicable to similar work performed in the industry. The results, findings, conclusions, and recommendations made in this report are based on conditions observed at the time of the survey.

Asbestos Survey Report

IAH Terminal B Level 3 & 4 Parking Garages
3100 North Terminal Road, Houston, TX 77032
SSCI Project No. 53326



This report has been prepared on behalf of and exclusively for use by PSI Intertek for the specific application to their project as identified during communication with SSCI. SSCI does not warrant the work of regulatory agencies, laboratories, or other third parties supplying information, which may have been used in the preparation of this report.

5.0 Conclusions and Recommendations

A total of twenty-seven (27) samples of suspected ACM representing nine (9) homogeneous areas, were collected from the interior and exterior portions of the on-site building(s) located at 3100 North Terminal Road in Houston, TX 77032. Samples were collected using destructive methods necessary to identify suspected ACM. None of the materials sampled were identified to contain asbestos. Based on the asbestos survey performed, SSCI **did not** identify ACM at the Site.

Disturbances of known suspected ACM must be handled in accordance with applicable regulations. Although visible suspected ACM were sampled, hidden suspected materials that were not identified during the survey may be discovered. If a previously unsampled suspected ACM is identified during demolition or renovation activities; stop work and have the material tested, or assume the material contains asbestos and remove it in accordance with applicable regulations. Based on the nature of this project, a TDSHS asbestos/demolition notification form (Form No. APB No. 5, Rev 05/07) is not required for abatement or demolition activities.

SSCI recommends that a copy of this report be maintained on-site during demolition or renovation activities. In the event that additional suspected asbestos materials are identified during the proposed construction activities, those materials should be sampled at that time prior to any disturbance.

Asbestos Survey Report
IAH Terminal B Level 3 & 4 Parking Garages
3100 North Terminal Road. Houston, TX 77032
SSCI Project No. 53326



Appendix A

Sampling Table and Laboratory Reports

J3 Resources, Inc.

3113 Red Bluff Road, Pasadena, TX 77503
 Phone: (713) 290-0223 - Fax: (713) 290-0248
 J3Resources.com

**Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)****Appx E Sub E 40 CFR 763 / EPA 600/R-93/116**

Brandon Lopez
 SSCI Environmental Consulting Services
 17041 El Camino Real, Ste. 200
 Houston TX 77058

J3 Order #: JP191017498
 Project #: 53326
 Date Received: 24-Oct-2019
 Date Analyzed: 29-Oct-2019
 Date Reported: 29-Oct-2019

Level 3

Sample ID #	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	
1A	Insulation, Yellow, Homogeneous	None Detected	Fibrous Glass Non-Fibrous Material	95% 5%
1B	Insulation, Yellow, Homogeneous	None Detected	Fibrous Glass Non-Fibrous Material	95% 5%
1C	Insulation, Yellow, Homogeneous	None Detected	Fibrous Glass Non-Fibrous Material	95% 5%
2A	Duct Mastic, Gray, Homogeneous	None Detected	Non-Fibrous Material	100%
2B	Duct Mastic, Gray, Homogeneous	None Detected	Non-Fibrous Material	100%
2C	Duct Mastic, Gray, Homogeneous	None Detected	Non-Fibrous Material	100%
3A	Flooring Tar, Gray/ Black, Homogeneous	None Detected	Non-Fibrous Material	100%
3B	Flooring Tar, Gray/ Black, Homogeneous	None Detected	Non-Fibrous Material	100%
3C	Flooring Tar, Gray/ Black, Homogeneous	None Detected	Non-Fibrous Material	100%
4A	Exhaust Insulation, Gray/ Yellow, Homogeneous	None Detected	Fibrous Glass Non-Fibrous Material	90% 10%
4B	Exhaust Insulation, Gray/ Yellow, Homogeneous	None Detected	Fibrous Glass Non-Fibrous Material	90% 10%

Lyana Salehuddin

Analyst


 Scott Ward, Ph.D. Lab Director

This report relates only to the materials tested. This report is for the exclusive use of the addressed client and shall not be reproduced except in full, without written approval by J3 Resources, Inc. (J3). Samples are analyzed according to the methods listed above and are subject to the inherent limitations of PLM and interference of matrix components. Reporting limit for the above method is a function of the quantity of sample analyzed, matrix interference, sample preparation, fiber size, and distribution. Asbestos may be detected in concentrations of <1% by area if sufficient material is analyzed. J3 recommends TEM confirmation of soils, vermiculite and non-friable organically bound materials (NOB) reported as None Detected or < 1% Asbestos by PLM. All samples received in good condition unless otherwise noted. This report shall not be used to claim product approval, certification, or endorsement by NVLAP, NIST, or any agency of the federal government.

NVLAP Lab Code: 600120-0 AIHA Lab ID: 157714 TDSHS License: 30-0457

Page 1 of 2

J3 Resources, Inc.

3113 Red Bluff Road, Pasadena, TX 77503
 Phone: (713) 290-0223 - Fax: (713) 290-0248
 J3Resources.com

**Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)****Appx E Sub E 40 CFR 763 / EPA 600/R-93/116**

Brandon Lopez
SSCI Environmental Consulting Services
17041 El Camino Real, Ste. 200
Houston TX 77058

J3 Order #: JP191017498
Project #: 53326
Date Received: 24-Oct-2019
Date Analyzed: 29-Oct-2019
Date Reported: 29-Oct-2019

Level 3

Sample ID #	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	
4C	Exhaust Insulation, Gray/ Yellow, Homogeneous	None Detected	Fibrous Glass Non-Fibrous Material	90% 10%
5A	Caulking, Beige, Homogeneous	None Detected	Non-Fibrous Material	100%
5B	Caulking, Beige, Homogeneous	None Detected	Non-Fibrous Material	100%
5C	Caulking, Beige, Homogeneous	None Detected	Non-Fibrous Material	100%

Lyana Salehuddin

Analyst


 Scott Ward, Ph.D. Lab Director

This report relates only to the materials tested. This report is for the exclusive use of the addressed client and shall not be reproduced except in full, without written approval by J3 Resources, Inc. (J3). Samples are analyzed according to the methods listed above and are subject to the inherent limitations of PLM and interference of matrix components. Reporting limit for the above method is a function of the quantity of sample analyzed, matrix interference, sample preparation, fiber size, and distribution. Asbestos may be detected in concentrations of <1% by area if sufficient material is analyzed. J3 recommends TEM confirmation of soils, vermiculite and non-friable organically bound materials (NOB) reported as None Detected or < 1% Asbestos by PLM. All samples received in good condition unless otherwise noted. This report shall not be used to claim product approval, certification, or endorsement by NVLAP, NIST, or any agency of the federal government.

NVLAP Lab Code: 600120-0

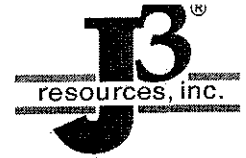
AIHA Lab ID: 157714

TDSHS License: 30-0457

Page 2 of 2

Open Lab Fee

IH CHAIN OF CUSTODY



17498

Submitter Name: <u>Julien Lacasse</u>	Bill to: _____
Company: <u>SSCI</u>	Address: _____
Address: <u>17041 El Camino Real</u>	_____
<u>Suite 200</u>	City/State: _____ Zip: _____
City/State: <u>Houston, TX</u> Zip: <u>77058</u>	PO #: _____

Project Information

Project Name: <u>Level 3 LBP / MSB</u>	Project Manager: <u>Brandon Lopez</u>
Project #: <u>53326</u>	Telephone - Office/Cell _____
Reports - Email Address: <u>blopez@sscienvironmental.com</u>	
Invoice - Email Address: <u>accounting@</u> _____	Notification By: Email: <input checked="" type="checkbox"/> Verbal: <input type="checkbox"/> Text: <input type="checkbox"/>

Special Instructions:

Turnaround Times - Please Select One

Emergency* <input type="checkbox"/>	1 Day <input type="checkbox"/>	2 Day <input type="checkbox"/>	3 Day <input type="checkbox"/>	5 Day <input checked="" type="checkbox"/>
--------------------------------------------	---------------------------------------	---------------------------------------	---------------------------------------	--------------------------------------------------

ASBESTOS

PLM - Bulk	PCM - Air	TEM - Air	TEM - Bulk	TEM - Water	TEM - Dust	TEM/PLM Soil/Vermiculite/Ore
EPA 600/R-93/116 <input checked="" type="checkbox"/> Visual Estimation (<1%) <input type="checkbox"/> 400 Point Count 0.25% <input type="checkbox"/> 1,000 Point Count 0.1% <input type="checkbox"/> Gravimetric Reduction <input type="checkbox"/> Matrix Reduction (+/-) <input type="checkbox"/> NIOSH 9002 <input type="checkbox"/> OSHA ID-191	<input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> ASTM D7201 <input type="checkbox"/> ISO 8672 <input type="checkbox"/> OSHA ID-160	<input type="checkbox"/> AHERA <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> ASTM D6281 <input type="checkbox"/> ISO 10312 <input type="checkbox"/> ISO 13794	<input type="checkbox"/> Gravimetric Reduction (<1%) <input type="checkbox"/> Matrix Reduction (+/-) <input type="checkbox"/> Qualitative (+/-) <input type="checkbox"/> Drop Mount <input type="checkbox"/> Filtration	<input type="checkbox"/> EPA 100.2 Drinking Water <input type="checkbox"/> >10 µm fibers <input type="checkbox"/> ≥0.5 µm fibers <input type="checkbox"/> EPA 100.2 Effluent / WW	<input type="checkbox"/> ASTM D5755 Microvac <input type="checkbox"/> ASTM D6480 Wipe <input type="checkbox"/> 600/J-93/167 Carpet - EPA <input type="checkbox"/> Bulk Dust Qualitative	<input type="checkbox"/> ASTM 7521-TEM (+/-) <input type="checkbox"/> ASTM 7521-TEM (<1%) <input type="checkbox"/> CARB 435-Modified <input type="checkbox"/> Soil - PLM Only (+/-) <input type="checkbox"/> Vermiculite - TEM (+/-) <input type="checkbox"/> Vermiculite-Cincinnati <input type="checkbox"/> Erionite ID

METALS

SILICA/PARTICULATES

Flame AA	Graphite Furnace AA - LEAD	ICP	X-Ray Diffraction / Gravimetric
<input checked="" type="checkbox"/> Lead in Paint - SW846 7420/3050B <input type="checkbox"/> Lead in Air - NIOSH 7082 <input type="checkbox"/> Lead in Wipes - SW846 7420/3050B <input type="checkbox"/> Lead in Soil - SW846 7420/3050B <input type="checkbox"/> TCLP - SW846-1311/6010B	<input type="checkbox"/> Drinking Water - EPA 200.9 <input type="checkbox"/> Wastewater - SW846-7421 <input type="checkbox"/> Soil/Sludge - SW846-7421 <input type="checkbox"/> Air - NIOSH 7105	<input type="checkbox"/> Elements in Air - NIOSH 7300 <input type="checkbox"/> Wipe/Soil - SW846-6010B <input type="checkbox"/> Effluent - SW846-6010B <input type="checkbox"/> Welding Fume - NIOSH 7300M	<input type="checkbox"/> Respirable Crystalline Silica NIOSH 7500 / OSHA 142 <input type="checkbox"/> NIOSH 0500 - Total Particulates <input type="checkbox"/> NIOSH 0600 - Respirable Particulates

Total Number of Samples Submitted: 3215/n.t. **Positive Stop:** YES NO

Signatures

Relinquished By: <u>Julien Lacasse</u>	Date: <u>10/24</u>	Time: <u>2:50</u>
Received By: _____	Date: <u>10/24/19</u>	Time: <u>2:55pm</u>
Relinquished By: _____	Date: _____	Time: _____
Received By: _____	Date: _____	Time: _____

* Emergency TAT requires prior lab notification. All samples analyzed outside normal business hours are charged at Emergency rate.
 **TAT's are in Business Days rather than Hours (i.e. 1 Day TAT = End of Next Business Day)

IH CHAIN OF CUSTODY

 Project Name/Number Level 3 LBP/ASB

Page _____ of _____

SAMPLE IDENTIFICATION

SAMPLE NUMBER	SAMPLE LOCATION / MATERIAL	VOLUME
Gold Column	→ " - Level 3	
Yellow Parking Block	→ " -	
Yellow Parking Guard Rail	→ " -	
Yellow Entry Rails	→ " -	
Yellow Curb	→ " -	
Yellow Parking Stripe	→ " -	
Yellow Ramp	→ " -	
White building wall	→ " -	
White beam	→ " -	
White Column	→ " -	
Black Wall Paint	→ " -	
Blue Handicap	→ " -	
Blue/White Handicap	→ " -	
Purple + White "stair c" door	→ " -	
Red NO parking zone Paint	→ " -	
Tagmaster Equipment Paint	→ " -	
Gray Flooring Tar	→ " -	
IA	Level 3 - Air Vent Insulation	
IB	- "	
IC	- "	
2A	- Air Vent Duct Mastiz	
2B	- "	
2C	- "	
3A	- Flooring Tar	
3B	- "	
3C	- "	
4A	- Exhaust Insulation	
4B	- "	
4C	- "	
Comments/Special Instructions:		

J3 Resources, Inc.

3113 Red Bluff Road, Pasadena, TX 77503
 Phone: (713) 290-0223 - Fax: (713) 290-0248
 J3Resources.com

**Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)****Appx E Sub E 40 CFR 763 / EPA 600/R-93/116**

Brandon Lopez
SSCI Environmental Consulting Services
17041 El Camino Real, Ste. 200
Houston TX 77058

J3 Order #: JP191017497
Project #: 53326
Date Received: 24-Oct-2019
Date Analyzed: 30-Oct-2019
Date Reported: 30-Oct-2019

Rooftop

Sample ID #	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	
1A	Building Caulk, White, Homogeneous	None Detected	Non-Fibrous Material	100%
1B	Building Caulk, White, Homogeneous	None Detected	Non-Fibrous Material	100%
1C	Building Caulk, White, Homogeneous	None Detected	Non-Fibrous Material	100%
2A	Roofing Tar, Black/ Gray, Homogeneous	None Detected	Non-Fibrous Material	100%
2B	Roofing Tar, Black/ Gray, Homogeneous	None Detected	Non-Fibrous Material	100%
2C	Roofing Tar, Black/ Gray, Homogeneous	None Detected	Non-Fibrous Material	100%
3A	Caulking, Tan, Homogeneous	None Detected	Non-Fibrous Material	100%
3B	Caulking, Tan, Homogeneous	None Detected	Non-Fibrous Material	100%
3C	Caulking, Tan, Homogeneous	None Detected	Non-Fibrous Material	100%
4A	Cable Flashing, Gray/ Clear, Homogeneous	None Detected	Non-Fibrous Material	100%
4B	Cable Flashing, Gray/ Clear, Homogeneous	None Detected	Non-Fibrous Material	100%
4C	Cable Flashing, Gray/ Clear, Homogeneous	None Detected	Non-Fibrous Material	100%

Duane Salinas

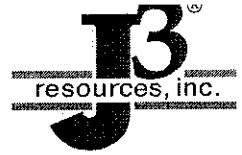
Analyst


 Scott Ward, Ph.D. Lab Director

This report relates only to the materials tested. This report is for the exclusive use of the addressed client and shall not be reproduced except in full, without written approval by J3 Resources, Inc. (J3). Samples are analyzed according to the methods listed above and are subject to the inherent limitations of PLM and interference of matrix components. Reporting limit for the above method is a function of the quantity of sample analyzed, matrix interference, sample preparation, fiber size, and distribution. Asbestos may be detected in concentrations of <1% by area if sufficient material is analyzed. J3 recommends TEM confirmation of soils, vermiculite and non-friable organically bound materials (NOB) reported as None Detected or < 1% Asbestos by PLM. All samples received in good condition unless otherwise noted. This report shall not be used to claim product approval, certification, or endorsement by NVLAP, NIST, or any agency of the federal government.

NVLAP Lab Code: 600120-0 AIHA Lab ID: 157714 TDSHS License: 30-0457

Page 1 of 1



Open Lab Fee

IH CHAIN OF CUSTODY

J3 Orig # **17497**

Submitter Name: <u>Julien Lacasse</u>	Bill to: <u>"</u>
Company: <u>SSCI</u>	Address: <u>"</u>
Address: <u>17041 El Camino Real</u>	<u>"</u>
<u>ste 200</u>	City/State: <u>"</u> Zip: <u>"</u>
City/State: <u>Houston, TX</u> Zip: <u>77058</u>	PO #:

Project Information	
Project Name: <u>Roof top LBP / Asbestos</u>	Project Manager: <u>Brandon Lopez</u>
Project #: <u>53326</u>	Telephone - Office/Cell
Reports - Email Address: <u>blol@sscienvironmental.com</u>	
Invoice - Email Address: <u>accounting@</u>	Notification By: Email: <input checked="" type="checkbox"/> Verbal: <input type="checkbox"/> Text: <input type="checkbox"/>
Special Instructions:	

Turnaround Times - Please Select One				
Emergency* <input type="checkbox"/>	1 Day <input type="checkbox"/>	2 Day <input type="checkbox"/>	3 Day <input type="checkbox"/>	5 Day <input checked="" type="checkbox"/>

ASBESTOS						
PLM - Bulk	PCM - Air	TEM - Air	TEM - Bulk	TEM - Water	TEM - Dust	TEM/PLM Soil/Vermiculite/Ore
<input checked="" type="checkbox"/> EPA 600/R-93/116 <input checked="" type="checkbox"/> Visual Estimation (<1%) <input type="checkbox"/> 400 Point Count 0.25% <input type="checkbox"/> 1,000 Point Count 0.1% <input type="checkbox"/> Gravimetric Reduction <input type="checkbox"/> Matrix Reduction (+/-) <input type="checkbox"/> NIOSH 9002 <input type="checkbox"/> OSHA ID-191	<input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> ASTM D7201 <input type="checkbox"/> ISO 8672 <input type="checkbox"/> OSHA ID-160	<input type="checkbox"/> AHERA <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> ASTM D6281 <input type="checkbox"/> ISO 10312 <input type="checkbox"/> ISO 13794	<input type="checkbox"/> Gravimetric Reduction (<1%) <input type="checkbox"/> Matrix Reduction (+/-) <input type="checkbox"/> Qualitative (+/-) <input type="checkbox"/> Drop Mount <input type="checkbox"/> Filtration	<input type="checkbox"/> EPA 100.2 Drinking Water <input type="checkbox"/> >10 µm fibers <input type="checkbox"/> ≥0.5 µm fibers <input type="checkbox"/> EPA 100.2 Effluent / WW	<input type="checkbox"/> ASTM D5755 Microvac <input type="checkbox"/> ASTM D6480 Wipe <input type="checkbox"/> 600/J-93/167 Carpet - EPA <input type="checkbox"/> Bulk Dust Qualitative	<input type="checkbox"/> ASTM 7521-TEM (+/-) <input type="checkbox"/> ASTM 7521-TEM (<1%) <input type="checkbox"/> CARB 435-Modified <input type="checkbox"/> Soil - PLM Only (+/-) <input type="checkbox"/> Vermiculite - TEM (+/-) <input type="checkbox"/> Vermiculite-Cincinnati <input type="checkbox"/> Erionite ID

METALS			SILICA/PARTICULATES
Flame AA	Graphite Furnace AA - LEAD	ICP	X-Ray Diffraction / Gravimetric
<input checked="" type="checkbox"/> Lead in Paint - SW846 7420/3050B <input type="checkbox"/> Lead in Air - NIOSH 7082 <input type="checkbox"/> Lead in Wipes - SW846 7420/3050B <input type="checkbox"/> Lead in Soil - SW846 7420/3050B <input type="checkbox"/> TCLP - SW846-1311/6010B	<input type="checkbox"/> Drinking Water - EPA 200.9 <input type="checkbox"/> Wastewater - SW846-7421 <input type="checkbox"/> Soil/Sludge - SW846-7421 <input type="checkbox"/> Air - NIOSH 7105	<input type="checkbox"/> Elements in Air - NIOSH 7300 <input type="checkbox"/> Wipe/Soil - SW846-6010B <input type="checkbox"/> Effluent - SW846-6010B <input type="checkbox"/> Welding Fume - NIOSH 7300M	<input type="checkbox"/> Respirable Crystalline Silica NIOSH 7500 / OSHA 142 <input type="checkbox"/> NIOSH 0500 - Total Particulates <input type="checkbox"/> NIOSH 0600 - Respirable Particulates

Total Number of Samples Submitted: 27 ~~12~~ / n.t. Positive Stop: YES NO

Signatures			
Relinquished By: <u>Julien Lacasse</u>	<u>[Signature]</u>	Date: <u>6/24</u>	Time: <u>2:50</u>
Received By:	<u>[Signature]</u>	Date: <u>10/24/19</u>	Time: <u>2:55pm</u>
Relinquished By:		Date:	Time:
Received By:		Date:	Time:

* Emergency TAT requires prior lab notification. All samples analyzed outside normal business hours are charged at Emergency rate.
 **TAT's are in Business Days rather than Hours (i.e. 1 Day TAT = End of Next Business Day)

IH CHAIN OF CUSTODY

Project Name/Number Rooftop LBP/Asb

Page _____ of _____

SAMPLE IDENTIFICATION

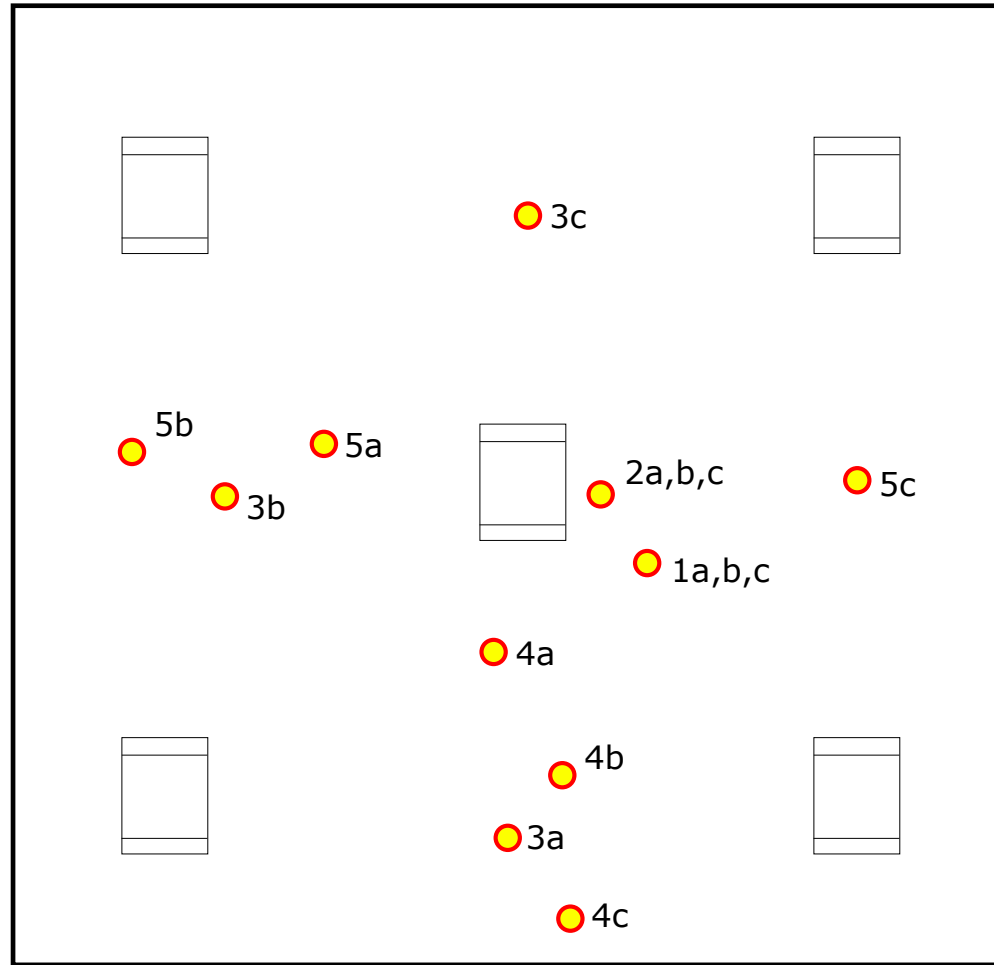
SAMPLE NUMBER	SAMPLE LOCATION / MATERIAL	VOLUME
Red Door	Rooftop / Level 4	
Yellow Curb	↓	
Yellow divider column		
Yellow ramp		
Yellow parking block		
Yellow parking stripe paint		
White wall Paint		
White light pole		
White window frame		
White building		
Blue/white handicap spot		
Blue Handicap		
Blue Emergency unit		
Gray Wall Paint		
Gray floor Paint		
1A	Rooftop - Building Caulking	
1B	"	
1C	"	
2A	- Roofing Tar	
2B	"	
2C	"	
3A	- Handicap Post Base Caulking	
3B	"	
3C	"	
4A	- Electric cable flashing	
4B	"	
4C	"	
Comments/Special Instructions:		

Asbestos Survey Report
IAH Terminal B Level 3 & 4 Parking Garages
3100 North Terminal Road, Houston, TX 77032
SSCI Project No. 53326



Appendix B

Site Diagram and Photographs

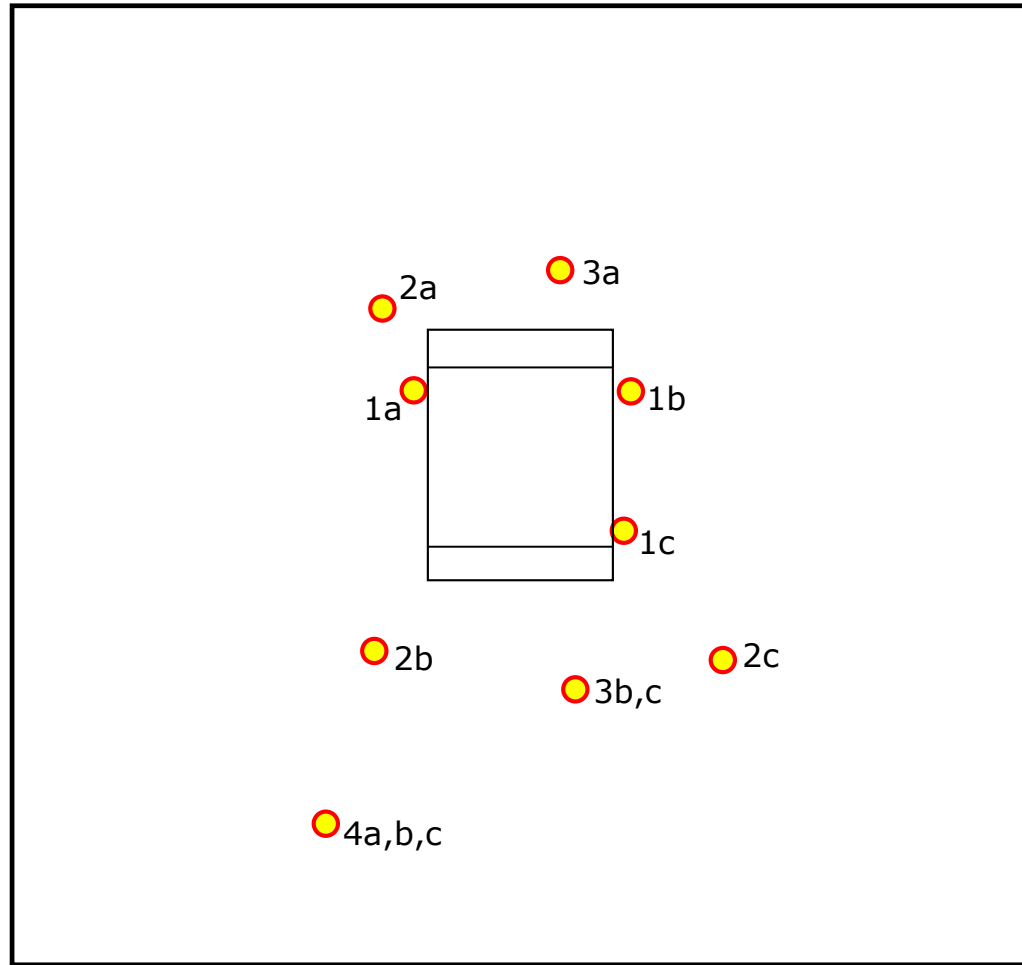


Map not drawn to scale.



Level 3 Asbestos Inspection
3100 North Terminal Road
Houston, Texas 77032

SSCI Project No.: 53326



Map not drawn to scale.



Rooftop Asbestos Inspection
3100 North Terminal Road
Houston, Texas 77032

SSCI Project No.: 53326

Asbestos Survey



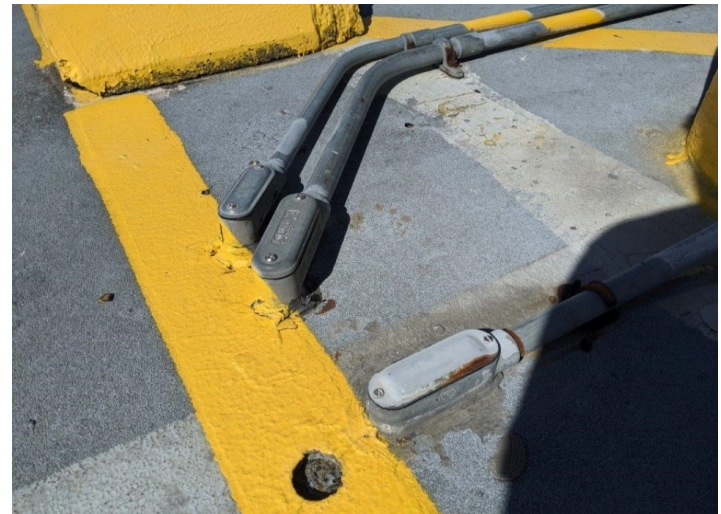
No. 1 View of building caulking (Sample 1 Rooftop).



No. 2 View of roofing tar (Sample 2 Rooftop).



No. 3 View of handicap post base caulking (Sample 3 Rooftop).



No. 4 View of electrical flashing (Sample 4 Rooftop).

Asbestos Survey



No. 5 View of air vent insulation (Sample 1 Level 3).



No. 6 View of air vent duct mastic (Sample 2 Level 3).



No. 7 View of flooring tar (Sample 3 Level 3).



No. 8 View of exhaust insulation (Sample 4 Level 3).

Asbestos Survey



No. 9 View of handicap post base caulking (Sample 5 Level 3).

Asbestos Survey Report
IAH Terminal B Level 3 & 4 Parking Garages
3100 North Terminal Road. Houston, TX 77032
SSCI Project No. 53326



Appendix C

Licenses



License Number: 603699 **Current Date: 08/10/2018 02:21 PM**

Name: **LOPEZ, BRANDON J**

License Type: **Asbestos Inspector**

License Status: **Current**

Expiry Date: **08/08/2020**

Effective Rank Date: **08/09/2018**

Addresses

Main Address

Address

ROSHARON , TX

BRAZORIA

77583

US

Mailing Address (Enter name of company or individual associated with the mailing address)

Address

SEPERATION SYSTEMS CONSULTANTS INC

HOUSTON , TX

HARRIS

77058

US

Phone Number:

2814861943



Texas Department of State Health Services

Asbestos Individual Management Planner

HELEN I HODGES

License No. 205058

Control No. 96354

Expiration Date: 30-Aug-2021





Texas Department of State Health Services

SEPARATION SYSTEMS CONSULTANTS INC

is certified to perform as an

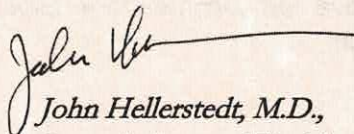
Asbestos Management Planner Agency

in the State of Texas and is hereby governed by the rights, privileges and responsibilities set forth in Texas Occupations Code, Chapter 1954 and Title 12, Texas Administrative Code, Chapter 295 relating to Texas Asbestos Health Protection, as long as this license is not suspended or revoked.

License Number: 200059

Expiration Date: 06/25/2021

Control Number: 95675


*John Hellerstedt, M.D.,
Commissioner of Health*

(Void After Expiration Date)

VOID IF ALTERED NON-TRANSFERABLE

SEE BACK



**Environmental, Construction
and Engineering Services**

Lead-based Paint Inspection Report

IAH Terminal B Level 3 & 4 Parking Garages
3100 North Terminal Road
Houston, Texas 77032
SSCI Project No. 53326



Prepared for

PSI Intertek
6700 Portwest Drive
Houston, Texas 77024

Prepared by



**Environmental, Construction
and Engineering Services**

Separation Systems Consultants, Inc.
17041 El Camino Real, Suite 200
Houston, Texas 77058
281-486-1943
www.sscienvironmental.com

A handwritten signature in black ink that reads "Trevor Rumbaugh".

Trevor Rumbaugh
TDSHS Lead Inspector Certification No. 2060946

A handwritten signature in black ink that reads "Brandon Lopez".

Brandon Lopez
TDSHS Lead Risk Assessor Certification No. 2071190

October 31, 2019

TABLE OF CONTENTS

1.0	Introduction	1
2.0	Site Description	1
3.0	XRF Testing Summary	1
4.0	Conclusions and Recommendations	1
5.0	Limitations	3

Appendices:

Appendix A: Paint-Chip sampling Laboratory Results

Appendix B: Site Map

Appendix C: Photographs

Appendix D: HCAD Property Details

Appendix E: Certifications and Licenses



1.0 Introduction

Separation Systems Consultants, Inc. (SSCI) has performed a Combination Lead-based Paint Inspection of the IAH Terminal B Level 3 & 4 Parking Garage located at 3100 North Terminal Road, Houston, Texas 77032 (Site). The lead-based paint inspection was conducted on October 15, 2019 by Mr. Brandon Lopez, a Texas Department of State Health Services (TDSHS) certified Lead Risk Assessor (Certification No. 2071190) and Mr. Trevor Rumbaugh, a TDSHS certified Lead Inspector (Certification No. 2060946).

The Site consists of two (2) parking garage areas on Terminal B at IAH located at 3100 North Terminal Road, Houston, TX 77032. The Site is identified on the Harris County Appraisal District (HCAD) as Property ID No. 0441130001004. The Site building was constructed in 1975. According to the HCAD, the Site is currently owned by the City of Houston Airport Facilities. The HCAD Property Details for the Site are provided in Appendix E of this report. The following services were performed as part of the lead inspection:

- Performed a walk thru and visual assessment of the interior and exterior of the on-site building to locate the existence of painted surfaces.
- Collected measurements from painted interior and exterior building components using paint chip sample analysis.
- Documented sample locations and descriptions.

The scope of work performed was inspect the Site to determine the presence, absence, or location of lead-based. Paint chip samples were collected and analyzed for lead content, as determined by ASTM E1729, "Standard Practice for Field Collection of Dried Paint Samples for Lead Determination by Atomic Spectrometry Techniques." All sampling was performed in accordance with approved documented methodologies such as those outlined in the Environmental Protection Agency (EPA) and Housing and Urban Development (HUD) Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing. The scope of work also included issuing a report detailing the testing locations, paint-chip sample analysis, and results of the visual inspection.

2.0 Site Description

The Site consists of two (2) parking garage areas on Terminal B at IAH located at 3100 North Terminal Road, Houston, TX 77032. The Site is identified on the Harris County Appraisal District (HCAD) as Property ID No. 0441130001004. The Site building was constructed in 1975. According to the HCAD, the Site is currently owned by the City of Houston Airport Facilities.

3.0 Paint Chip Sampling Summary

SSCI collected thirty-three (33) paint-chip samples from the Site to be tested for lead concentration. A lead concentration above 5,000 milligrams per kilogram (mg/kg) or 0.5% lead by mass is considered hazardous and should be properly removed. Six (6) of the samples contained lead concentrations above 5,000 mg/kg and are listed in the table below. Further discussion of these inspection and sample results is included within this report. Based on the



inspection conducted for the accessible and representative building components tested, SSCI has concluded that the Site building contains lead-based paint.

Location	Sample ID	Paint Color	Lead Concentration (mg/kg)	Lead Concentration (%)
Rooftop	5-Yellow Parking Block	Yellow	15,000	1.5
Level 3	2-Yellow Parking Block	Yellow	26,000	2.6
Level 3	3-Yellow Parking Guard Rail	Yellow	49,000	4.9
Level 3	4-Yellow Entry Rails	Yellow	27,000	2.7
Level 3	15-Red No Parking Zone Paint	Red	5,500	0.55
Level 3	18-Yellow Entry Curb	Yellow	7,100	0.71

The paint chip samples collected were submitted with Chain of Custody forms to the J3 Resources, Inc. (J3) laboratory in Pasadena, Texas. J3's laboratory has fulfilled the requirements of the American Industrial Hygiene Association (AIHA) Laboratory Accreditation Programs, LLC and has achieved and maintains its IAHA laboratory accreditation and proficiency status (AIHA Laboratory No. 157714). For a complete list of paint chip sample locations and results, see Appendix A: Paint Chip sampling Laboratory Results.

4.0 Conclusions and Recommendations

The IAH Terminal B Level 3 & 4 Parking Garages and the painted interior and exterior building components were observed by SSCI to be in overall fair condition. Six (6) samples obtained from the painted components tested were above the EPA and HUD Lead Action Level of 5,000 mg/kg or 0.5% lead by mass as measured by the paint chip analysis. SSCI recommends one of the following

- **Abatement** – means any set of measures designed to permanently eliminate lead-based paint hazards in accordance with established federal standards. Abatement strategies include: removal of lead-based paint; encapsulation or enclosure of lead-based paint; removal and replacement of building components painted with lead-based paint; and all preparation, cleanup, disposal, and post-abatement clearance tests. Texas Department of State Health Services Certified individuals must complete abatement activities.
- **Interim Controls** – means any set of measures designed to reduce temporarily human exposure or likely exposure to lead-based paint hazards, including specialized cleaning,

Lead-based Paint Inspection Report
IAH Terminal B Level 3 & 4 Parking Garages
3100 North Terminal Road, Houston, TX 77032
SSCI Project No. 53326



repairs, maintenance, wet hand scraping methods, painting, temporary containment, management and resident education programs. Ongoing monitoring of lead exposures is an integral element of interim controls.

In the event that there are any planned renovations or demolitions for the buildings on Site, SSCI recommends any site personnel, contractor, and/or sub-contractor that may disturb paint with any detectable amount of lead (i.e. less than the EPA and HUD limits for lead-based paint), comply with the OSHA Lead in Construction (29 CFR 1926.62) regulations.

5.0 Limitations

SSCI warrants that services provided shall be performed in accordance with established and recognized general industry standards and analytical testing procedures. No other warranties, expressed or implied, are made by SSCI.

The scope of this report is limited to the matters expressly covered. All recommendations, findings and conclusions stated in this report are based upon the facts and circumstances as they existed at the time that this report was prepared (e.g., Federal, State, and Local laws, rules, regulations and general industry standards). A change in any fact or circumstances upon which this report is based may adversely affect the recommendations, findings, and conclusions expressed in this report.

The conclusions and recommendations describe only the conditions present at the time of our survey that could be observed in accessible areas. Other similar conditions may exist in inaccessible areas, such as behind walls, above permanent ceilings or beneath flooring. Therefore, caution must be exercised during any demolition / renovation activity.

SSCI does not warrant or guarantee any quantity estimations or cost estimations presented in this report. Although SSCI believes estimates presented in this report are reasonable, the use of such estimates shall be at the user's own risk and shall constitute a release and agreement to defend and indemnify SSCI from and against any liability in connection with cost and/or quantity estimations. This report may not be used as a scope of work for abatement without prior approval by SSCI.

Lead-based Paint Inspection Report
IAH Terminal B Level 3 & 4 Parking Garages
3100 North Terminal Road, Houston, TX 77032
SSCI Project No. 53326



Appendix A

Paint Chip Sampling Laboratory Results

J3 Resources, Inc.

3113 Red Bluff Road Pasadena, Texas 77503

Phone: (713) 290-0223 – Fax: (832) 831-5669

j3resources.com

Lead in Paint Performed by
Flame AA – USEPA SW846 7420/3050B

Brandon Lopez
SSCI Environmental
17041 El Camino Real, Suite 200
Houston, TX 77058

J3 Order #: JP191017500
Project #: 53326
Receipt Date: 24-Oct-2019
Analysis Date: 29-Oct-2019
Report Date: 29-Oct-2019

Level 3

SAMPLE ID	PAINT COLOR	LEAD CONCENTRATION (mg/kg)	LEAD CONCENTRATION (%)
1	Gold	52	0.0052%
2	Yellow	26000	2.6%
3	Yellow	49000	4.9%
4	Yellow	27000	2.7%
5	Yellow	570	0.057%
6	Yellow	1800	0.18%
7	Yellow	450	0.045%
8	White	370	0.037%
9	White	< 50	< 0.005%
10	White	< 50	< 0.005%
11	Black	640	0.064%
12	Blue	180	0.018%
13	Blue/White	< 50	< 0.005%
14	Purple/White	290	0.029%
15	Red	5500	0.55%
16	Paint Chip	< 50	< 0.005%
17	Gray	90	0.009%
18	Yellow	7100	0.71%

Reporting Limit = 50.0 mg/kg N/A = Not Applicable
INS = Insufficient Sample Weight NS = Not Submitted

Analyst: Alyssa Rodriguez

A handwritten signature in black ink, appearing to read 'S. Ward'.

Scott Ward, Ph.D. Lab Director

This report relates only to the samples submitted. The analysis has been conducted according to the method(s) listed above. Blank corrections are not applied to data unless requested by the customer. This report is for the exclusive use of the addressed customer and shall not be reproduced except in full without written approval by J3 Resources, Inc. (J3). Unless otherwise noted, all quality control samples performed within specifications established by the laboratory. Accuracy and recovery data are based on a 95% confidence interval. The estimated accuracy is based solely on spike recovery data from internal quality control samples and does not account for uncertainty associated with the sampling process. Accuracy = +/-21.6%, Recovery = 103%.

Open Lab Fee

IH CHAIN OF CUSTODY



J3 17500

Submitter Name: <u>Julien Lacasse</u>	Bill to: _____
Company: <u>SSCI</u>	Address: _____
Address: <u>17041 El Camino Real</u>	_____
<u>Suite 200</u>	City/State: _____ Zip: _____
City/State: <u>Houston, TX</u> Zip: <u>77058</u>	PO #: _____

Project Information

Project Name: <u>Level 3 LBP/MSB</u>	Project Manager: <u>Brandon Lopez</u>
Project #: <u>53326</u>	Telephone - Office/Cell _____
Reports - Email Address: <u>blopez@sscienvironmental.com</u>	
Invoice - Email Address: <u>accounting@</u> _____	Notification By: Email: <input checked="" type="checkbox"/> Verbal: <input type="checkbox"/> Text: <input type="checkbox"/>

Special Instructions:

Turnaround Times - Please Select One

Emergency* 1 Day 2 Day 3 Day 5 Day

ASBESTOS

PLM - Bulk	PCM - Air	TEM - Air	TEM - Bulk	TEM - Water	TEM - Dust	TEM/PLM Soil/Vermiculite/Ore
EPA 600/R-93/116 <input checked="" type="checkbox"/> Visual Estimation (<1%) <input type="checkbox"/> 400 Point Count 0.25% <input type="checkbox"/> 1,000 Point Count 0.1% <input type="checkbox"/> Gravimetric Reduction <input type="checkbox"/> Matrix Reduction (+/-) <input type="checkbox"/> NIOSH 9002 <input type="checkbox"/> OSHA ID-191	<input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> ASTM D7201 <input type="checkbox"/> ISO 8672 <input type="checkbox"/> OSHA ID-160	<input type="checkbox"/> AHERA <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> ASTM D6281 <input type="checkbox"/> ISO 10312 <input type="checkbox"/> ISO 13794	<input type="checkbox"/> Gravimetric Reduction (<1%) <input type="checkbox"/> Matrix Reduction (+/-) <input type="checkbox"/> Qualitative (+/-) <input type="checkbox"/> Drop Mount <input type="checkbox"/> Filtration	<input type="checkbox"/> EPA 100.2 Drinking Water <input type="checkbox"/> >10 µm fibers <input type="checkbox"/> ≥0.5 µm fibers <input type="checkbox"/> EPA 100.2 Effluent / WW	<input type="checkbox"/> ASTM D5755 Microvac <input type="checkbox"/> ASTM D6480 Wipe <input type="checkbox"/> 600/J-93/167 Carpet - EPA <input type="checkbox"/> Bulk Dust Qualitative	<input type="checkbox"/> ASTM 7521-TEM (+/-) <input type="checkbox"/> ASTM 7521-TEM (<1%) <input type="checkbox"/> CARB 435-Modified <input type="checkbox"/> Soil - PLM Only (+/-) <input type="checkbox"/> Vermiculite - TEM (+/-) <input type="checkbox"/> Vermiculite-Cincinnati <input type="checkbox"/> Erionite ID

METALS

SILICA/PARTICULATES

Flame AA	Graphite Furnace AA - LEAD	ICP	X-Ray Diffraction / Gravimetric
<input checked="" type="checkbox"/> Lead in Paint - SW846 7420/3050B <input type="checkbox"/> Lead in Air - NIOSH 7082 <input type="checkbox"/> Lead in Wipes - SW846 7420/3050B <input type="checkbox"/> Lead in Soil - SW846 7420/3050B <input type="checkbox"/> TCLP - SW846-1311/6010B	<input type="checkbox"/> Drinking Water - EPA 200.9 <input type="checkbox"/> Wastewater - SW846-7421 <input type="checkbox"/> Soil/Sludge - SW846-7421 <input type="checkbox"/> Air - NIOSH 7105	<input type="checkbox"/> Elements in Air - NIOSH 7300 <input type="checkbox"/> Wipe/Soil - SW846-6010B <input type="checkbox"/> Effluent - SW846-6010B <input type="checkbox"/> Welding Fume - NIOSH 7300M	<input type="checkbox"/> Respirable Crystalline Silica NIOSH 7500 / OSHA 142 <input type="checkbox"/> NIOSH 0500 - Total Particulates <input type="checkbox"/> NIOSH 0600 - Respirable Particulates

Total Number of Samples Submitted: 3218 **Positive Stop:** YES NO

Signatures

Relinquished By: <u>Julien Lacasse</u>	Date: <u>10/24</u> Time: <u>2:50</u>
Received By: _____	Date: <u>10/24/12</u> Time: <u>2:58 PM</u>
Relinquished By: _____	Date: _____ Time: _____
Received By: _____	Date: _____ Time: _____

* Emergency TAT requires prior lab notification. All samples analyzed outside normal business hours are charged at Emergency rate.
 **TAT's are in Business Days rather than Hours (i.e. 1 Day TAT = End of Next Business Day)

IH CHAIN OF CUSTODY

Project Name/Number Level 3 LBP/ASB

Page _____ of _____

SAMPLE IDENTIFICATION

	SAMPLE NUMBER	SAMPLE LOCATION / MATERIAL	VOLUME
1	Gold Column	→ " - level 3	
2	Yellow Parking Block	→ " -	
3	Yellow Parking Guard Rail	→ " -	
4	Yellow Entry Rails	→ " -	
5	Yellow Curb	→ " -	
6	Yellow Parking Stripe	→ " -	
7	Yellow Ramp	→ " -	
8	White building wall	→ " -	
9	White beam	→ " -	
10	White Column	→ " -	
11	Black Wall Paint	→ " -	
12	Blue Handicap	→ " -	
13	Blue/White Handicap	→ " -	
14	Purple + White "stair c" door	→ " -	
15	Red NO parking zone Paint	→ " -	
16	Tagmaster Equipment Paint	→ " -	
17	Grey Flooring Tar	→ " -	
18	Yellow Entry Curb Per B.I./n.t.		
	1A	Level 3 - Air Vent Insulation	
	1B	- "	
	1C	- "	
	2A	- Air Vent Duct Mastix	
	2B	- "	
	2C	- "	
	3A	- Flooring Tar	
	3B	- "	
	3C	- "	
	4A	- Exhaust Insulation	
	4B	- "	
	4C	- "	
Comments/Special Instructions:			

J3 Resources, Inc.

3113 Red Bluff Road Pasadena, Texas 77503

Phone: (713) 290-0223 – Fax: (832) 831-5669

j3resources.com



Lead in Paint Performed by
Flame AA – USEPA SW846 7420/3050B

Brandon Lopez
SSCI Environmental
17041 El Camino Real, Suite 200
Houston, TX 77058

J3 Order #: JP191017499
Project #: 53326
Receipt Date: 24-Oct-2019
Analysis Date: 29-Oct-2019
Report Date: 29-Oct-2019

Rooftop

SAMPLE ID	PAINT COLOR	LEAD CONCENTRATION (mg/kg)	LEAD CONCENTRATION (%)
1	Red	< 50	< 0.005%
2	Yellow	< 50	< 0.005%
3	Yellow	590	0.059%
4	Yellow	< 50	< 0.005%
5	Yellow	15000	1.5%
6	Yellow	1000	0.1%
7	White	< 50	< 0.005%
8	White	< 50	< 0.005%
9	White	< 50	< 0.005%
10	White	< 50	< 0.005%
11	Blue/White	58	0.0058%
12	Blue	< 50	< 0.005%
13	Blue	< 50	< 0.005%
14	Gray	< 50	< 0.005%
15	Gray	66	0.0066%

Reporting Limit = 50.0 mg/kg N/A = Not Applicable
INS = Insufficient Sample Weight NS = Not Submitted

Analyst: Alyssa Rodriguez

A handwritten signature in black ink, appearing to read 'S. Ward'.

Scott Ward, Ph.D. Lab Director

This report relates only to the samples submitted. The analysis has been conducted according to the method(s) listed above. Blank corrections are not applied to data unless requested by the customer. This report is for the exclusive use of the addressed customer and shall not be reproduced except in full without written approval by J3 Resources, Inc. (J3). Unless otherwise noted, all quality control samples performed within specifications established by the laboratory. Accuracy and recovery data are based on a 95% confidence interval. The estimated accuracy is based solely on spike recovery data from internal quality control samples and does not account for uncertainty associated with the sampling process. Accuracy = +/-21.6%, Recovery = 103%.

Open Lab Fee

IH CHAIN OF CUSTODY



J3 17499 (ly)

Submitter Name: <u>Julien Lacasse</u>	Bill to: <u>"</u>
Company: <u>SSCI</u>	Address: <u>"</u>
Address: <u>17041 El Camino Real</u> <u>ste 200</u>	City/State: <u>"</u> Zip: <u>"</u>
City/State: <u>Houston, TX</u> Zip: <u>77058</u>	PO #: _____

Project Information

Project Name: <u>Roof top LBP / Asbestos</u>	Project Manager: <u>Brandon Lopez</u>
Project #: <u>53326</u>	Telephone - Office/Cell _____
Reports - Email Address: <u>blolopez@sscienvironmental.com</u>	
Invoice - Email Address: <u>accounting@"</u>	Notification By: Email: <input checked="" type="checkbox"/> Verbal: <input type="checkbox"/> Text: <input type="checkbox"/>
Special Instructions: _____	

Turnaround Times - Please Select One

Emergency* <input type="checkbox"/>	1 Day <input type="checkbox"/>	2 Day <input type="checkbox"/>	3 Day <input type="checkbox"/>	5 Day <input checked="" type="checkbox"/>
-------------------------------------	--------------------------------	--------------------------------	--------------------------------	-------------------------------------------

ASBESTOS

PLM - Bulk	PCM - Air	TEM - Air	TEM - Bulk	TEM - Water	TEM - Dust	TEM/PLM Soil/Vermiculite/Ore
EPA 600/R-93/116 <input checked="" type="checkbox"/> Visual Estimation (<1%) <input type="checkbox"/> 400 Point Count 0.25% <input type="checkbox"/> 1,000 Point Count 0.1% <input type="checkbox"/> Gravimetric Reduction <input type="checkbox"/> Matrix Reduction (+/-) <input type="checkbox"/> NIOSH 9002 <input type="checkbox"/> OSHA ID-191	<input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> ASTM D7201 <input type="checkbox"/> ISO 8672 <input type="checkbox"/> OSHA ID-160	<input type="checkbox"/> AHERA <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> ASTM D6281 <input type="checkbox"/> ISO 10312 <input type="checkbox"/> ISO 13794	<input type="checkbox"/> Gravimetric Reduction (<1%) <input type="checkbox"/> Matrix Reduction (+/-) <input type="checkbox"/> Qualitative (+/-) <input type="checkbox"/> Drop Mount <input type="checkbox"/> Filtration	<input type="checkbox"/> EPA 100.2 Drinking Water <input type="checkbox"/> >10 µm fibers <input type="checkbox"/> ≥0.5 µm fibers <input type="checkbox"/> EPA 100.2 Effluent / WW	<input type="checkbox"/> ASTM D5755 Microvac <input type="checkbox"/> ASTM D6480 Wipe <input type="checkbox"/> 600/J-93/167 Carpet - EPA <input type="checkbox"/> Bulk Dust Qualitative	<input type="checkbox"/> ASTM 7521-TEM (+/-) <input type="checkbox"/> ASTM 7521-TEM (<1%) <input type="checkbox"/> CARB 435-Modified <input type="checkbox"/> Soil - PLM Only (+/-) <input type="checkbox"/> Vermiculite - TEM (+/-) <input type="checkbox"/> Vermiculite-Cincinnati <input type="checkbox"/> Erionite ID

METALS

SILICA/PARTICULATES

Flame AA	Graphite Furnace AA - LEAD	ICP	X-Ray Diffraction / Gravimetric
<input checked="" type="checkbox"/> Lead in Paint - <u>SW846 7420/3050B</u> <input type="checkbox"/> Lead in Air - NIOSH 7082 <input type="checkbox"/> Lead in Wipes - SW846 7420/3050B <input type="checkbox"/> Lead in Soil - SW846 7420/3050B <input type="checkbox"/> TCLP - SW846-1311/6010B	<input type="checkbox"/> Drinking Water - EPA 200.9 <input type="checkbox"/> Wastewater - SW846-7421 <input type="checkbox"/> Soil/Sludge - SW846-7421 <input type="checkbox"/> Air - NIOSH 7105	<input type="checkbox"/> Elements in Air - NIOSH 7300 <input type="checkbox"/> Wipe/Soil - SW846-6010B <input type="checkbox"/> Effluent - SW846-6010B <input type="checkbox"/> Welding Fume - NIOSH 7300M	<input type="checkbox"/> Respirable Crystalline Silica NIOSH 7500 / OSHA 142 <input type="checkbox"/> NIOSH 0500 - Total Particulates <input type="checkbox"/> NIOSH 0600 - Respirable Particulates

Total Number of Samples Submitted: 27 ~~15/n.t.~~ Positive Stop: YES NO

Signatures

Relinquished By: <u>Julien Lacasse</u>	Date: <u>6/24</u> Time: <u>2:50</u>
Received By: _____	Date: <u>10/24/19</u> Time: <u>2:55pm</u>
Relinquished By: _____	Date: _____ Time: _____
Received By: _____	Date: _____ Time: _____

* Emergency TAT requires prior lab notification. All samples analyzed outside normal business hours are charged at Emergency rate.
 **TAT's are in Business Days rather than Hours (i.e. 1 Day TAT = End of Next Business Day)

IH CHAIN OF CUSTODY

Project Name/Number Rooftop LBP/Asb

Page _____ of _____

SAMPLE IDENTIFICATION

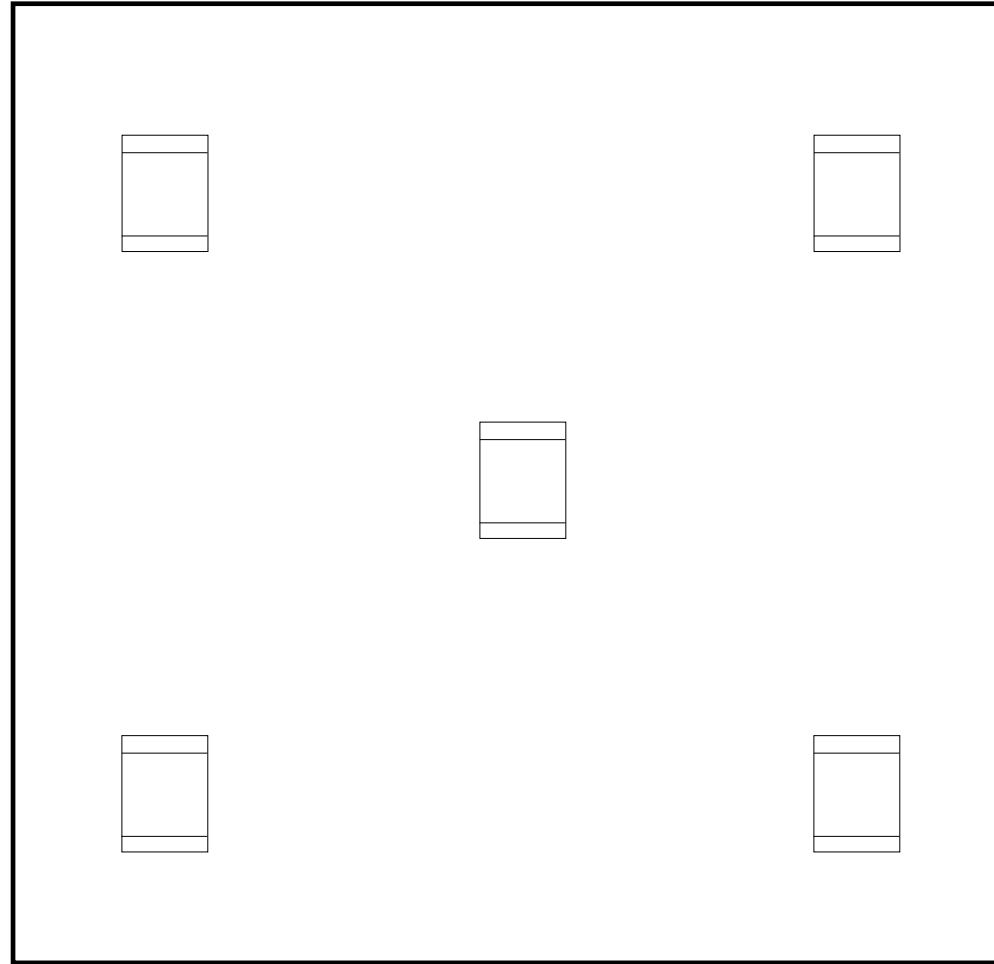
SAMPLE NUMBER	SAMPLE LOCATION / MATERIAL	VOLUME
1	Red Door → Rooftop / Level 9 →	
2	Yellow Curb →	
3	Yellow divider column →	
4	Yellow ramp →	
5	Yellow parking block →	
6	Yellow parking stripe paint →	
7	White wall Paint →	
8	White light pole →	
9	White window frame →	
10	White building →	
11	Blue/white handicap spot →	
12	Blue Handicap →	
13	Blue Emergency unit →	
14	Gray Wall Paint →	
15	Gray floor Paint →	
1A	Rooftop - Building Caulking	
1B	"	
1C	"	
2A	- Roofing Tar	
2B	"	
2C	"	
3A	- Handicap Post Base Caulking	
3B	"	
3C	"	
4A	- Electric cable flashing	
4B	"	
4C	"	
Comments/Special Instructions:		

Lead-based Paint Inspection Report
IAH Terminal B Level 3 & 4 Parking Garages
3100 North Terminal Road, Houston, TX 77032
SSCI Project No. 53326



Appendix B

Site Map

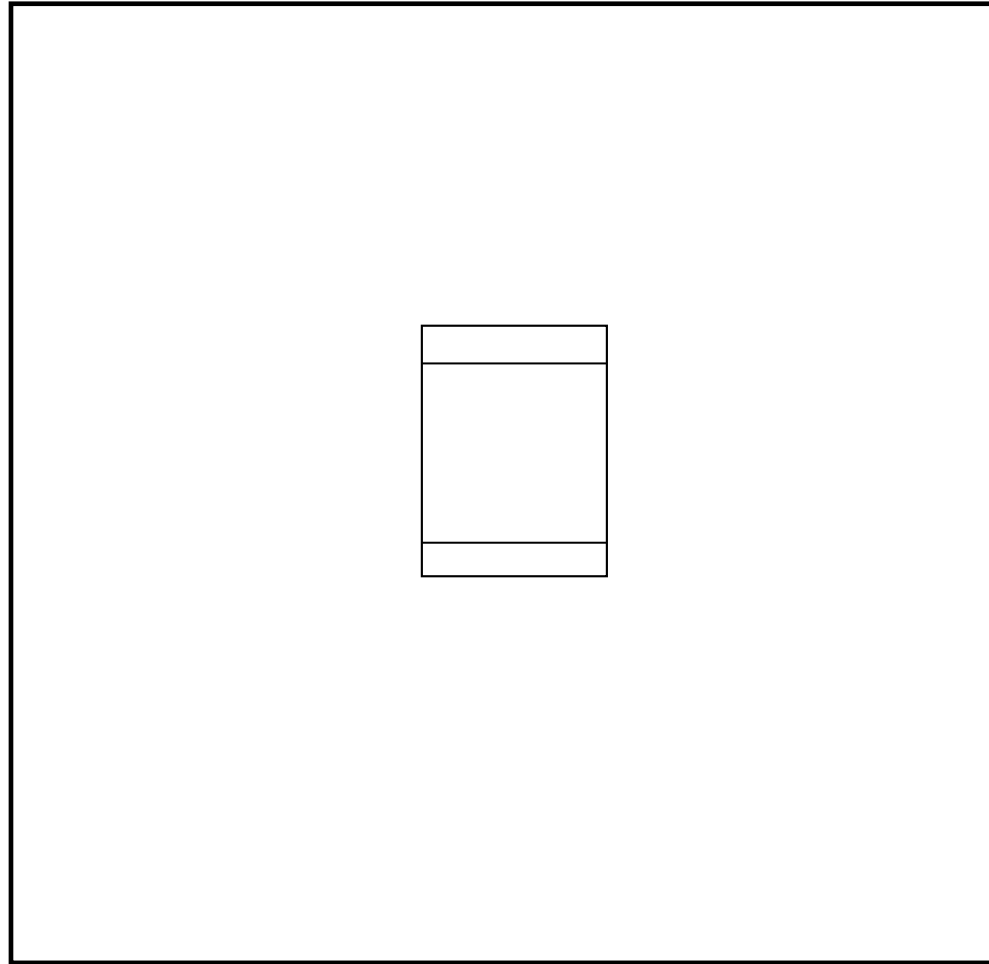


Map not drawn to scale.



Level 3 Lead-based Paint Inspection
3100 North Terminal Road
Houston, Texas 77032

SSCI Project No.: 53326



Map not drawn to scale.



Rooftop Lead-based Paint Inspection
3100 North Terminal Road
Houston, Texas 77032

SSCI Project No.: 53326

Lead-based Paint Inspection Report
IAH Terminal B Level 3 & 4 Parking Garages
3100 North Terminal Road, Houston, TX 77032
SSCI Project No. 53326



Appendix C

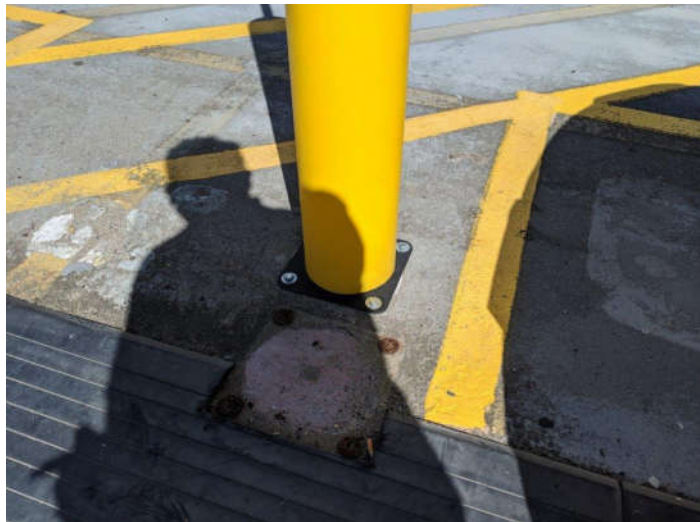
Photographs



No. 1 View of the red door to far right (Sample 1 Rooftop).



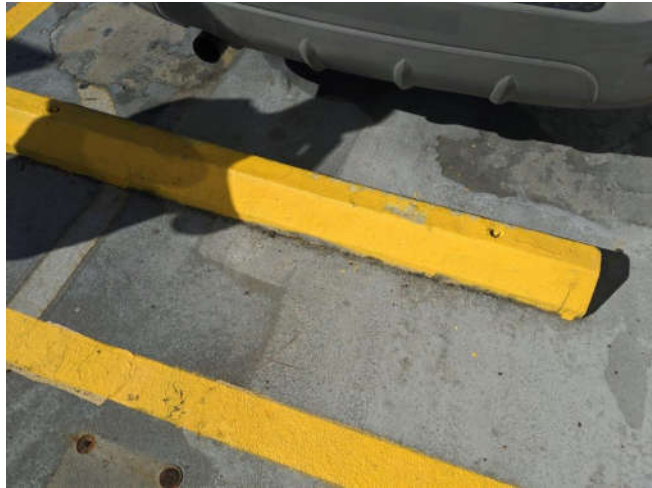
No. 2 View of yellow curb (Sample 2 Rooftop).



No. 3 View of yellow divider column (Sample 3 Rooftop).



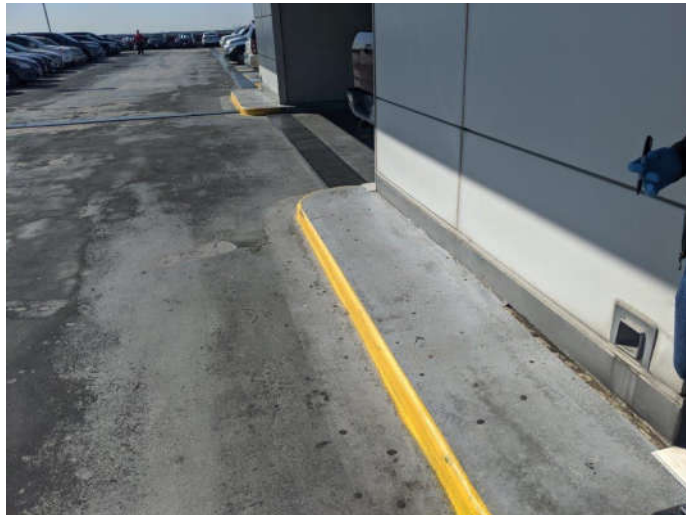
No. 4 View of yellow ramp (Sample 4 Rooftop).



No. 5 View of yellow parking block (Sample 5 Rooftop).



No. 6 View of yellow parking stripe paint (Sample 6 Rooftop).



No. 7 View of white wall paint (Sample 7 Rooftop).



No. 8 View of white light pole (Sample 8 Rooftop).



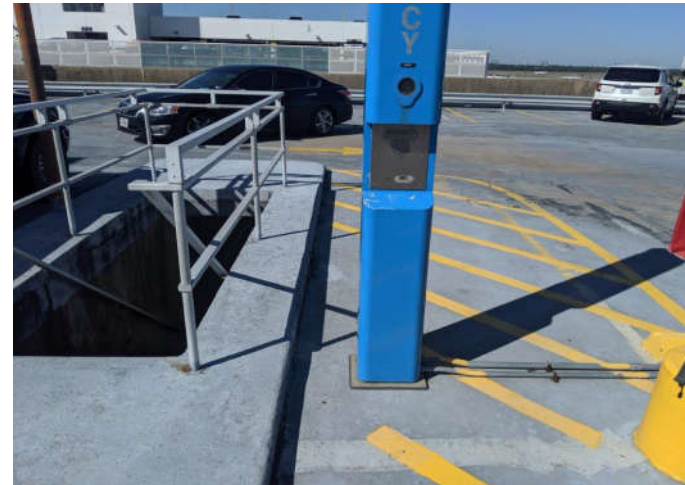
No. 9 View of white window frame (Sample 9 Rooftop).



No. 10 View of white parking structure paint (Sample 10 Rooftop).



No. 11 View of blue/white handicap marker (Sample 11 Rooftop).



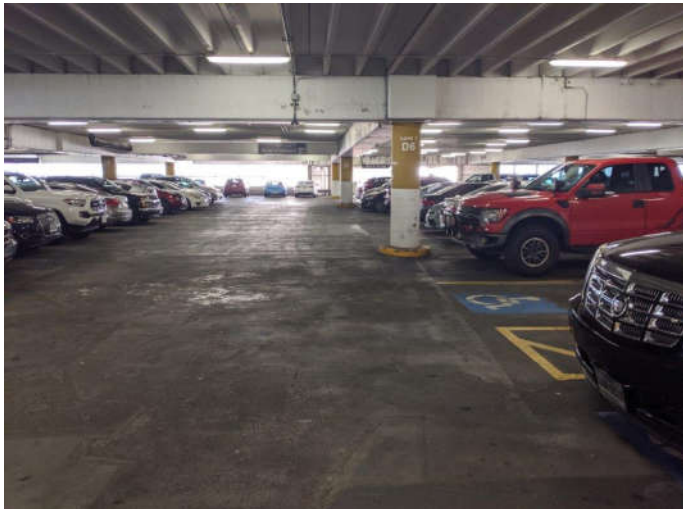
No. 12 View of blue emergency unit (Sample 13 Rooftop).



No. 13 View of gray wall paint (Sample 14 Rooftop).



No. 14 View of gray floor paint (Sample 15 Rooftop).



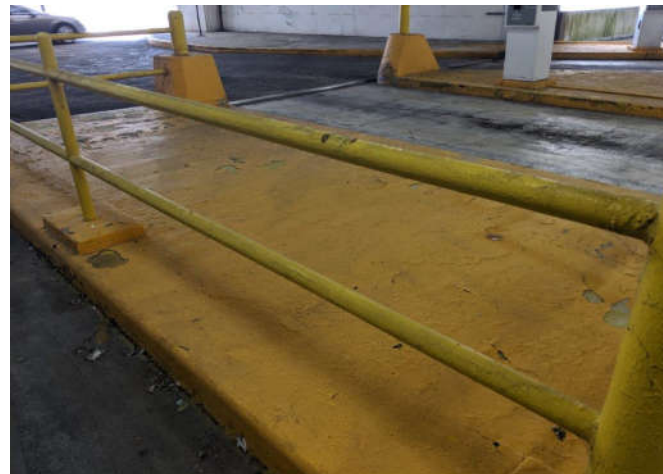
No. 15 View of gold column (Sample 1 Level 3).



No. 16 View of yellow parking block (Sample 2 Level 3).



No. 17 View of yellow parking guard rail (Sample 3 Level 3).



No. 18 View of Yellow Entry Rails (Sample 4 Level 3).



No. 19 View of yellow curb (Sample 5 Level 3).



No. 20 View of yellow parking stripe (Sample 6 Level 3).



No. 21 View of the yellow ramp (Sample 7 Level 3).



No. 22 View of the white building wall (Sample 8 Level 3).



No. 23 View of the white beam (Sample 9 Level 3).



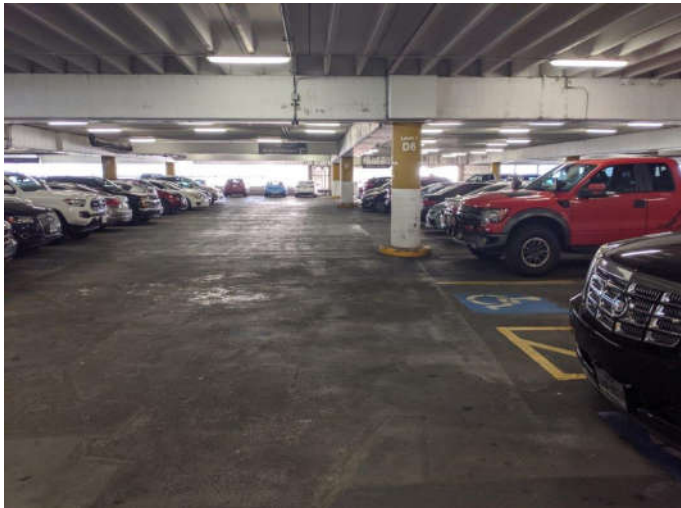
No. 24 View of the white column (Sample 10 Level 3).



No. 25 View of the black wall paint (Sample 11 Level 3).



No. 26 View of the blue handicap (Sample 12 Level 3).



No. 27 View of the blue/white handicap (Sample 13 Level 3).



No. 28 View of the purple and white door (Sample 14 Level 3).



No. 29 View of red no parking zone paint (Sample 15 Level 3).



No. 30 View of tagmaster equipment paint (Sample 16 Level 3).



No. 31 View of gray flooring tar (Sample 17 Level 3).



No. 32 View of yellow entry curb (Sample 18 level 3).

Lead-based Paint Inspection Report
IAH Terminal B Level 3 & 4 Parking Garages
3100 North Terminal Road, Houston, TX 77032
SSCI Project No. 53326



Appendix D

HCAD Property Details

HARRIS COUNTY APPRAISAL DISTRICT
 REAL PROPERTY ACCOUNT INFORMATION
0441130001004

Tax Year: 2019



Owner and Property Information										
Owner Name & Mailing Address: CITY OF HOUSTON AIRPORT FACILITIES HOUSTON TX 77002-				Legal Description: TR 7 AIRPORT FACILITIES HOUSTON INTERCONTINENTAL AIRPORT ABST 660 T S ROBERTS						
				Property Address: 2800 TERMINAL RD HOUSTON TX 77032						
State Class Code	Land Use Code	Building Class	Total Units	Land Area	Building Area	Net Rentable Area	Neighborhood	Market Area	Map Facet	Key Map ^{1/2}
XV -- Other Exempt (Government)	8000 -- Land Neighborhood General Assignment	E	0	2,178,000 SF	0	0	9399.34	280 -- ISD 09 - Airport Tiers Area	5467C	334W

Value Status Information

Value Status	Notice Date	Shared CAD
Noticed	05/03/2019	No

Exemptions and Jurisdictions

Exemption Type	Districts	Jurisdictions	Exemption Value	ARB Status	2018 Rate	2019 Rate
Total	009	ALDINE ISD	4,356,000	Certified: 08/02/2019	1.435888	
	040	HARRIS COUNTY	4,356,000	Certified: 08/02/2019	0.418580	0.407130
	041	HARRIS CO FLOOD CNTRL	4,356,000	Certified: 08/02/2019	0.028770	0.027920
	042	PORT OF HOUSTON AUTHY	4,356,000	Certified: 08/02/2019	0.011550	0.010740
	043	HARRIS CO HOSP DIST	4,356,000	Certified: 08/02/2019	0.171080	0.165910
	044	HARRIS CO EDUC DEPT	4,356,000	Certified: 08/02/2019	0.005190	0.005000
	045	LONE STAR COLLEGE SYS	4,356,000	Certified: 08/02/2019	0.107800	0.107800
	061	CITY OF HOUSTON	4,356,000	Certified: 08/02/2019	0.588310	0.567920

Texas law prohibits us from displaying residential photographs, sketches, floor plans, or information indicating the age of a property owner on our website. You can inspect this information or get a copy at [HCAD's information center at 13013 NW Freeway.](#)

Valuations

Value as of January 1, 2018			Value as of January 1, 2019		
	Market	Appraised		Market	Appraised
Land	0		Land	0	
Improvement	0		Improvement	0	
Total	0	0	Total	0	0

Land

Market Value Land													
Line	Description	Site Code	Unit Type	Units	Size Factor	Site Factor	Appr O/R Factor	Appr O/R Reason	Total Adj	Unit Price	Adj Unit Price	Value	
1	8000 -- Land Neighborhood General Assignment	4600	AC	50.0000	1.00	1.00	1.00	--	1.00	0	0	0	

Building

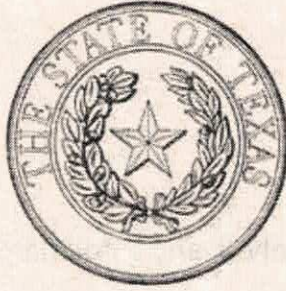
Vacant (No Building Data)

Lead-based Paint Inspection Report
IAH Terminal B Level 3 & 4 Parking Garages
3100 North Terminal Road, Houston, TX 77032
SSCI Project No. 53326



Appendix E

Certifications and Licenses



Texas Department of State Health Services

BE IT KNOWN THAT

SEPARATION SYSTEMS CONSULTANTS INC

is certified to perform as a

Lead Firm

in the State of Texas and is hereby governed by the rights, privileges and responsibilities set forth in Texas Occupations Code, Chapter 1955 and Title 25, Texas Administrative Code, Chapter 295 relating to Texas Environmental Lead Reduction, as long as this license is not suspended or revoked.

Certification Number: 2110041

Expiration Date: 09/17/2021

A handwritten signature in black ink, appearing to read "John Hellerstedt", with a long horizontal line extending to the right.

**John Hellerstedt, M.D.,
Commissioner of Health**

Control Number: 7094

(Void After Expiration Date)

VOID IF ALTERED NON-TRANSFERABLE

SEE BACK

- ★ Please contact this office immediately if any information on this certificate is incorrect.

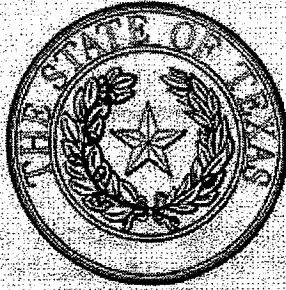
- ★ The certification renewal application with all required documents and fee are due every two years BEFORE the anniversary date. Please note that it is the responsibility of the certification holder to send a completed renewal application with all required documents and renewal fee before the expiration date, whether a renewal notice is received or not. Failure to submit the completed renewal application with all required documents and fee before the expiration date will result in a late fee and must be submitted before the certification will be issued.

- ★ No certification or accreditation may be sold, assigned, or transferred. Any certificates which have been altered may be revoked.



Cert # 2110041
SEPARATION SYSTEMS CONSULTANTS INC
17041 EL CAMINO REAL STE 200
HOUSTON TX 77058

- ★ If you have any questions or desire additional information concerning the application process or this certification, please contact the Environmental and Sanitation Business Filing and Verification Unit at (512) 834-6600. In order to serve you better, DSHS would like you to complete the short online survey <https://www.surveymonkey.com/r/RLUsurvey>. The information you provide will assist DSHS in its efforts to continually improve and become more responsive to the needs of its customers. Thank you in advance.



Texas Department of State Health Services

BE IT KNOWN THAT

BRANDON J LOPEZ

is certified to perform as a


Lead Risk Assessor

in the State of Texas and is hereby governed by the rights, privileges and responsibilities set forth in Texas Occupations Code, Chapter 1955 and Title 25, Texas Administrative Code, Chapter 295 relating to Texas Environmental Lead Reduction, as long as this license is not suspended or revoked.

Certification Number: 2071190

Expiration Date: 08/28/2021

Control Number: 7668


***John Hellerstedt, M.D.,
Commissioner of Health***

(Void After Expiration Date)

VOID IF ALTERED NON-TRANSFERABLE

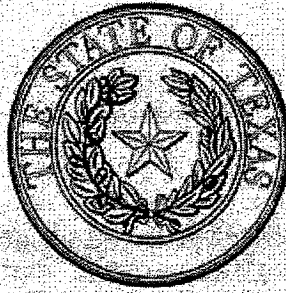
SEE BACK

- ★ Please contact this office immediately if any information on this certificate is incorrect.
- ★ The certification renewal application with all required documents and fee are due every two years BEFORE the anniversary date. Please note that it is the responsibility of the certification holder to send a completed renewal application with all required documents and renewal fee before the expiration date, whether a renewal notice is received or not. Failure to submit the completed renewal application with all required documents and fee before the expiration date will result in a late fee and must be submitted before the certification will be issued.
- ★ No certification or accreditation may be sold, assigned, or transferred. Any certificates which have been altered may be revoked.

Cert # 2071190
SEPARATION SYSTEMS CONSULTANTS INC
BRANDON J LOPEZ
17041 EL CAMINO REAL STE 200
HOUSTON TX 77058



- ★ If you have any questions or desire additional information concerning the application process or this certification, please contact the Environmental and Sanitation Business Filing and Verification Unit at (512) 834-6600. In order to serve you better, DSHS would like you to complete the short online survey <https://www.surveymonkey.com/r/RLUsurvey>. The information you provide will assist DSHS in its efforts to continually improve and become more responsive to the needs of its customers. Thank you in advance.



Texas Department of State Health Services

BE IT KNOWN THAT

TREVOR H RUMBAUGH

is certified to perform as a


Lead Inspector

in the State of Texas and is hereby governed by the rights, privileges and responsibilities set forth in Texas Occupations Code, Chapter 1955 and Title 25, Texas Administrative Code, Chapter 295 relating to Texas Environmental Lead Reduction, as long as this license is not suspended or revoked.

Certification Number: 2060946

Expiration Date: 08/28/2021

Control Number: 6477


**John Hellerstedt, M.D.,
Commissioner of Health**

(Void After Expiration Date)

VOID IF ALTERED NON-TRANSFERABLE

SEE BACK

RECEIVED SEP 13 2019

- ★ Please contact this office immediately if any information on this certificate is incorrect.
- ★ The certification renewal application with all required documents and fee are due every two years BEFORE the anniversary date. Please note that it is the responsibility of the certification holder to send a completed renewal application with all required documents and renewal fee before the expiration date, whether a renewal notice is received or not. Failure to submit the completed renewal application with all required documents and fee before the expiration date will result in a late fee and must be submitted before the certification will be issued.
- ★ No certification or accreditation may be sold, assigned, or transferred. Any certificates which have been altered may be revoked.

Cert # 2060946
SEPARATION SYSTEMS CONSULTANTS INC
TREVOR H RUMBAUGH
17041 EL CAMINO REAL STE 200
HOUSTON TX 77058



- ★ If you have any questions or desire additional information concerning the application process or this certification, please contact the Environmental and Sanitation Business Filing and Verification Unit at (512) 834-6600. In order to serve you better, DSHS would like you to complete the short online survey <https://www.surveymonkey.com/r/RLUsurvey>. The information you provide will assist DSHS in its efforts to continually improve and become more responsive to the needs of its customers. Thank you in advance.