

PROJECT MANUAL

tqla
4601 Washington Avenue
Houston, Texas

Prepared by
Gensler
711 Louisiana, Suite 300
Houston, Texas 77002
713.844.0000
Fax 713.844.0001

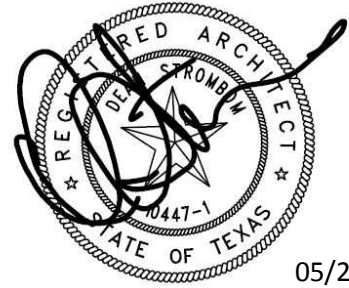
Issue for Permit & Bid – May 20, 2010
Project Number 02.7005.000

Gensler
02.7005.000

May 20, 2010
Issue for Permit & Bid

tqla
4601 Washington Avenue
Houston, Texas

ARCHITECT
Gensler
711 Louisiana, Suite 300
Houston, Texas 77002
713.844.0000



05/20/10

Sealing Architect's Name: Dean H. Strombom, AIA
Issue Date: May 20, 2010

TABLE OF CONTENTS

PROCUREMENT AND CONTRACTING REQUIREMENTS GROUP

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

INTRODUCTORY INFORMATION

| <i>Date</i> | <i>Section No.</i> | <i>Title</i> | |
|-------------|--------------------|--------------------------|---|
| | 00 01 01 | Project Title Page | 1 |
| | 00 01 07 | Seals Page..... | 1 |
| | 00 01 10 | Table of Contents | 3 |

PROCUREMENT REQUIREMENTS

| <i>Date</i> | <i>Section No.</i> | <i>Title</i> | |
|-------------|--------------------|-----------------------------------------------|---|
| | 00 21 16 | Instructions to Proposers..... | 7 |
| | 00 22 16 | Supplementary Instructions to Proposers | 3 |
| | 00 42 00 | Proposal Form..... | 6 |

CONTRACTING REQUIREMENTS

| <i>Date</i> | <i>Section No.</i> | <i>Title</i> | |
|-------------|--------------------|-------------------------------|---|
| | 00 52 00 | Agreement Form | 1 |
| | 00 72 00 | General Conditions..... | 1 |
| | 00 73 00 | Supplementary Conditions..... | 7 |

SPECIFICATIONS GROUP

GENERAL REQUIREMENTS SUBGROUP

DIVISION 01 - GENERAL REQUIREMENTS

| <i>Date</i> | <i>Section No.</i> | <i>Title</i> | |
|-------------|--------------------|------------------------------------------|----|
| | 01 10 00 | Summary | 4 |
| | 01 14 00 | Work Restrictions | 2 |
| | 01 21 00 | Allowances | 4 |
| | 01 23 00 | Alternates | 2 |
| | 01 26 00 | Contract Modification Procedures..... | 4 |
| | 01 26 13 | Requests for Interpretation (RFIs)..... | 4 |
| | 01 26 13.01 | Request for Interpretation Form | 1 |
| | 01 29 00 | Payment Procedures | 5 |
| | 01 31 00 | Project Management and Coordination..... | 2 |
| | 01 32 00 | Construction Progress Documentation..... | 4 |
| | 01 33 00 | Submittal Procedures..... | 12 |
| | 01 40 00 | Quality Requirements..... | 10 |
| | 01 42 00 | References | 6 |
| | 01 50 00 | Temporary Facilities and Controls | 4 |
| | 01 60 00 | Product Requirements | 6 |
| | 01 73 00 | Execution..... | 6 |

| | | |
|----------|----------------------------|---|
| 01 73 29 | Cutting and Patching | 4 |
| 01 77 00 | Closeout Procedures..... | 9 |

FACILITY CONSTRUCTION SUBGROUP

DIVISION 02 – EXISTING CONDITIONS

| <i>Date</i> | <i>Section No.</i> | <i>Title</i> | |
|-------------|--------------------|--------------------------------------|---|
| | 02 41 19 | Selective Structure Demolition | 9 |

DIVISION 03 – CONCRETE

| <i>Date</i> | <i>Section No.</i> | <i>Title</i> | |
|-------------|--------------------|------------------------------------|---|
| | 03 35 19 | Colored Concrete Finishing | 4 |
| | 03 54 16 | Hydraulic Cement Underlayment..... | 3 |

DIVISION 04 – MASONRY (Not Used)

DIVISION 05 – METALS

| <i>Date</i> | <i>Section No.</i> | <i>Title</i> | |
|-------------|--------------------|---------------------------------|---|
| | 05 40 00 | Cold-Formed Metal Framing | 7 |
| | 05 50 00 | Metal Fabrications..... | 5 |
| | 05 52 13 | Pipe and Tube Railings..... | 5 |
| | 05 70 00 | Decorative Metal..... | 7 |

DIVISION 06 – WOOD, PLASTICS, AND COMPOSITES

| <i>Date</i> | <i>Section No.</i> | <i>Title</i> | |
|-------------|--------------------|---------------------------------------|----|
| | 06 10 53 | Miscellaneous Rough Carpentry | 3 |
| | 06 40 23 | Interior Architectural Woodwork | 11 |

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

| <i>Date</i> | <i>Section No.</i> | <i>Title</i> | |
|-------------|--------------------|------------------------------------|----|
| | 07 84 13 | Penetration Firestopping..... | 11 |
| | 07 84 46 | Fire-Resistive Joint Systems | 5 |
| | 07 92 00 | Joint Sealants | 3 |

DIVISION 08 – OPENINGS

| <i>Date</i> | <i>Section No.</i> | <i>Title</i> | |
|-------------|--------------------|-------------------------------------|---|
| | 08 11 13 | Hollow Metal Doors and Frames | 9 |
| | 08 14 16 | Flush Wood Doors | 5 |
| | 08 31 13 | Access Doors and Frames..... | 4 |
| | 08 71 00 | Door Hardware | 9 |
| | 08 80 00 | Glazing..... | 5 |
| | 08 83 00 | Mirrors | 5 |

DIVISION 09 – FINISHES

| <i>Date</i> | <i>Section No.</i> | <i>Title</i> | |
|-------------|--------------------|-----------------------------------------------------------|----|
| | 09 06 00 | Schedule for Finishes | 8 |
| | 09 29 00 | Gypsum Board..... | 14 |
| | 09 30 00 | Tiling..... | 8 |
| | 09 51 13 | Acoustical Panel Ceilings | 6 |
| | 09 77 00 | Special Wall Surfaces (Fiberglass Reinforced Panels)..... | 5 |
| | 09 81 00 | Acoustic Insulation..... | 4 |

| | | |
|----------|-------------------------|---|
| 09 91 13 | Exterior Painting | 8 |
| 09 91 23 | Interior Painting | 9 |

DIVISION 10 – SPECIALTIES

| <i>Date</i> | <i>Section No.</i> | <i>Title</i> | |
|-------------|--------------------|---------------------------|---|
| | 10 21 13 | Toilet Compartments | 3 |
| | 10 28 00 | Toilet Accessories | 3 |

DIVISION 11 – EQUIPMENT (Not Used)

DIVISION 12 – FURNISHINGS

| <i>Date</i> | <i>Section No.</i> | <i>Title</i> | |
|-------------|--------------------|-----------------------------------|---|
| | 12 36 61 | Simulated Stone Countertops | 2 |

DIVISION 13 - SPECIAL CONSTRUCTION (Not Used)

DIVISION 14 – CONVEYING EQUIPMENT (Not Used)

DIVISIONS 15 through 19 – Reserved

FACILITY SERVICES SUBGROUP (Not Used)

SITE AND INFRASTRUCTURE SUBGROUP (Not Used)

PROCESS EQUIPMENT SUBGROUP (Not Used)

END OF TABLE OF CONTENTS

DOCUMENT 00 21 16 – INSTRUCTIONS TO PROPOSERS

ARTICLE 1 DEFINITIONS

- 1.1 Definitions set forth in the General Conditions of the Contract for Construction AIA Document A201, Sixteenth Edition, 2007, are applicable to the Instructions to Proposers.
- 1.1.1 Owner: Mike Nelson and Scott Lindsey.
- 1.1.2 Procurement Documents include the Request for Proposal, the Instructions to Proposers, the Proposal Form, sample forms, additional information available from the Owner, and the proposed Contract Documents issued prior to the execution of the Agreement.
- 1.1.3 The Contract Documents include the Agreement between Owner and Contractor, General Conditions of the Contract, Supplementary Conditions, Specifications, Drawings, Addenda, Modifications, and documents listed in the Agreement. The Contract Documents are complementary and what is required by one is as if required by all.
- 1.1.4 Addenda are written or graphic documents issued prior to the execution of the Contract to modify or interpret the Procurement Documents. Portions of addenda affecting the Contract Documents become part of the Contract Documents upon execution of the Agreement.
- 1.1.5 A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by Architect.
- 1.1.6 A Bid is a complete and legally signed proposal to perform the work described by the Procurement Documents for the sums stipulated and submitted in accordance with the Procurement Documents.
- 1.1.7 An Alternate Bid is an amount stated in the Bid to be added to, or deducted from, the Base Bid if the corresponding change in the work, as described by the Procurement Documents, is accepted.
- 1.1.8 A Unit Price is an amount stated in the Bid as a price per unit of measure for materials, equipment, or services, or a portion of the work as described by the Procurement Documents.
- 1.1.9 A Proposer is an individual or entity submitting a bid for the proposed work.
- 1.1.10 A Sub-bidder is an individual or entity that submits a bid to a Proposer for materials, equipment, or labor for a portion of the proposed work.

ARTICLE 2 PROPOSER'S REPRESENTATION

- 2.1 Each Proposer, in making a Bid, represents that:

- 2.1.1 The Specifications, Drawings, and other Contract Documents, Local, State and Federal Laws and Ordinances, and related matters which can, in any way, affect the work under the Contract have been read and thoroughly reviewed and is making the Bid in accordance with the documents and regulatory requirements.
- 2.1.2 It has visited the site of the proposed project and has become thoroughly familiar to the nature and location of the project, the character, quality, the quantity of materials to be encountered and reused, and the kind of equipment required during the execution of the work. The premises were found to be described appropriately.
- 2.1.3 It has the equipment, technical ability, skilled personnel, and facilities to construct the project in accordance with the Contract Documents.
- 2.1.4 It has examined the proposed Contract Documents and have determined the proposed documents are sufficiently complete to prepare a sound bid. In the event a conflict is discovered between actual conditions existing on site and conditions described or indicated on Drawings or in the Project Manual, it will request clarification in writing prior to submitting its bid.
- 2.1.5 The bid is based on the materials, equipment, and systems required by the Procurement Documents without exception.
- 2.2 The successful Proposer will not be permitted additional compensation for conditions that can be determined by examining the site and proposed Contract Documents.
- 2.3 The Proposer, in submitting a Bid, accepts the Contract Time period stated for performing the work. The completion date in the Agreement shall be the Contract Time added to the date of issuance of the notice to proceed.
- 2.4 Mandatory Prebid Conference:
 - 2.4.1 A Prebid Conference is scheduled for May 20, 2010.
 - 2.4.2 Attendee should be a principal of the firm or a designated Project Manager.
 - 2.4.3 General contract Proposers are required to attend. Bids submitted by a General Contractor who does not attend the Mandatory Prebid Conference will be rejected and returned unopened at the discretion of the Owner.
 - 2.4.4 Representatives of the Owner and Architect will be in attendance.
 - 2.4.5 Submit questions, clarifications, and interpretations to be discussed at the prebid conference in writing to the Architect a minimum of 48 hours prior to the commencement of the Prebid Conference.
 - 2.4.5 Information relevant to the Procurement Documents will be recorded in an Addendum.

ARTICLE 3 PROCUREMENT DOCUMENTS

- 3.1 General contract Proposers may obtain Procurement Documents as indicated in the Request for Proposal. The deposit will be refunded upon return of the Procurement Documents in good condition within 10 days of the receipt of bids. The successful Proposer may retain the Procurement Documents and the deposit refunded.
- 3.1.1 Procurement Documents will not be issued to sub-bidders or in partial sets.
- 3.2 Complete sets of Procurement Documents are to be used in preparing bids. The Owner and the Architect have no responsibility for errors or interpretations resulting from the use of incomplete sets of Procurement Documents.
- 3.3 In making copies of the Procurement Documents available, the Owner and Architect do so for the purpose of obtaining bids for the work and do not confer a license or grant permission for any other use of the Procurement Documents.

ARTICLE 4 INTERPRETATIONS AND ADDENDA

- 4.1 No oral interpretation will be made to a Proposer regarding the meaning of the Drawings, Specifications, or proposed Contract Documents. Make each request for an interpretation in writing to the Architect. Inquiries received 10 or more days prior to the date established for opening of the Bids will be given consideration.
- 4.1.1 Interpretations will be in the form of a written Addendum, and will be on file in the office of the Owner and the Architect at least seven days prior to the date Bids are due. Addendum will be emailed and made available on the Project website to each Proposer of record; however, it is the Proposer's responsibility to make inquiry regarding issued Addenda. Proposers shall be bound by Addenda, regardless if received by the Proposer. Neither the Owner nor the Architect is responsible for other explanations or interpretations of the Contract Documents.
- 4.1.2 No verbal agreement, understanding, or conversation with any agent or employee of the Owner or Architect, either before or after the execution of the Agreement, shall affect or modify the terms or obligations of the Contract Documents.
- 4.2 No addenda will be issued less than seven days prior to the date of receipt of bids except an Addendum withdrawing the request for bids or postponing the date of receipt of bids.
- 4.2.1 Copies of Addenda are available for inspection on the Project website.
- 4.3 Acknowledge receipt of addenda by listing where indicated on Proposal Form.

ARTICLE 5 PREBID SUBSTITUTIONS

- 5.1 The Proposer represents its bid is based upon the materials and equipment described in the proposed Contract Documents.

- 5.2 Request for Substitutions:
- 5.2.1 Substitutions for products may be requested during the bid period by submitting a completed Substitution Request Form issued by the Proposer, minimum of 14 days prior to Bid Date. Refer to Section 01 60 00 for procedures. Substitution requests will not be accepted orally or from sub-bidders.
- 5.2.2 The Architect will review the Proposer's request following the procedural requirements of Section 01 60 00.
- 5.2.3 Acceptable substitutions submitted within the stated time prior to Bid Date will be issued in an Addendum. No other reply will be issued. Do not rely on written or oral approvals made in any other manner or for previous work.
- 5.2.4 After the close of Procurement, requests will be considered in the case of product unavailability, shared savings with the Owner, and conditions beyond the control of Contractor in accordance with Section 01 60 00.
- 5.2.5 The burden of proof of acceptability is the sole responsibility of the Proposer.

ARTICLE 6 PROPOSER'S QUALIFICATIONS

- 6.1 To demonstrate qualification for performing the work of the Contract, the Proposer may be required to submit written evidence of financial position, previous experience, current commitments, and license to perform work in the State of Texas.
- 6.2 Proposed Subcontractors: The Owner reserves the right to reject a proposed subcontractor for reasonable cause in accordance with Article 5 of General Conditions of the Contract for Construction.

ARTICLE 7 SUBMISSION OF BIDS

- 7.1 Bids will be accepted for General Construction Contract with a Guaranteed Maximum Price for construction of a new restaurant. Submit a complete and properly executed bid, leaving no item blank. State amounts in writing and in figures. Erasures, interlineations, or alterations on the Proposal Form are not permitted. Bids not accompanied by specified bid security and attachments will not be considered.
- 7.1.1 Express sums in both words and figures. In the event of a discrepancy, the words shall govern.
- 7.1.2 Each copy of the Bid shall bear the legal name of the Proposer, a statement of sole proprietorship, partnership, corporation, or legal entity of Proposer. Manually sign each copy by the individual, or individuals, legally authorized to bind the Bidder to a contract.
- 7.2 Deliver signed and sealed bids in an opaque envelope, fully executed and dated, to Scott Lindsey, 800 W. Sam Houston Parkway North, Suite 3009, Houston, Texas 77024, 979-492-7295. Bids will be opened privately.

- 7.3 The Proposal Form included in the Procurement Documents is for the information of the Proposer and is not to be detached from the Bid Documents, filled out, or executed.
- 7.4 Submit the Proposal Form in duplicate with each copy originally signed. Type the legal name of the entity under each manually written signature.
- 7.5 Each copy of the Bid shall bear the legal name of the Proposer, a statement of sole proprietorship, partnership, corporation, or legal entity of Proposer. Each copy shall be manually signed by the individual or individuals legally authorized to bind the Proposer to a contract.
- 7.5.1 Individual Bid: The Bid shall be signed by the person making the Bid or the Bid shall have an attached power of attorney evidencing authority to sign the Bid in the name of the Proposer.
- 7.5.2 Partnership: The Bid shall be signed by each partner or by an attorney-in-fact. If signed by an attorney-in-fact, the Bid shall have an attached power of attorney for the individuals for whom it is signed.
- 7.5.3 Corporation: The Bid shall be signed with the legal corporate name and the signature of the president or authorized officer manually written below the corporate seal.
- 7.6 Oral, telegraphic, facsimiled, electronically transferred, or telephonic bids or modifications will not be considered. Alternate bids will not be considered except as permitted in the Procurement Documents.
- 7.7 Submit bids and required documents in an opaque, sealed envelope bearing the project name and name of Proposer.
- 7.8 Bid Ineligibility:
- 7.8.1 A bid is determined invalid if received at the designated location after the time and date for receipt of bids indicated in the Request for Proposal or after an extension. The Bid will be returned unopened. It is the sole responsibility of the Bidder to determine the bid is received on time.
- 7.8.2 Unsigned bids, improperly signed or sealed bids, or bids that are conditional, illegible, obscure, contain arithmetical errors, erasures, alterations, or irregularities of any kind, may be declared unacceptable at the discretion of the Owner.
- 7.8.3 Proposal Forms, appendices, and enclosures improperly prepared may, at the discretion of the Owner, be declared unacceptable.
- 7.8.4 Failure to provide security deposit, bonding insurance documents, and qualifications will invalidate the Bid.
- 7.8.5 Bids submitted by Proposers who did not attend the Mandatory Prebid Conference shall be rejected and returned unopened.

- 7.9 Bids may be modified, withdrawn, or canceled if received in writing prior to Bid closing and if endorsed by the same party or parties who signed and sealed the offer. No Bid may be modified, withdrawn, or canceled except where the award of the contract has been delayed more than 45 days.
- 7.10 Bids may be withdrawn by written or telegraphic request prior to the time fixed for opening of Bids, provided written confirmation of telegraphic withdrawal over the signature of the Proposer is placed in the mail and post marked prior to the time set for opening of Bids.

ARTICLE 8 BID SECURITY

- 8.1 Accompany bid with bid security in the form of a Bid Bond in an amount not less than 5% of the amount of the Bid by a company licensed to do business in the State of Texas or certified check in the name of the Owner.
- 8.1.1 Endorse the Bid Bond in the name of the Owner as obligee, signed and sealed by the Contractor as principal and the Surety.
- 8.1.2 The Bid Bond will be returned to the successful Bidder after delivery to the Owner of the required Performance and Payment Bond(s) by the successful Proposer. Should the successful Proposer not enter into a Contract for the work with the Owner, the Proposer will forfeit the full amount of the Bid Security.
- 8.2 The cost of Bid Security in the Bid Sum is included in the bid.
- 8.3 After execution of the Agreement, the Bid Bond will be returned to the respective Proposers upon written request with a self-addressed, stamped envelope included.
- 8.4 If no contract is awarded, all Bid Security deposits will be returned.
- 8.5 For revised bids in excess of five hundred dollars (\$500), adjust the Bid Bond accordingly, and forward by mail or telegram.

ARTICLE 9 CONSIDERATION OF BIDS

- 9.1 Bids remain open to acceptance and are irrevocable for a period of 45 days after the bid date.
- 9.2 The Contract will be awarded to the lowest Proposer provided the bid is reasonable, in the best interest of the Owner, and in accordance with the requirements of the Procurement Documents. The Owner reserves the right, as its interests may require, to reject any and all bids and to waive any informalities in Procurement, and to make award to its best interests.
- 9.3 The successful Proposer will be required to execute an agreement with the Owner. This agreement will be the AIA Agreement Form A102. Refer to Document 00 52 00.
- 9.3.1 The Proposer accepts and agrees to provisions of the Agreement unless specific exceptions are listed in its bid, and accepted in writing by the Owner. A Proposer's standard printed terms and conditions submitted with bid will not be considered as listed specific exceptions.

- 9.5 After acceptance, the Owner will issue a written letter of Contract Award to the successful Proposer.

ARTICLE 10 CONTRACT SECURITY AND INSURANCE

- 10.1 The successful Proposer shall be required to furnish a Performance Bond in an amount equal to 100% of the Contract Sum as security for the faithful performance of the Contract and a Labor and Material Payment Bond in an amount not less than 100% of the Contract Sum as security for the payment of persons performing labor and furnishing materials in connection with the Contract. Submit the Performance Bond and the Labor and Material Payment Bond on AIA Form A311 or on forms acceptable to the Owner.
- 10.2 Deliver the required bonds to the Owner not later than the date of execution of the Agreement or, if the work is commenced prior to execution in response to a letter of intent, the Contractor shall, prior to commencement of the work, submit evidence satisfactory to the Owner the bonds will be issued.
- 10.3 The successful Proposer shall provide an executed standard form provided by the insurance company stating their intention to provide insurance to the Proposer in accordance with the insurance requirements of the Contract Documents.

ARTICLE 11 NONCOLLUSION CLAUSE

- 11.1 The Proposer declares neither it, nor any agent of its business, has entered into any collusion or agreement relative to the price of the Bid.
- 11.2 The Proposer declares no persons, firms, or corporations have or will receive directly or indirectly, any rebate, fee, gift, or commission, or that any employee has any undisclosed interest in the award of the contract.

END OF DOCUMENT 00 21 16

DOCUMENT 00 22 16 – SUPPLEMENTARY INSTRUCTIONS TO PROPOSERS

- 1.1 Any work or modifications to the base building will require the use of the original subcontractor on the attached list.

END OF DOCUMENT 00 22 16

| WORK | FIRM | ADDRESS | PHONE/FAX | REPRESENTATIVE |
|-----------------------------------|---------------------------------------|---------------------------------------------------------|-----------------------------------|---------------------|
| INSTALLATION | DORAN STEEL, INC. | 105 SOUTHBELT INDUSTRIAL DR. HOUSTON, TX 77047 | Fax: 713-640-2096 | DAVID DORAN |
| PLUMBING & SITE UTILITIES | DP SOUTH TEXAS PLUMBING COMPANY, INC. | 5431 BRYSTONE HOUSTON, TX 77041 | 713-688-8015 Fax: 713-688-8189 | DAVID PETERSON |
| GLAZING | DUKE GLASS, INC. | 6121 BRITTMOORE HOUSTON, TX 77041 | 713-856-0060 Fax: 713-856-0020 | CHARLES DUKE |
| PRECAST STRUCTURAL CONCRETE | EAST TEXAS PRECAST COMPANY, LTD | PO BOX 579 WALLER, TX 77484 | 936-857-5077 Fax: 936-857-3738 | CHARLES FRANKE, JR. |
| STRUCTURAL STEEL ERECTION | EMPIRE STEEL ERECTORS, LP | PO BOX 3653 HUMBLE, TX 77347-3653 | 281-548-7377 Fax: 281-548-2744 | TODD GUNNELS |
| 2 ND FLOOR HVAC | GRAY MECHANICAL | 15603 WEST HARDY ROAD SUITE 325 HOUSTON, TEXAS 77060 | 281-820-2200 FAX 281-820-2210 | JOSH HARRIS |
| CANVAS AWNINGS | HENDEE ENTERPRISES | 9350 SOUTH POINT DRIVE HOUSTON, TEXAS 77054 | 713 796 2322 Fax 713 796 0494 | WAYNE GUYTON |
| ROOFING | JW RENEAU ROOFING COMPANY | 1014 GATECREST HOUSTON, TX 77032 | 281-442-1451 Fax: 281-442-0508 | PEYTON RENEAU |
| CERAMIC TILE | JIM HOFFMAN TILE | 817 SPRING STREET COLUMBUS, TEXAS 78934 | 713-419-1457 FAX 936-733-0918 | MATT SPRAGUE |
| REINFORCING STEEL | KATY STEEL COMPANY, INC. | PO BOX 735 HOUSTON, TX 77492 | 281-391-7047 Fax: 281-391-3848 | SCOTT RUPARD |
| PAINTING | LMI PAINTING | 5238 BRITTMOORE RD HOUSTON, TX 77041 | 713 856 8757 Fax: 713 856 8186 | JOHN GLASSCOCK |
| LANDSCAPE & IRRIGATION | MEMORABLE LANDSCAPES, INC. | 6342 DEIHL RD. HOUSTON, TX 77092 | 713-462-9273 Fax: 713-462-9101 | JOHN WOLF |
| CARPET AND BASE | NATIONS FLOORING SERVICE, INC. | 710 E. HIGHWAY 6 ALVIN, TEXAS 77511 | 281-351-3742 FAX 281-331-4280 | TOM BAIMBRIDGE |
| TOILET PARTITIONS AND ACCESSORIES | PBJ SPECIALTIES | 7800 BISSONNETT STE 350 HOUSTON, TX 77074 | 713 774 5701 Fax 713 774 5717 | NICK HEINTZ |
| ELEVATORS | SCHINDLER ELEVATOR CORP. | 1201 W. LOOP NORTH, STE 130 HOUSTON, TX 77055 | 713-576-2306 Fax: 713-692-0075 | STEVE BURKE |
| PAVEMENT MARKINGS | SPARKLE BRIGHT, INC. | 1909 WASHINGTON AVE. HOUSTON, TX 77007 | 713-862-9696 Fax: 713-862-9697 | DANNY NORRIS |
| COUNTER TOPS | TEXAS WOODWORK | 2932 DELAFIELD HOUSTON, TEXAS 77023 | 713-921-5996 FAX 713-921-5997 | NABIL HODALI |
| ELEVATOR INTERIOR | TRAVERTINE ELEVATOR INTERIORS | 40207 CIMARRON WAY MAGNOLIA, TX 77354 | 281-898-8810 FAX 713-583-6822 | NEAL MOYNAHAN |
| STRUCTURAL STEEL | UNITED STRUCTURES OF AMERICA, INC. | PO BOX 60069 HOUSTON, TX 77205-0069 | 281-442-8247 Fax: 281-449-7631 | JOHN SCOTT |
| EARTHWORK | W.T. BYLER COMPANY | 15203 LILLJA RD. | 281-445-2070 | BRAD RAINES |

| WORK | FIRM | ADDRESS | PHONE/FAX | REPRESENTATIVE |
|---------------|---------------------------------|--------------------------------------------|-----------------------------------|----------------|
| | | HOUSTON, TX 77060 | Fax: 281-445-4356 | |
| HVAC | WALLER COUNTY MECHANICAL, INC. | 641 10TH ST., STE A HEMPSTEAD, TX 77445 | 979-826-7070 Fax: 979-826-2017 | LARRY LEINEN |
| DRILLED PIERS | YORK & YORK FOUNDATION DRILLING | PO BOX 11005 HOUSTON, TX 77293 | 281-442-2200 Fax: 281-442-7707 | BUSTER YORK |
| DRYWALL | YOUNG & SONS DRYWALL, LP | PO BOX 550683 HOUSTON, TX 77255 | 713-680-0148 Fax: 713-680-0158 | MARK YOUNG |

| WORK | FIRM | ADDRESS | PHONE/FAX | REPRESENTATIVE |
|--------------------------------------------|----------------------------------------|----------------------------------------|-----------------------------------|---------------------|
| ELECTRICAL | ALL TEXAS ELECTRICAL CONTRACTORS, INC. | 6016 CENTRALCREST HOUSTON, TX 77092 | 713-686-9444 Fax: 713-686-9449 | BRIAN MONTEMAYOR |
| FENCING | ASTRO FENCE CO. | PO BOX 7584 HOUSTON, TX 77270-7584 | 713-869-5111 Fax: 713-869-5000 | CRAIG KRAMER |
| METAL AWNINGS | AVADEK | 9201 WINKLER HOUSTON, TX 77017 | 713-944-0988 Fax: 713-944-5815 | WILL SIMS |
| CONCRETE FINISHING | BAYOU CITY CONCRETE | 9539 SPIRALWOOD HOUSTON, TX 77086 | 281-931-4432 Fax: 281-931-3732 | RUBEN PEREZ |
| FIRE SPRINKLERS | CHARTER FIRE PROTECTION, INC. | PO BOX 4578 PASADENA, TX 77502 | 713-472-0657 Fax: 713-472-8733 | CHARLS CONNALY, SR. |
| SECURITY SYSTEM | COMMERCIAL ACCESS SYSTEM INTEGRATION | 2833 WESTSIDE PASADENA, TX 77502 | 713 462 6472 Fax 713 462 6599 | ROBERT DOBY |
| STAIN CONCRETE | CONCRETE COLOR SYSTEMS | PO BOX 591956 HOUSTON, TX 77259 | 281-338-9451 Fax: 281-998-9458 | ANDREW MILLER |
| EXTERIOR INSULATION & FINISH SYSTEM (EIFS) | CRYER PLASTERING COMPANY, INC. | 10110 PAPALOTE HOUSTON, TX 77041 | 713-460-5050 Fax: 713-460-0101 | DANIEL FRANK |
| MASONRY | D & H MASONRY | 5719 EDWARD HOUSTON, TX 77032 | 281-442-6666 Fax: 281-442-4577 | RYAN KNIGHT |
| INSULATION & WATERPROOFING | DIVERSIFIED THERMAL | 6727 SIGNAT HOUSTON, TX 77041 | 713-896-6801 Fax: 713-896-6842 | ADAM GARRETT |
| DOORS, FRAMES, & HARDWARE | DOOR PRO COMPONENTS, LP | 6711 BINGLE RD. HOUSTON, TX 77092 | 713-462-0860 Fax: 713-462-0861 | JOHNNY SHOEMAKER |
| REINFORCING STEEL | | | 713-640-2593 | |

DOCUMENT 00 42 00 - PROPOSAL FORM

TQLA
800 W. Sam Houston Parkway North
Suite 3009
Houston, Texas 77024
Attention: Scott Lindsey

Date: _____

Proposer's Name: _____

Address: _____

City: _____ Zip _____ Phone: _____

I. BASE BID

- A. The Undersigned, having inspected the construction site and having become familiar with the conditions likely to be encountered affecting the cost and schedule of the work, having thoroughly studied the Procurement Documents and having attended the Prebid Conference; proposes to provide labor, material, tools, equipment, supervision, and services required for the proper execution of the entire work required, in strict conformance with the Procurement Documents prepared by Gensler for the Base Bid Sum of:

_____ Dollars (\$ _____)

and, if this bid is accepted, agrees to execute a formal Agreement.

II. ALLOWANCES

- A. Allowances are described in Section 01 21 00 and the appropriate Specification Sections. The sums for the following allowance have been included in the Base Bid.

- | | |
|-----------------------------------------------|---------|
| 1. Glazing Graphics Film and Beaded Curtains: | \$7,000 |
| 2. Contractor Installation of Artist's Work | \$3,500 |

III. UNIT PRICES (NOT USED)

IV. ALTERNATES

- A. Alternate No. 1: Provide LED lighting at the bar in lieu of the specified fluorescent lighting.

\$_____ (Add)

\$_____ (Deduct)

- B. Alternate No. 2: Provide fluorescent lighting in the restrooms in lieu of the specified LED lighting.

\$_____ (Add)

\$_____ (Deduct)

- C. Alternate No. 3: Provide Ucrete resinous flooring in lieu of the specified quarry tile at the Kitchen.

\$_____ (Add)

\$_____ (Deduct)

V. ADDENDA

- A. The Undersigned acknowledges receipt of Addenda listed below and represents any additions to, modifications of, or deletions from the work specified, as stated in the Addenda, are included in the Base Bid Sum and the Alternates.

ADDENDUM NUMBER DATE

Addendum # _____ Dated _____

Addendum # _____ Dated _____

Addendum # _____ Dated _____

(NOTE: If no Addenda have been received, write "NONE".)

VI. BREAK OUT SUMS

| Division / Item No. | | Total Cost | Percent of Total Cost |
|---------------------------------|--------------------------------------------|------------|-----------------------|
| 01 | GENERAL REQUIREMENTS | | |
| 02 | SITEWORK/EXISTING CONDITIONS | | |
| 03 | CONCRETE | | |
| 04 | MASONRY | | |
| 05 | METALS | | |
| 06 | WOOD, PLASTICS, AND COMPOSITES | | |
| 07 | THERMAL AND MOISTURE PROTECTION | | |
| 08 | OPENINGS | | |
| 09 | FINISHES | | |
| 10 | SPECIALTIES | | |
| 11 | EQUIPMENT | | |
| 12 | FURNISHINGS | | |
| 13 | SPECIAL CONSTRUCTION | | |
| 14 | CONVEYING EQUIPMENT | | |
| 21 | FIRE SUPPRESSION | | |
| 22 | PLUMBING | | |
| 23 | HEATING, VENTILATING, AND AIR CONDITIONING | | |
| 25 | INTEGRATED AUTOMATION | | |
| 26 | ELECTRICAL | | |
| 27 | COMMUNICATIONS | | |
| 28 | ELECTRONIC SAFETY AND SECURITY | | |
| 31 | EARTHWORK | | |
| 32 | EXTERIOR IMPROVEMENTS | | |
| 33 | UTILITIES | | |
| SUBTOTAL – COST OF CONSTRUCTION | | | |
| | Construction Tax | | |
| | Labor & Materials Bond | | |
| | Performance Bond | | |
| | Allowance | | |
| | Other (specifically identify): _____ | | |
| SUBTOTAL | | | |
| | General Contractor's Fixed Fee | | |
| TOTAL CONTRACT AMOUNT | | | |

The Bid sum includes the fee for General Conditions of the Contract, Supplemental Conditions, and Division 01 General Requirements costs only as necessary for a complete project.

VII. PERFORMANCE AND PAYMENT BONDS

- A. If required by the Owner, a Performance Bond, and a Labor and Materials Payment Bond with a bonding company having an AM Best Company rating will be provided.

Yes No

- B. Cost of Bond(s) is included in the Base Bid and covers all work indicated.

VIII. PREVAILING WAGE LAW

- A. We agree to comply with the prevailing wage laws of the State of Texas.

IX. CHANGES IN THE WORK

- A. For additional work not included in the Bid, the Undersigned agrees to charge for additional work or credit for omitted work as Contractor's overhead and profit the following percentages of the cost of said work:
1. For work performed by Contractor's own forces not involving subcontractors, cost of the work plus 10%.
 2. For work performed by each Subcontractor's forces, cost of the work plus 5%.
 3. For each subcontractor or subsubcontractor for any work performed by a subcontractor's or subsubcontractor's own forces, cost of the work plus 10%.

X. BIDDER ACCEPTANCE

- A. The Undersigned in submitting the Bid agrees:
1. That the bid is binding and shall not be withdrawn for a period of 45 days after the date of the Bid closing.
 2. To accept the disposition of bid security specified in Document 00 21 16 – Instructions to Proposers.
 3. To construct the work in accordance with the intent of the Contract Documents.
 4. To complete the work within 92 calendar days (Saturdays, Sundays, and holidays included) after the date of the Notice to Proceed.
 5. To submit a written list of subcontractors to the Owner and Architect in accordance with Article 5.2 of the General Conditions of the Contract.
 6. That, should the Bid be accepted by the Owner within the time period stated, the Proposer will:

- a. Execute the Agreement within 10 days of receipt of Notice of Award.
 - b. Furnish the required bonds within 10 days of receipt of Notice of Award.
 - c. Commence work on date to be stated in the Notice to Proceed.
 - d. Agrees the signed Document 00 42 00 becomes a part of the Contract Documents upon the signing of the Agreement.
7. That the Owner reserves the right to reject any and all Bids and to waive informalities in the Bidding and to award the contract in its best interest.
- B. If the Bid is accepted within the time stated and the Proposer fails to commence the work or to provide the required Bond(s), the security deposit shall be forfeited as damages to the Owner by reason of the failure, limited in amount to the lesser of the face value of the security deposit or the difference between the Bid and the Bid upon which the Agreement is signed.
- C. In the event the Bid is not accepted within the time stated above, the required security deposit shall be returned to the undersigned, in accordance with the provisions of the Instructions to Proposers, unless a mutually satisfactory arrangement is made for its retention and validity for an extended period of time.
- D. The bids will be opened on the date, time, and place set by the Owner in the Instructions to Proposers.

XI. ATTACHMENTS

- A. The Undersigned has attached to the Bid:
1. Bid Security in the form of _____
in the amount of _____ Dollars (\$_____).
 2. Proposer's Qualification Statement AIA A 305 Contractor's Qualification Statement.
 2. Other: _____

XII. PROPOSER'S CERTIFICATION

- A. The Undersigned certifies that:
1. This bid is genuine and is not made in the interest of or on behalf of any undisclosed person, firm, or corporation and is not submitted in conformity with any agreement of rules of any group, association, organization, or corporation.
 2. The Undersigned has not colluded, conspired, connived or agreed, directly or indirectly, with any proposer, person, or firm to submit a sham bid or to refrain from bidding,
 3. The Undersigned has not directly or indirectly sought by agreement, collusion, or communication or conference, with any person:
 - a. to fix the bid sum of affiant or of any other proposer,
 - b. to fix overhead, profit, or cost element of the bid price or of any other proposer,

- c. to secure any advantage against the Owner or any person interested in the proposed contract;
- 4. That the Proposer has not sought by collusion or other means to obtain an advantage over other proposers or over the Owner.
- 5. that all statements in the bid are true.

XIII. ADDRESS, LEGAL STATUS, AND SIGNATURE OF BIDDER

- A. The Undersigned designates the address given below as the legal address to which notices, directions, or other communications may be served or mailed.

The Corporate Seal of

(Print full name of Proprietorship, Partnership, or Corporation)

was affixed in the presence of:

Authorized signing officer and title

Authorized signing officer and title

Affix seal here

Legal Address

City, State, Zip

If Bid is a joint venture or partnership, add additional forms of execution for each member of the joint venture in the appropriate form or forms as above.

END OF DOCUMENT 00 42 00

Attachments: Bid Security

SECTION 00 52 00 – AGREEMENT FORM

- 1.1 The Agreement Form is the Standard Form of Agreement between the Owner and Contractor as published by the American Institute of Architect (AIA), Document A102-2007.

END OF SECTION 00 52 00

SECTION 00 61 00 – BONDS

- 1.1 Security Bonds: Submit a Performance Bond and a Payment Bond, AIA Document A312 that is included in these Specifications by reference as if written out in full. Copies of this document may be examined at the office of the Architect or purchased from the American Institute of Architects.

END OF SECTION 00 61 00

SECTION 00 72 00 – GENERAL CONDITIONS

PART 1 - GENERAL

- 1.1 General Conditions of the Contract for Construction, AIA Document A201, 2007 Edition, hereinafter referred to as General Conditions, are hereby made a part of this Specification.
- 1.2 The Contractor is hereby specifically directed, as a condition of the Contract, to acquaint himself with the Articles contained therein, and to notify and apprise all Subcontractors and any other parties to the Contract of, and bind them to, its conditions.
- 1.3 No contractual adjustments shall be due as a result of failure on the part of the Contractor, Subcontractors or other parties to the Contract to fully acquaint themselves with the General Conditions.
- 1.4 The General Conditions of the Contract may be amended by Supplementary Conditions.
- 1.5 The provisions of the General and Supplementary Conditions when included and Division 01, General Requirements, apply to the Work specified in each Section of the Specifications.
- 1.6 Where conflicts occur concerning the Architect's duties and responsibilities between the General Conditions and the Agreement between the Owner and Architect, the Agreement shall take precedence.
- 1.7 If not otherwise included in the Owner Contractor Agreement or specifically included in the bidding documents, the Contractor shall obtain the Owner's insurance requirements prior to submitting a bid.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 00 72 00

SECTION 00 73 00 – SUPPLEMENTARY CONDITIONS

AIA Document A201-2007, in its entirety, shall constitute the General Conditions of the Contract for Construction (the "General Conditions"). These Supplementary Conditions of the Contract for Construction ("Supplementary Conditions") are attached to and made a part of the Contract Documents and are intended to modify and/or supplement the General Conditions. Capitalized terms used herein but not defined herein shall have the same meanings as in the General Conditions.

ARTICLE 1 GENERAL PROVISIONS

1. Subparagraph 1.1.9 – Other Definitions: Add the following new Subparagraph 1.1.9 as follows:

1.1.9 OTHER DEFINITIONS

- .1 "As required" shall mean as required by regulatory bodies, by referenced standards, by existing conditions, by generally accepted construction practice, or by the Contract Documents.
- .2 "By Others" refers to work that is not part of the Contract.
- .3 "By Owner" refers to work that will be performed by Owner or Owner's agents at Owner's cost.
- .4 "Equal", "accepted equal", and "approved equal" shall mean as accepted, in writing, by Architect as being of equivalent quality, utility, and appearance.
- .5 "Furnish" means supply only, do not install.
- .6 "Install" means install only, do not furnish.
- .7 "Provide" means furnish and install.

2. Subparagraph 1.2.2: Add the following new wording to the end of Subparagraph 1.2.2:

Documents prepared by entities other than Architect or its consultants may be included with documents prepared by Architect or its consultants for convenience in pricing, bidding, permit application, construction or other purposes. The inclusion of such documents not prepared by the Architect or its consultants within the Contract Documents shall not imply that Architect has reviewed, approved or is responsible for the accuracy or completeness of such documents.

3. Paragraph 1.5 – Ownership and Use of Drawings, Specifications and Other Instruments of Service: Add the following new subparagraph 1.5.3:

§1.5.3 In the event of any unauthorized use, reuse, transfer or modification of the Drawings, Specifications or other documents by Contractor, any lower tier contractor or material supplier, or other person or entity under Contractor's direct or indirect employ, Contractor agrees to indemnify, defend and hold Owner, Architect, their officers, directors, shareholders,

employees, agents, and consultants harmless from and against any and all claims, liabilities, suits, demands, losses, damages, costs and expenses, including, but not limited to, reasonable attorneys' fees and all legal expenses and fees incurred through appeal, and all interest thereon, accruing to or resulting from any and all persons, firms, or any other legal entities on account of any damages or losses to property or persons, including, but not limited to, injuries or death or economic losses arising out of such unauthorized use, reuse, transfer or modification, except where Architect is found to be solely liable as between the parties hereto as well as between any other persons, firms or other legal entities for such damages or losses by a court or forum of competent jurisdiction.

4. Subparagraph 1.6 – Transmission of Data in Digital Form: Add the following sentence at the end of Subparagraph 1.6:

Any electronic transfer of Drawings, Specifications or other documents ("Data") by the Architect to the Contractor shall be subject to the terms of the Architect's standard Data Transfer Agreement, which shall be executed by the Contractor.

ARTICLE 3 CONTRACTOR

5. Subparagraph 3.2.1: Add the following new sentence to the end of Subparagraph 3.2.1:

Additionally, Contractor acknowledges and agrees that the information contained in the Contract Documents is adequate and sufficient for completion of the Work.

6. Subparagraph 3.2.4: Revise the second sentence of Subparagraph 3.2.4 to read as follows:

If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, or reasonably should have recognized any errors, inconsistencies, omissions or nonconformity and failed to do so, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations.

7. Subparagraph 3.2.5: Add the following new Subparagraph 3.2.5:

§3.2.5 In the event of conflicts or discrepancies among the Contract Documents, the following order of precedence shall govern: (1) Amendments and revisions (such as change orders), with those of later date taking precedence over those of earlier date; (2) the Agreement; (3) the Supplementary Conditions; (4) the General Conditions; (5) Drawings and Specifications. Drawings shall govern Specifications for quantity and location, and Specifications shall govern Drawings for quality and performance. In case of an inconsistency between Drawings and Specifications or within either Document not clarified by addendum, the better quality or greater quantity of Work shall be provided in accordance with the Architect's interpretation.

8. Subparagraph 3.4.2: Add the following new text to the end of Subparagraph 3.4.2:

Any requests for substitution shall be made in a timely manner and in full compliance with all Contract requirements. By making a request for substitution, Contractor: (1) represents that the Contractor has investigated the proposed substitute product and determined that it is equal to or superior in all respects to that specified; (2) represents that the Contractor will provide the same warranty for the substitution that the Contractor would for that specified; (3) certifies that the cost data presented is complete and includes all related costs under this Contract

except for the Architect's redesign costs, and waives all claims for additional costs related to the substitution which subsequently become apparent; and (4) will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

9. Subparagraph 3.7.3: Modify Subparagraph 3.7.3 as follows:

§3.7.3 If the Contractor performs Work ~~knowing it to be~~ which Contractor knows or should know is contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

10. Subparagraph 3.9.1: Add the following new text to the end of Subparagraph 3.9.1:

The superintendent shall be approved by Owner and shall not be replaced without Owner's prior approval. The superintendent shall be familiar with the job site, the Contract Documents, and all applicable rules, regulations and requirements of all authorities having jurisdiction over the Work or the site.

11. Subparagraph 3.10.1: Add the following to the end of Subparagraph 3.10.1:

Such schedule shall be a computer generated critical path method (CPM) schedule showing at a minimum: (1) the early and late start time for each major construction activity; (2) all "critical path" activities and their duration; (3) late order dates for all long lead time materials and equipment; and (4) critical Owner decision dates.

12. Subparagraph 3.10.4: Add the following new Subparagraph 3.10.4:

§3.10.4 Failure of Contractor to submit or keep current the construction schedule and submittals schedule as required by the conditions of the Work, shall be grounds for withholding of payments due Contractor by Owner, until such schedules are provided.

13. Subparagraph 3.12.6: Add the following text to the end of Subparagraph 3.12.6:

Incomplete, uncoordinated or incorrect Shop Drawings and other submittals shall be returned to Contractor who shall be held responsible for all time delays and extra costs of review or handling by Architect or Owner, because of such submittals being incomplete, uncoordinated or incorrect.

14. Subparagraph 3.12.7: Modify Subparagraph 3.12.7 as follows:

3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been ~~approved~~ reviewed and returned by the Architect.

15. Subparagraph 3.12.8: Modify Subparagraph 3.12.8 as follows:

3.12.8 The Work shall be in accordance with ~~approved-Architect-reviewed~~ submittals except that the Contractor shall not be relieved of responsibility for deviations from require-

ments of the Contract Documents by the Architect's ~~approval-review~~ of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's ~~approval-review~~ thereof. If more than one submittal review stamp (Architect's and one or more of its consultants' stamp) appears on a submittal, the most stringent action and notations thereon shall apply. Signature on a submittal review stamp by the Architect or a consultant does not imply that it has reviewed Work not within its professional discipline or scope of services.

16. Subparagraph 3.12.10: Modify the second to last sentence of Subparagraph 3.12.10 as follows:

Pursuant to this Subparagraph 3.12.10, the Architect will review, ~~approve~~ or take ~~other~~ appropriate action on submittals only for the limited purpose of checking for conformance with ~~information given and~~ the visual and aesthetic design concept expressed in the Contract Documents.

17. Subparagraph 3.18.1: Revise Subparagraph 3.18.1 as follows:

§3.18.1 To the fullest extent permitted by law the Contractor shall indemnify, defend and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, liabilities, suits, demands, damages, losses, costs and expenses, including, but not limited to reasonable attorneys' fees, and all legal expenses, and fees incurred through appeal, and all interest thereon, arising out of or resulting from the performance of the Work, provided that such claim, damage, loss or expenses is attributable to bodily injury, sickness, disease or death or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Paragraph 3.18.

18. Paragraph 3.19: Add the following new Paragraph 3.19:

§3.19 DESIGN/BUILD

§3.19.1 If Contractor provides and/or retains its subcontractors or others to provide Design/Build Work for specified portions of the Project, Contractor shall be responsible directly to Owner for those portions of the Project, including but not limited to: (1) preparing engineering and other drawings and specifications for all components of the Design/Build portion(s) of the Work, (2) complying with Project requirements and space limitations, (3) coordinating and interfacing with other trades and consultants, and (4) obtaining approvals from authorities having jurisdiction over the Project. Contractor, its subcontractor(s) or their design professional(s) shall be the Professional(s) of Record for their portion(s) of the Design/Build Work.

§3.19.2 Architect shall have no responsibility for the design, installation or performance of Design/Build portions of the Project including but not limited to reviewing such designs and/or Work and/or certifying the payment applications for the same. Architect's services in connection with any Design/Build work shall be limited to checking such designs for general conformance to major space limitations and the visual and aesthetic design concept as expressed in the Contract Documents. Such checking by Architect of more than two proposals for the same Design/Build portion of the Project shall be compensated as Additional Services.

§3.19.3 When the Contract Documents or authorities having jurisdiction over the Project require certificates or statements of performance characteristics of materials, systems or equipment, or professional seals, calculations, or other certificates or statements regarding such Design/Build portions of the Project, Owner will require Contractor to provide them, and Owner and Architect will be entitled to rely on them to establish that the designs, materials, systems, equipment and such Work will meet the performance criteria required by the Contract Documents.

ARTICLE 4 ARCHITECT

19. Subparagraph 4.2.2: In the first sentence of this Subparagraph 4.2.2, replace the words "appropriate to the stage of the construction, or as otherwise agreed with the Owner" with the words "necessary in the judgment of Architect or as otherwise agreed by Owner and Architect in writing".

20. Subparagraph 4.2.3: Add the following text to the end of Subparagraph 4.2.3:

Architect's duties shall not extend to the receipt, inspection and acceptance on behalf of Owner or Contractor of materials, furniture, furnishings and equipment at the time of their delivery to the premises or installation. Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of Architect in Architect's administration of the Contract for Construction, or by tests, inspections or approvals required or performed by persons other than Contractor. If Architect recommends procedures, either directly or by reference to standards or manufacturers' recommendations, Contractor shall adopt such recommendations as its own, or inform Architect if exception is taken to such procedures, and may utilize or propose alternative procedures that Contractor will warrant as fulfilling the intent of the Contract Documents.

21. Subparagraph 4.2.4: Add the following text to the end of Subparagraph 4.2.4:

Should any direct communications become necessary, copies of the communications shall be promptly forwarded to the proper party or parties as set forth in this Subparagraph 4.2.4.

22. Subparagraph 4.2.5: Modify Subparagraph 4.2.5 as follows:

4.2.5 Based on Architect's on-site evaluations and the data comprising ~~of the Contractor's Applications for Payment, the Architect will review and certify, to the best of its knowledge, information and belief, the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the amounts due the Contractor is entitled to payment of the amount certified~~ and will issue Certificates for Payment in such amounts.

23. Subparagraph 4.2.7: Modify the first sentence of Subparagraph 4.2.7 as follows:

Architect will review and ~~approve or take other~~ appropriate action upon, the Contractor's submittals required by the Contract Documents, such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the visual and aesthetic design concept expressed in the Contract Documents.

ARTICLE 8 TIME

24. Subparagraph 8.3.1: Starting on the fourth line of Subparagraph 8.3.1, delete the words, "pending mediation and arbitration; or by other causes which the Architect determines may justify delay" and add the following text at the end of Subparagraph 8.3.1: "A time extension shall be Contractor' s sole remedy and there shall be no compensation for any such delays other than those resulting from the active interference of Architect, Owner or their employees or agents."

ARTICLE 9 PAYMENTS AND COMPLETION

25. Subparagraph 9.4.2: Add the following text to the end of Subparagraph 9.4.2:

Further, Architect shall not be obligated to issue any Certificate for Payment covering work by Design/Build contractors or subcontractors, work by Owner's separate contractors, or other work for which Architect is not providing full services.

26. Subparagraph 9.5.1.8: Add the following new Subparagraph 9.5.1.8:

.8 rejection or non-acceptance of Work by any governmental agency having jurisdiction.

27. Subparagraph 9.6.4: Add the following text to the end of Subparagraph 9.6.4:

At the Owner's sole discretion, payments may be made by check jointly payable to Contractor, its Subcontractor or supplier, and any applicable labor union trust fund.

28. Subparagraph 9.8.1: Modify this Subparagraph 9.8.1 as follows:

9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents and all required final inspections and permits have been obtained so that the Owner can occupy or utilize the Work for its intended use, subject only to completion of minor items (punch list).

29. Subparagraph 9.8.3: Add the following text to the end of Subparagraph 9.8.3:

If upon this subsequent inspection, Contractor has not yet completed the Work, and further field reviews by Architect are required, Contractor shall be responsible to Owner for any additional cost to Owner of further reviews by Architect.

30. Subparagraph 9.8.4: Add the following text to the end of Subparagraph 9.8.4:

In the absence of such certificate, the date of Substantial Completion shall be in accordance with Subparagraph 9.8.1.

31. Subparagraph 9.9.3: Add the following text to the end of Subparagraph 9.9.3:

, nor shall it start the guarantee or warranty period.

ARTICLE 11 INSURANCE AND BONDS

32. Subparagraph 11.1.5: Add the following new Subparagraph 11.1.5:

§11.1.5 If Contractor fails to secure and maintain the required insurance, Owner shall have the right (but not the obligation) to secure same in the name and for the account of Contractor, in which event Contractor shall pay the cost thereof and shall furnish upon demand all information that may be required in connection therewith.

33. Subparagraph 11.3.1.4: Add the following text to the end of this Subparagraph 11.3.1.4:

It shall not, however, cover Contractor's equipment, machinery or tools.

34. Subparagraph 11.3.3: Add the following text to the end of Subparagraph 11.3.3:

, to the extent Owner's insurance covers such losses.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

35. Subparagraph 12.1.1: Modify Subparagraph 12.1.1 as follows:

§12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, or to requirements of any public authority having jurisdiction over the Work, it must, if required in writing by the Architect or Owner, be uncovered for the Architect's or Owner's or public authority's examination and be replaced at the Contractor's expense and without change in the Contract Time.

END OF SECTION 00 73 00

SECTION 01 10 00 – SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section addresses:

1. Work covered by Contract Documents.
2. Special insurance.
3. Codes and Standards.
4. Work by others under other contracts.
5. Owner furnished products.

B. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to all Sections. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all.

C. Conflicts or discrepancies among the Contract Documents shall be resolved in the following order of priority:

1. Amendments and revisions (such as Change Orders) of later date take precedence over those of earlier date;
2. the Agreement;
3. the Supplementary Conditions;
4. The General Conditions;
5. Drawings and Specifications; Drawings govern Specifications for quantity and location. Specifications govern Drawings for quality and performance. In the event of ambiguity or conflicts, the greater quantity and the better quality shall govern.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. The complete construction of tenant improvements for TQLA Houston, LLC.

1. Project Location: 4601 Washington Avenue, Houston, Texas 77007.
2. Owners: Mike Nelson and Scott Lindsey, 800 W. Sam Houston Parkway, North, Houston, Texas 77024.

1.3 SPECIAL INSURANCE

A. Contractor's Commercial General Liability insurance shall contain no exclusion that would deny coverage for any claim arising out of or contributed to by any fungus, mildew, mold, or resulting allergens. If such exclusion exists and cannot be removed by endorsement, Contractor

shall submit proof of coverage for fungus, mildew, mold, or resulting allergens under a Pollution Legal Liability or Contractor's Pollution Liability policy.

1.4 CODES AND STANDARDS

- A. All references to codes, specifications and standards referred to in the Contract Documents shall mean, and are intended to be, the latest edition, amendment or revision of such reference standard in effect as of the date of these Contract Documents. In addition to the codes, specifications and standards referred to in the Contract Documents all work provided under this Contract shall comply with the applicable provisions of the following, where standards conflict the more stringent shall apply:
1. Building: 2003 International Building Code.
 2. Electrical: 2008 National Electrical Code with City of Houston Amendments.
 3. Fire: 2003 International Fire Code.
 4. Mechanical: 2000 Uniform Mechanical Code with City of Houston Amendments.
 5. Plumbing: 2000 Uniform Plumbing Code with City of Houston Amendments.
 6. Energy: City of Houston Commercial Energy Code.
 7. Accessibility: 1994 Texas Accessibility Standards.
 8. Utility Company requirements.

1.5 WORK UNDER OTHER CONTRACTS

- A. Separate Contract: Owner will award separate contracts for performance of certain construction operations at Project site. Those operations are scheduled to be substantially complete before work under this Contract begins. The separate contract will include the following:
1. Food Service: A separate contract will be awarded for design and furnishing of the kitchen equipment.
- B. Separate Contract: Owner will award separate contracts for performance of certain construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract. These contracts will include the following:
1. Security systems (Contractor to furnish and install empty conduits with a junction box where indicated on the Contract Documents).
 2. Telephone system (Contractor to furnish and install empty conduits with a junction box where indicated on the Contract Documents).
 3. Fixtures, furnishings, and equipment to the extent not identified in the Contract Documents.
- C. Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, and without interfering with or delaying work under this Contract.

1.6 OWNER-FURNISHED PRODUCTS

- A. Owner will furnish FF&E for restaurant, LCD screen televisions, artist-designed ceiling pendant sculpture, free standing metal sculpture, laser cut fence panels for the patio and screens for the dining areas, and the resin bar countertop. The Work includes providing support systems to receive Owner's equipment and making plumbing, mechanical, and electrical connections.
1. Owner will arrange for and deliver Shop Drawings, Product Data, and Samples to Contractor.
 2. Owner will arrange and pay for delivery of Owner-furnished items according to Contractor's Construction Schedule.
 3. After delivery, Owner will inspect delivered items for damage. Contractor shall be present for and assist in Owner's inspection.
 4. If Owner-furnished items are damaged, defective, or missing, Owner will arrange for replacement.
 5. Owner will arrange for manufacturer's field services and for delivery of manufacturer's warranties to Contractor.
 6. Owner will furnish Contractor the earliest possible delivery date for Owner-furnished products. Using Owner-furnished earliest possible delivery dates, Contractor shall designate delivery dates of Owner-furnished items in Contractor's Construction Schedule.
 7. Contractor shall review Shop Drawings, Product Data, and Samples and return them noting discrepancies or anticipated problems in use of product. Examples of discrepancies or problems include, but are not limited to, coordination issues.
 8. Contractor is responsible for receiving, unloading, and handling Owner-furnished items at Project site.
 9. Contractor is responsible for protecting Owner-furnished items from damage during storage and handling, including damage from exposure to the elements.
 10. If Owner-furnished items are damaged as a result of Contractor's operations, Contractor shall repair or replace them.

1.7 CONTRACTOR-FURNISHED PRODUCTS

- A. Provide kitchen hoods as discussed with Owner.

1.8 PERMITS

- A. Contractor shall secure and pay for all permits and governmental fees, licenses and inspections necessary for the proper execution and completion of the Work which are customarily secured after execution of the Contract and which are legally required.
- B. If required by governmental authority, Owner will make application for permits and licenses using forms obtained and prepared by the Contractor and with all costs paid by the Contractor.

1.9 TAXES

- A. Contractor shall pay all sales, consumer, use and other similar taxes for the Work or portions thereof provided by the Contractor, that are legally enacted at the time Bids are received, whether or not yet effective.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

SECTION 01 14 00 – WORK RESTRICTIONS

PART 1 - GENERAL

1.1 USE OF PREMISES

- A. Access: At all times, provide the Architect and the Owner's representatives, easy and safe access to the Work wherever it is in preparation and progress. Provide such access so Architect may perform its functions.
- B. Use of Site: Confine operations at the site to areas permitted by law, ordinances, permits, and the Contract Documents and do not unreasonably encumber the Site with any materials or equipment.
- C. Landlord's or Property Manager's Rules: Conform at all times to the Landlord's and Property Manager's requirements for protection of plant, materials, equipment, and noise levels. A copy of the Landlord's or Property Manager's rules (tenant work letter or lease requirements) will be furnished upon written request from the Owner.
- D. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - 1. Schedule deliveries to minimize use of driveways and entrances.
 - 2. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.2 OCCUPANCY REQUIREMENTS DURING CONSTRUCTION

- A. Full Owner Occupancy: Owner will occupy the site during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations.
 - 1. Schedule use of premises for Work and coordinate construction operations with the Owner to allow for other tenant occupancy.
 - 2. Schedule use of premises for Work and coordinate construction operations with the Owner to allow for use of site and premises by the public.
 - 3. Perform the Work during normal business hours only upon approval of the Owner.
 - 4. Perform demolition work after business hours or at such times as approved by Owner. Demolition work includes, but is not limited to, sprinkler work, concrete saw cutting, spray painting, hammering, nailing, and similar work, which may cause noise, dust, or odors, thereby disturbing occupants.
 - 5. Keep premises orderly, clean and with a minimum of obstruction and inconvenience to the tenants and the public.
 - 6. Limit use of site to areas designated unless otherwise allowed by Owner in writing.

7. Relocate any stored products that interfere with public access, operations of the Owner or separate contractor. If necessary, obtain and pay for additional storage or work areas needed for operations.

1.3 OCCUPANCY REQUIREMENTS PRIOR TO SUBSTANTIAL COMPLETION

- A. Partial Owner Occupancy: Owner reserves the right to occupy and to place and install equipment in completed areas of the site, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of incomplete portions of the Work, nor shall it relieve the Contractor of its responsibility for completion of the Work in accordance with the Contract Documents.
 1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied before Owner occupancy.
 2. Obtain a Certificate of Occupancy from authorities having jurisdiction before Owner occupancy.
 3. Before partial Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will provide, operate, and maintain mechanical and electrical systems serving occupied portions of the site.
 4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of the site.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 14 00

SECTION 01 21 00 – ALLOWANCES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements governing allowances.
 - 1. Certain materials and equipment are specified in the Contract Documents by allowances. In some cases, these allowances include installation. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
 - 1. Lump-sum allowances.
- C. Related Sections:
 - 1. Division 01 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
 - 2. Division 01 Section "Quality Requirements" for procedures governing the use of allowances for testing and inspecting.

1.2 SELECTION AND PURCHASE

- A. Within 14 days after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Architect from the designated supplier.

1.3 ACTION SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

1.4 INFORMATIONAL SUBMITTALS

- A. Submit invoices or delivery slips to show actual cost and quantities of materials delivered to the site for use in fulfillment of each allowance.

- B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.
- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work

1.5 COORDINATION

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.6 LUMP-SUM ALLOWANCES

- A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include taxes and delivery to Project site.
- B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials selected by Architect under allowance shall be included as part of the Contract Sum and not part of the allowance.
- C. Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.
 - 1. If requested by Architect, retain and prepare unused material for storage by Owner when it is not economically practical to return the material for credit. If directed by Architect, deliver unused material to Owner's storage space. Otherwise, disposal of unused material is Contractor's responsibility.

1.7 ADJUSTMENT OF ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
 - 1. Include installation costs in purchase amount only where indicated as part of the allowance.
 - 2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
 - 3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
 - 4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

- B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit.
 - 1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
 - 2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

1.8 UNUSED MATERIALS

- A. Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.
 - 1. If requested by Architect, retain and prepare unused material for storage by Owner when it is not economically practical to return the material for credit. If directed by Architect, deliver unused material to Owner's storage space. Otherwise, disposal of unused material is Contractor's responsibility.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1: Lump-Sum Allowance: Include the lump sum of \$7,000 for purchase of graphic film for the glazing graphics and beaded curtains as specified on the Drawings.
 - 1. This allowance includes material cost, receiving, handling, and installation, and Contractor overhead and profit.
- B. Allowance No. 2: Lump-Sum Allowance: Include the lump sum of \$3,500 for Contractor installation of the Artist's work.

1. This allowance includes receiving, handling, and installation, and Contractor overhead and profit.

END OF SECTION 01 21 00

SECTION 01 23 00 – ALTERNATES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

1.2 DEFINITIONS

- A. Alternate: An amount proposed for certain work that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.3 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project. Amount of alternate prices shall include cost of coordination, cost of overhead and profit, and cost of modifications or adjustments to adjacent work due to integration of alternate.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A Schedule of Alternates is included in Part 3 below. Specification Sections contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

- A. Alternate No. 1: Provide LED lighting at the bar in lieu of the specified fluorescent lighting.
- B. Alternate No. 2: Provide fluorescent lighting in the restrooms in lieu of the specified LED lighting.
- C. Alternate No. 3: Provide Ucrete resinous flooring in lieu of the specified quarry tile at the Kitchen.

END OF SECTION 01 23 00

SECTION 01 26 00 – CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section specifies administrative and procedural requirements for handling and processing Contract modifications.

1.2 MINOR CHANGES IN THE WORK

- A. Architect may issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on form included at end of Part 3.

1.3 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
 - 2. Within 5 days unless otherwise provided in the General Conditions after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - b. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- B. Contractor-Initiated Proposals (Change Order Requests): If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change.
 - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 - 2. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - 3. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times,

and activity relationship. Use available total float before requesting an extension of the Contract Time.

4. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

- C. Proposal Request Form: Use Gensler "Bulletin," selecting, Architect's Request for Contractor's Proposal."

1.4 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on Gensler "Change Order" form included at end of Part 3.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 26 00

Project _____ Date _____

Project Location _____ Architect's Project Number _____

Owner/Client _____ File _____ This is page _____

6BL 1 of

To _____ Attention _____

Address _____

City _____ State _____ Zip _____

Code

- Delivered via:
- Messenger
 - Express
 - Mail
 - Hand carried
 - Pick-up
 - UPS
 - Facsimile
 - E-mail Address
 - Website Address

This Bulletin Conveys to Contractor (Check one of the following five choices):

- Architect's Authorization for Minor Changes**
Architect recommends modifications to the Work as described below.
- Architect's Clarification / Supplemental Instructions** (Use this Bulletin form in place of *Architect's Supplemental Instructions* form.)
Contractor shall carry out the Work in accordance with the following supplemental instructions.
- Architect's Confirmation of a Field Order** (Use this Bulletin form in place of a *Field Order* form.)
This confirms Architect's verbal instructions to (individual's name) _____ on (date) _____, as described below.
Note: The above three choices are each subject to the following terms: The change(s), clarification(s) and/or confirmation(s) described below is/are issued in accordance with the Contract Documents, without change in Contract Sum and/or Time.
- Architect's Request for Contractor's Proposal** (Use this Bulletin form in place of an *Estimate Request* form.)
Please submit an itemized proposal for changes in the Contract Sum and/or Time for proposed modifications to the Contract Documents described herein.
Submit proposal within _____ days or notify the Architect in writing of the date on which you anticipate submitting your proposal. This is not a Change Order or a Construction Change Directive or a direction to proceed with the Work described in the proposed modifications.
- Other:** As described below.

Attachments

Requested by

- Architect
- Owner
- Contractor
- Other (specify): _____

Issued by Gensler by _____ Date Signed _____

Issued by Owner by _____ Date Signed _____

- Required; Please return signed copy to Gensler
- Not Required

Accepted by Contractor by _____ Date Signed _____

- Required; Please return signed copy to Gensler
- Not Required

Distribution

Prepared by Gensler by _____ Date Signed _____

Instructions / Description / References / Dates

Begin text here . . .

Change Order Number

Project _____ **Date** _____

Project Location _____ **Project Number** _____

Owner/Client _____ **File** 6CO **This is page** 1 **of** 1

Contractor _____ **Contractor's Request / Quotation Number / Date** _____

Change to Contract Sum: \$ _____ **Change to Contract Time:** _____

Original Contract Amount: \$ _____ **Revised Contract Amount:** \$ _____

See Change Order Summary for Revised Total Contract Amount and Time

Reason for Change _____ **Requested by** _____

Recommended for Approval by Gensler: by _____ **By** _____ **Date Signed** _____

Approved for Owner/Client _____ **By** _____ **Date Signed** _____

Approved for Contractor _____ **By** _____ **Date Signed** _____

Approved for Tenant (if applicable) _____ **By** _____ **Date Signed** _____

The above Change Order to the contract shall be effective upon signature by all applicable parties, in accordance with the Conditions of the Contract. The Contract Amount refers to the Contract Sum or guaranteed Maximum Cost in the Contract.

Distribution _____

Description / References / Costs / Dates _____

Begin text here . . .

SECTION 01 26 13 – REQUESTS FOR INTERPRETATION (RFI)

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Requests for Interpretation.

1.2 DEFINITIONS

- A. Requests for Interpretation (RFI): Contractor initiated written instrument related to the execution of the Work that is addressed to the Architect. The RFI shall be used by the Contractor as the means to ask questions related to the Work; subject to the conditions contained within this Section.

1.3 ACTION SUBMITTALS

- A. Requests for Interpretation: Include a detailed, legible description of item needing information or interpretation and the following:
 - 1. Project name.
 - 2. Project number.
 - 3. Date.
 - 4. Name of Contractor.
 - 5. Name of Architect.
 - 6. RFI number, numbered sequentially.
 - 7. RFI subject.
 - 8. Specification Section number and title and related paragraphs, as appropriate.
 - 9. Drawing number and detail references, as appropriate.
 - 10. Field dimensions and conditions, as appropriate.
 - 11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 - 12. Contractor's signature.
 - 13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- B. RFI Forms: Form bound in Project Manual.
 - 1. Attachments shall be electronic files in Adobe Acrobat PDF format.

1.4 INFORMATIONAL SUBMITTALS

- A. RFI Log: Prepare, maintain, and submit a tabular log of RFI organized by the RFI number. Submit log weekly.
1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Architect.
 4. RFI number including RFIs that were returned without action or withdrawn.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date Architect's response was received.

1.5 QUALITY ASSURANCE

- A. Authorship: Prior to the commencement of the RFI process, designate a full time "RFI Manager" whose duties shall include the responsibility for enforcing the Request for Interpretation provisions of this Article, to maintain an up-to-date log of all RFI, advise the Architect, in writing, of the status and disposition of all RFI at the progress meetings, and be a member of the Contractor's staff. The RFI Manager shall be experienced in administration and supervision of the type of Work indicated on the Contract Documents.
1. RFI Manager may be the Contractor's Job Superintendent.
 2. Each RFI shall originate solely from the RFI Manager. An RFI submitted to the Architect by an entity, or individual, other than the RFI Manager shall be returned to the Contractor.

1.6 ADMINISTRATIVE REQUIREMENTS

- A. Processing Time: Allow five working days for Architect's response for each RFI. RFI received by Architect after 1:00 p.m. will be considered as received the following business day.
1. Allow additional time if coordination with other work is required. Architect will advise Contractor when a RFI being processed must be delayed for coordination.
 2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
- B. Architect's action on RFI that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Proposal Request according to Division 01 Section "Contract Modification Procedures."
1. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.
- C. Frivolous RFI:
1. RFI shall not be used for the following:

- a. Request for approval of submittals.
 - b. Request approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Request for adjustment in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Architect's actions on submittals.
 - f. Requests for coordination information already indicated in the Contract Documents, or to transfer coordination responsibility from the Contractor to the Owner or Architect.
 - g. Incomplete RFI or inaccurately prepared RFI.
2. The Owner reserves the right to assess the Contractor for the cost (based on time and materials) of a RFI response performed by the Architect, and any of its consultants, which is deemed by the Owner and the Architect as being frivolous or unnecessary.
 3. Frivolous RFI shall be removed from the RFI log.

1.7 COORDINATION

- A. Coordination: Coordinate preparation and processing of RFI with performance of construction activities.
 1. Submit RFI with such promptness as to cause no delays in the Work. No adjustments of Contract Time or Contract Sum will be granted because of failure to have an RFI submitted with sufficient time to allow for the orderly processing of a response by the Architect.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 CONTRACTOR'S ACTION

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, prepare and submit an RFI in the form specified.
 1. Architect will return RFI submitted to Architect by other entities controlled by Contractor with no response.
- B. Prior to submission of the RFI, coordinate the nature of the inquiry with the requirements of other Sections or trades as related thereto and responses to previous RFI.
- C. Complete each blank on the RFI form.
- D. In preparing each RFI verify the applicable dimension(s), field conditions, Drawing requirements (small through large scale details), and/or Specification section requirements pertaining thereto.

- E. Each RFI shall be reviewed, and signed by the RFI Manager prior to transmitting to the Architect.
- F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.
 - 1. Identification of related Minor Change in the Work and Proposal Request, as appropriate.

3.2 ARCHITECT'S ACTION

- A. Architect's Action: Architect will review each RFI, determine action required, and respond.
 - 1. Frivolous RFI will be returned without action.
- B. RFI which fail to conform to requirements, (for example, is incomplete or contain numerous errors) shall be returned to the Contractor without a response. No adjustments for Contract Time or Contract Sum shall be granted for an RFI failing to conform to requirements.

END OF SECTION 01 26 13

REQUEST FOR INTERPRETATION

DATE: _____ RFI No.: _____

TO: Gensler
711 Louisiana, Suite 300
Houston, Texas 77002

RE: _____ Project No.: _____
(Project Name) (Gensler Project Number)

FROM: _____ Project No.: _____
(Contractor) (Contractor Project Number)

(Address) Subcontractor: _____

_____ Subcontractor RFI No.: _____

_____ Date Received by Contractor: _____

DESCRIPTION

Subject: _____

Drawing and Detail No./Date: _____

Schedule Title: _____

Contract Change: _____ Specification No./Date: _____

Bulletin No. Date: _____ Paragraph No.: _____

Other/Date: _____ Enclosures: _____

Description of Problem or Requested Information and Proposed Solution (if any):

By: _____ Response Requested By: _____
(RFI Manager)

SECTION 01 29 00 – PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 DEFINITIONS

- A. Site Visit: Architect's visits to the site at intervals necessary in the judgment of Architect to become generally familiar with the progress and quality of the Work completed and to determine in general if the Work completed is in accordance with the Contract Documents. Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work.

1.3 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with Continuation Sheets.
 - b. Submittals Schedule.
 - c. Items required to be indicated as separate activities in Contractor's Construction Schedule.
 - 2. Submit the Schedule of Values to Architect at earliest possible date but before the date scheduled for submittal of initial Applications for Payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
 - 1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 - 2. Arrange the Schedule of Values consistent with format of AIA Document G703.

- a. Include dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 - 1) Labor.
 - 2) Materials.
 - 3) Equipment.
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five percent of Contract Sum.
 - a. Break down principal subcontract amounts into separate labor and materials items. Breakdown of subcontractor's schedule of values must be true and accurate.
 - b. Include separate line items under Contractor and principal subcontracts for project closeout requirements.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing if required.
6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Purchase Contracts: Provide a separate line item in the Schedule of Values for each purchase contract. Show line-item value of purchase contract. Indicate owner payments or deposits, if any, and balance to be paid by Contractor.
9. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
10. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders result in a change in the Contract Sum.

1.4 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified and paid for by Owner.

1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date of each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Times: Progress payments shall be submitted to Architect by the 25th of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.
- D. Payment Application Review:
 1. Submit draft (pencil) copy of the Application for Payment ten days prior to due date for review by Architect.
 2. The Owner, Architect and Contractor shall meet to review the draft (pencil) copy of the Application for Payment. Questions resulting from this review shall be answered by the Contractor and clarified prior to receipt of the final copy of the Application for Payment.
 3. Upon receipt of the final Application for Payment and other documentation as required by the Architect including the updated Schedule of Values and the updated Contractor's Construction Schedule, the Architect shall review the documents received to determine if they correspond to the agreements reached during the draft (pencil) copy review. Upon completion of the Architect's review, the Architect shall revise and execute the Applications and Certificate for Payment to correspond to the agreements reached and forward the executed copies to the Owner.
 4. In taking action on the Contractor's Application for Payment, the Architect will rely on the accuracy and completeness of the information furnished by the Contractor and will not be deemed to represent that he has made audits of the supporting data.
- E. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
- F. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Incomplete applications will be returned without action.
 1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
 2. Include amounts of work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 3. Include amounts of Change Orders issued before last day of construction period covered by application.
- G. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and off-site.
 1. Provide description of item(s) being stored.
 2. Location of the bonded warehouse(s) where materials or equipment is stored.

3. Bill of sale made to Owner stating there will be no additional cost for transportation and delivery of the stored item(s).
 4. Statement certifying that item or any part thereof will not be installed in any construction other than Work under this Contract.
 5. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
 6. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 7. Provide summary documentation for stored materials indicating the following:
 - a. Materials previously stored and included in previous Applications for Payment.
 - b. Work completed for this Application utilizing previously stored materials.
 - c. Additional materials stored with this Application.
 - d. Total materials remaining stored, including materials with this application.
- H. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- I. Waivers of Mechanic's Lien: With each Application for Payment, submit notarized waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
1. Submit partial waivers on each item for amount requested, before deduction for retainage, on each item.
 2. When an application shows completion of an item, submit final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- J. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors, principal suppliers and fabricators.
 2. Schedule of Values.
 3. Contractor's Construction Schedule (preliminary if not final).
 4. Products list (preliminary if not final).
 5. Submittals Schedule (preliminary if not final).
 6. List of Contractor's staff assignments.
 7. List of Contractor's principal consultants.
 8. Copies of building permits.

9. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 10. Report of preconstruction conference.
 11. Certificates of insurance and insurance policies.
 12. Performance and payment bonds.
 13. Data needed to acquire Owner's insurance.
- K. Application for Payment at Substantial Completion: After issuance of the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- L. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements, including, but not limited to:
 - a. Transmittal of required Project Record Documents to Owner.
 - b. Evidence of completion of demonstration and training.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
 6. AIA Document G707, "Consent of Surety to Final Payment."
 7. Evidence that claims have been settled.
 8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 9. Occupancy permits and similar approvals or certifications by governing authorities and franchised services, assuring Owner's full access and use of completed work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 29 00

SECTION 01 31 00 – PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project.

1.2 COORDINATION

- A. Coordination: Coordinate construction operations to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's Construction Schedule.
 - 2. Preparation of the Schedule of Values.
 - 3. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.
 - 5. Progress meetings.
 - 6. Preinstallation conferences.
 - 7. Project closeout activities.

1.3 SUBMITTALS

- A. Coordination Drawings: Prepare and submit Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different

components or if coordination is required for installation of products and materials fabricated by separate entities.

1.4 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

- A. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.

1.5 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
 - 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
 - 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 - 3. Minutes: Record minutes in writing. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within 3 days of the meeting.
 - 4. Notification: Inform participants 3 days prior to meetings not regularly scheduled.
- B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Architect. Hold the conference at a convenient location. Conduct the meeting to review responsibilities and personnel assignments.
- C. Preinstallation Conferences and Meetings: Conduct a preinstallation conferences and meetings at Project site before each construction activity that requires coordination with other construction.
- D. Progress Meetings: Conduct progress meetings at weekly intervals.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 00

SECTION 01 32 00 – CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work.

1.2 DEFINITIONS

- A. *Float*: The measure of leeway in starting and completing an activity.
 - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
 - 2. *Free float* is the amount of time an activity can be delayed without adversely affecting the early start of the following activity.
 - 3. *Total float* is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

1.3 SUBMITTALS

- A. Submittals Schedule: Within 30 days after the execution of the Agreement between the Owner and the Contractor submit to the Architect and Owner copies of the submittals schedule. Arrange the following information in a tabular format:
 - 1. Scheduled date for first submittal.
 - 2. Specification Section number and title.
 - 3. Submittal category (action or informational).
 - 4. Name of subcontractor.
 - 5. Description of the Work covered.
 - 6. Scheduled date for Architect's final release or approval.
- B. Contractor's Construction Schedule: Submit, for the Owner's and Architect's information, copies of the Contractor's Construction Schedule, large enough to show entire schedule for entire construction period.
- C. Field Condition Reports: Submit copies at time of discovery of differing conditions.

1.4 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from parties involved.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit, for Architect's approval, concurrently with the Contractor's Construction Schedule a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include the following information:
 - 1. Anticipated date of Architect's receipt of submittal.
 - 2. Number of business days allowed for Architect's review of submittal.
 - 3. Specification Section to which submittal relates.
 - 4. Subcontractor, fabricator or supplier responsible for preparing the submittal.
 - 5. Provide blank columns for actual date of submittal, re-submittal, and final-review status.
 - 6. Systems Submittals: Identify submittals for systems such as fire alarms, and sprinklers, on the transmittal and act upon the system singularly as a combined submittal.
- B. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."
- B. Time Frame: Extend schedule from date established for the Notice of Award to date of Final Completion.
 - 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
 - 1. Activity Duration: Define activities so no activity is longer than 20 days.
 - 2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 - 3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Include selection process activities for

finishes and products specified by allowances or specified to be selected during the sample review process. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.

4. Startup and Testing Time: Include not less than five (5) days for startup and testing.
 5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for administrative procedures necessary for certification of Substantial Completion.
- D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
 2. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Coordination with existing construction.
 - b. Limitations of continued occupancies.
 - c. Uninterruptible services.
 - d. Partial occupancy before Substantial Completion.
 - e. Use of premises restrictions.
 3. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Subcontract awards.
 - b. Submittals.
 - c. Purchases.
 - d. Mockups.
 - e. Fabrication.
 - f. Deliveries.
 - g. Installation.
 - h. Tests and inspections.
 - i. Adjusting.
 - j. Startup and placement into final use and operation.
- E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.
- F. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis to demonstrate the effect of the proposed change on the overall project schedule.

2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

- A. Gantt-Chart Schedule: Immediately after being awarded the Contract, prepare and submit, for the Owners and Architect's information, a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Construction Schedule. The schedule shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for the expeditious and practical execution of the Work. Allow a minimum of 10 working days for processing

(from date Architect receives submittal until date he sends it back) and sufficient time for proper handling, review, fabrication and delivery.

- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities.
 - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 - 3. As the Work progresses, indicate Actual Completion percentage for each activity.
 - 4. Give Owner and Architect a minimum of one week's notice of all anticipated revisions to the project schedule.
- B. Distribution: Distribute copies of approved schedule to Architect, Owner, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.
 - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01 32 00

SECTION 01 33 00 – SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.2 DEFINITIONS

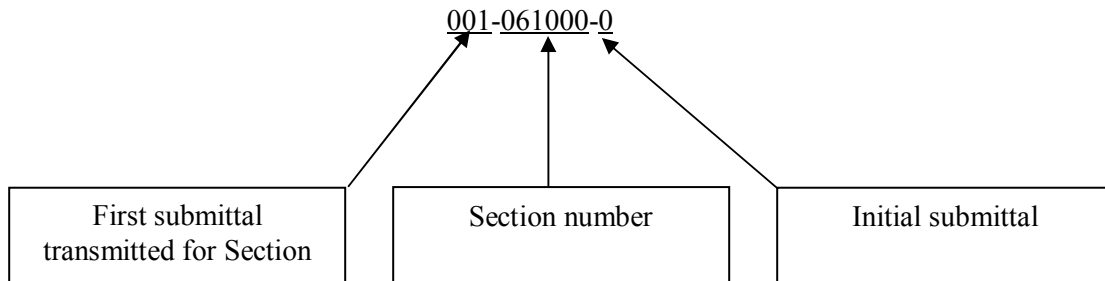
- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as action submittals.
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as informational submittals.

1.3 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Architect's Digital Data Files: Electronic copies of Drawings of the Contract Drawings and Project Manual will not be provided by Architect.
- B. Architect's Digital Data Files: At Contractor's written request, electronic copies of Drawings of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to the Contract Documents.
 - 1. Architect will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings.
 - a. Digital Drawing Software Program: The Contract Drawings are available in AutoCAD 2006.
 - b. The following plot files will be furnished for each appropriate discipline:
 - 1) Floor plans.
 - 2) Reflected ceiling plans.
 - 2. Architect will furnish Contractor one set of digital data files of the Project Manual of the Contract Documents for use in preparing Project record specifications.
 - 3. Provide an executed Data Transfer Agreement form, at the end of this Section, from each subcontractor and sub-subcontractor or supplier.

- C. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- D. Processing Time: Promptly submit Shop Drawings, Product Data, and Samples in accordance with the accepted submittal schedule, as to cause no delay in the Work. Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. Architect will document on submittal the date of receipt. Submittals delivered to the Architect after 4 pm will be noted as received on the next business day.
1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination. Delaying submittals to facilitate coordination between submittals shall not constitute a delay of the Work nor shall it be the basis for an extension of time.
 2. Sequential Review: Sequential review is a submittal that requires review by more than one design discipline. Where sequential review of submittals by Architect's consultants, Owner, or other parties is required, submittal schedule shall reflect sequential review.
 3. If intermediate submittal is necessary, process it in same manner as initial submittal.
 4. Allow 15 days for review of each resubmittal.
 5. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
- E. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 5 inches by 6 inches on label or beside title block to record Architect's review markings.
 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.

- h. Unique identifier, including revision number. Submittals shall be numbered with a three-digit number, followed by a dash, followed by the Section number, followed by another dash, and ending with a sequential submission number as indicated below. The numbering system shall be retained throughout all revisions.
- 1) Three-Digit Number: Sequential number, beginning with "001", for each submittal transmitted to Architect for each Section.
 - 2) Section Number: Section number where submittal is specified.
 - 3) Submission Number: Use "0" for initial submittal, "1" for first resubmittal, "2" for second resubmittal, and so forth.



- i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.
 - l. Other necessary identification.
 - m. Submission Number: Use "0" for initial submittal, "1" for first resubmittal, "2" for second resubmittal, and so forth.
- F. Options: Identify options requiring selection by the Architect.
- G. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.
- H. Additional Paper Copies: Unless corrected copies are required for final submittal due to Architect's observance of noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.
1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.
- I. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will discard submittals received from sources other than Contractor.
1. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements of the Contract Documents, including minor variations and limitations. Include the same label information as the related submittal.

2. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
- J. Transmittal Form: Use the attached form with each submittal.
- K. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 1. Note date and content of previous submittal.
 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 3. Resubmit submittals until they are marked "A" or "B" from Architect's action stamp.
- L. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- M. Use for Construction: Use only final submittals with mark indicating action "A" or "B" taken by Architect in connection with construction.

PART 2 - PRODUCTS

2.1 SUBMITTALS PROCEDURES

- A. General: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
 1. Action Submittals: Submit three paper copies of each submittal, unless otherwise indicated. Architect will return two copies. Mark up and retain one returned copy as a Project Record Document.
 2. Informational Submittals: Submit two paper copies of each submittal, unless otherwise indicated. Architect will not return copies.
 3. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 01 Section "Closeout Procedures."
 4. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - a. Provide a notarized statement on original paper copy certificates and certifications where indicated.
 5. Test and Inspection Reports Submittals: Comply with requirements specified in Division 01 Section "Quality Requirements."
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.

2. Clearly mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's written recommendations.
 - c. Manufacturer's product specifications.
 - d. Manufacturer's installation instructions.
 - e. Standard color charts.
 - f. Mill reports.
 - g. Standard product operating and maintenance manuals.
 - h. Compliance with recognized trade association standards.
 - i. Compliance with recognized testing agency standards.
 - j. Application of testing agency labels and seals.
 - k. Notation of coordination requirements.
 - l. Availability and delivery time information.
 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 5. Submit Product Data before or concurrent with Samples.
 6. Submit Product Data in the following format:
 - a. Paper copies.
- C. Shop Drawings: Prepare and submit Project-specific information, drawn accurately to scale. Do not reproduce, digitally or otherwise, the Contract Documents and submit them as shop drawings. Contractor, subcontractors, suppliers and all other entities shall not use, copy or reproduce title blocks, dimensions, notes, keynotes, symbols schedules or details from Contract Drawings, digital or otherwise. Use of the Contract Drawings shall be limited to reproduction, digitally or otherwise, of the exterior wall layout, interior partition layout, grid lines, doors, and windows. Do not base Shop Drawings on standard printed data.
1. Preparation: Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Roughing-in and setting diagrams.
 - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring. Differentiate between manufacturer-installed and field-installed wiring.
 - f. Shopwork manufacturing instructions.
 - g. Templates and patterns.
 - h. Schedules.

- i. Design calculations.
 - j. Compliance with specified standards.
 - k. Notation of coordination requirements.
 - l. Notation of dimensions established by field measurement.
 - m. Relationship and attachment to adjoining construction clearly indicated.
 - n. Seal and signature of professional engineer if specified.
2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
 3. Submit Shop Drawings in the following format:
 - a. Opaque paper copies.
- D. Samples: Submit physical units of materials or products.
1. Comply with requirements in Division 01 Section "Quality Requirements" for mockups.
 2. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
 3. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit three sets of Samples. Architect will retain one Sample set; remainder will be returned. Mark up and retain one returned Sample set as a Project record sample.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
 4. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Architect's sample where so indicated. Attach label on unexposed side that includes the following:
 - a. Generic description of Sample.
 - b. Product name or name of manufacturer.

- c. Sample source.
- 5. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.
 - a. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 - b. Refer to individual Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.
 - 6. Systems Submittals: Identify submittals for systems such as fire alarms, exterior walls, and curtain walls, on the transmittal and act upon the system singularly as a combined submittal. If resubmission is required, resubmit entire system submittal.
 - 7. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
- E. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation" for action required.
 - F. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."
 - G. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."
 - H. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."
 - I. Qualification Data: Submit written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
 - J. Welding Certificates: Prepare and submit written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
 - K. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements.

- L. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements.
- M. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
- N. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - 1. Name of evaluation organization.
 - 2. Date of evaluation.
 - 3. Time period when report is in effect.
 - 4. Product and manufacturers' names.
 - 5. Description of product.
 - 6. Test procedures and results.
 - 7. Limitations of use.
- O. Maintenance Data: Submit written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 01 Section "Closeout Procedures."
- P. Manufacturer's Instructions: Submit written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
 - 1. Preparation of substrates.
 - 2. Required substrate tolerances.
 - 3. Sequence of installation or erection.
 - 4. Required installation tolerances.
 - 5. Required adjustments.
 - 6. Recommendations for cleaning and protection.
- Q. Manufacturer's Field Reports: Prepare and submit written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
 - 1. Name, address, and telephone number of factory-authorized service representative making report.
 - 2. Statement on condition of substrates and their acceptability for installation of product.
 - 3. Statement that products at Project site comply with requirements.
 - 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 - 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 - 6. Statement whether conditions, products, and installation will affect warranty.
 - 7. Other required items indicated in individual Specification Sections.

- R. Insurance Certificates and Bonds: Prepare and submit written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- S. Material Safety Data Sheets: If requested by Owner, submit data sheets directly to Owner or the Owner's Industrial Hygienist. Do not submit data sheets to Architect. Architect will not review data sheets and will not return them to Contractor.
- T. Extra Stock: Comply with requirements specified in individual Sections for quantity and disposition of delivery of extra stock.

2.2 DELEGATED-DESIGN SERVICES

- A. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit three paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Project Closeout and Maintenance/Material Submittals: Refer to requirements in Division 01 Section "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, coordinated, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

- B. Action Submittals: Architect will review each properly executed submittal, make marks to indicate corrections or modifications required, and return it. Architect will reject and return submittals not complying with requirements. Architect will stamp each submittal with a stamp and will mark stamp appropriately to indicate action, as follows:
1. A - No Exceptions Taken. No further review of Submittal required.
 2. B - Make Corrections as Noted. Incorporate corrections in Work; resubmittal is not required. If Contractor cannot comply with corrections as noted, revise to respond to exceptions and resubmit.
 3. C - Revise as Noted and Resubmit. Revise as noted & resubmit for further review.
 4. D - Resubmit Properly. Submittal not reviewed because it does not contain Contractor's signature indicating its review and approval, and/or is not in proper condition for review. Resubmit.
 5. E - Not Reviewed. Submittal is not required by Contract Documents.
 6. F - Received for Client's Record Only. Submittal not reviewed.
- C. Informational Submittals: Architect will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Incomplete submittals are not acceptable, will be considered non-responsive, and will be returned without review.
1. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- E. Submittals not required by the Contract Documents will not be reviewed and may be discarded or returned marked "Not Reviewed."
- F. Substitution items received as product data, shop drawing, or sample submittals required by individual Sections will be returned to Contractor without review. Comply with requirements in Division 01 Section "Product Requirements" for submission of substitution request.

END OF SECTION 01 33 00



SUBMITTAL TRANSMITTAL

Project: _____

Date: _____

A/E Project Number: _____

TRANSMITTAL A To (Contractor): _____
From (Subcontractor): _____

Date: _____ Submittal No. _____

By: _____ Resubmission

| Qty. | Reference / Number | Title / Description / Manufacturer | Spec. Section Title and Paragraph / Drawing Detail Reference |
|------|--------------------|------------------------------------|--------------------------------------------------------------|
| | | | |
| | | | |
| | | | |

- Submitted for review and approval
- Resubmitted for review and approval
- Complies with contract requirements
- Will be available to meet construction schedule
- A/E review time included in construction schedule

- Substitution involved - Substitution request attached
- If substitution involved, submission includes point-by-point comparative data or preliminary details
- Items included in submission will be ordered immediately upon receipt of approval

Other remarks on above submission: _____

One copy retained by sender

TRANSMITTAL B To (A/E): _____
From (Contractor): _____

Attn: _____ Date Rec'd by Contractor: _____

By: _____ Date Trnsmt'd by Contractor: _____

- Approved
- Approved as noted

- Revise / Resubmit
- Rejected / Resubmit

Other remarks on above submission: _____

One copy retained by sender

TRANSMITTAL C To (Contractor): _____
From (A/E): _____ Other

Attn: _____ Date Rec'd by A/E: _____

By: _____ Date Trnsmt'd by A/E: _____

- Approved
- Approved as noted
- Not subject to review
- No action required
- Revise / Resubmit
- Rejected / Resubmit
- Approved as noted / Resubmit

- Provide file copy with corrections identified
- Sepia copies only returned
- Point-by-point comparative data required to complete approval process
- Submission Incomplete / Resubmit

Other remarks on above submission: _____

One copy retained by sender

TRANSMITTAL D To (Subcontractor): _____
From (Contractor): _____

Attn: _____ Date Rec'd by Contractor: _____

By: _____ Date Trnsmt'd by Contractor: _____

Copies: Owner Consultants _____ _____ _____ One copy retained by sender

SUBMITTAL REVIEW

- A NO EXCEPTIONS TAKEN.
- B MAKE CORRECTIONS AS NOTED. Resubmittal not required unless Contractor cannot comply with corrections noted.
- C REVISE AS NOTED AND RESUBMIT.
- D RESUBMIT PROPERLY. Submittal not reviewed for reasons noted.
- E NOT REVIEWED. Submittal not required by Contract Documents.
- F RECEIVED FOR CLIENT'S RECORD ONLY. Submittal not reviewed.

Gensler has reviewed this Submittal, but only for the purpose of checking for conformance with the design intent expressed in the Contract Documents. Gensler's action on a specific item does not indicate approval of an assembly of which the item is a component, nor of an item as delivered and installed if it does not conform to the Contract Documents.

Contractor is responsible for checking for deviations between this Submittal and differing information or conditions in the Contract Documents and field conditions; for determining or substantiating the accuracy and completeness of other details such as dimensions and quantities; for substantiating instructions for installation or performance of equipment or systems designed by Contractor; for construction means, methods, techniques, schedules, sequences, procedures, and fabrication processes; for errors and omissions in Submittals; for coordination of the Work of the trades, safety precautions and performing the Work in a safe and satisfactory manner and in conformance with the Contract Documents. If more than one submittal review stamp appears on this Submittal, the most stringent action and notations thereon apply. Signature of a submittal review stamp by Gensler or a consultant does not imply that it has reviewed work not within its professional discipline or scope of services.

By _____ Date _____
Project No. _____ Submittal No. _____

SUBMITTAL REVIEW

- A NO EXCEPTIONS TAKEN.
- B MAKE CORRECTIONS AS NOTED. Resubmittal not required unless Contractor cannot comply with corrections noted.
- C REVISE AS NOTED AND RESUBMIT.
- D RESUBMIT PROPERLY. Submittal not reviewed for reasons noted.
- E NOT REVIEWED. Submittal not required by Contract Documents.
- F RECEIVED FOR CLIENT'S RECORD ONLY. Submittal not reviewed.

Gensler has reviewed this Submittal, but only for the purpose of checking for conformance with the design intent expressed in the Contract Documents. Gensler's action on a specific item does not indicate approval of an assembly of which the item is a component, nor of an item as delivered and installed if it does not conform to the Contract Documents.

Contractor is responsible for checking for deviations between this Submittal and differing information or conditions in the Contract Documents and field conditions; for determining or substantiating the accuracy and completeness of other details such as dimensions and quantities; for substantiating instructions for installation or performance of equipment or systems designed by Contractor; for construction means, methods, techniques, schedules, sequences, procedures, and fabrication processes; for errors and omissions in Submittals; for coordination of the Work of the trades, safety precautions and performing the Work in a safe and satisfactory manner and in conformance with the Contract Documents. If more than one submittal review stamp appears on this Submittal, the most stringent action and notations thereon apply. Signature of a submittal review stamp by Gensler or a consultant does not imply that it has reviewed work not within its professional discipline or scope of services.

By _____ Date _____
Project No. _____ Submittal No. _____

SUBMITTAL REVIEW

- A NO EXCEPTIONS TAKEN.
- B MAKE CORRECTIONS AS NOTED. Resubmittal not required unless Contractor cannot comply with corrections noted.
- C REVISE AS NOTED AND RESUBMIT.
- D RESUBMIT PROPERLY. Submittal not reviewed for reasons noted.
- E NOT REVIEWED. Submittal not required by Contract Documents.
- F RECEIVED FOR CLIENT'S RECORD ONLY. Submittal not reviewed.

Gensler has reviewed this Submittal, but only for the purpose of checking for conformance with the design intent expressed in the Contract Documents. Gensler's action on a specific item does not indicate approval of an assembly of which the item is a component, nor of an item as delivered and installed if it does not conform to the Contract Documents.

Contractor is responsible for checking for deviations between this Submittal and differing information or conditions in the Contract Documents and field conditions; for determining or substantiating the accuracy and completeness of other details such as dimensions and quantities; for substantiating instructions for installation or performance of equipment or systems designed by Contractor; for construction means, methods, techniques, schedules, sequences, procedures, and fabrication processes; for errors and omissions in Submittals; for coordination of the Work of the trades, safety precautions and performing the Work in a safe and satisfactory manner and in conformance with the Contract Documents. If more than one submittal review stamp appears on this Submittal, the most stringent action and notations thereon apply. Signature of a submittal review stamp by Gensler or a consultant does not imply that it has reviewed work not within its professional discipline or scope of services.

By _____ Date _____
Project No. _____ Submittal No. _____

SUBMITTAL REVIEW

- A NO EXCEPTIONS TAKEN.
- B MAKE CORRECTIONS AS NOTED. Resubmittal not required unless Contractor cannot comply with corrections noted.
- C REVISE AS NOTED AND RESUBMIT.
- D RESUBMIT PROPERLY. Submittal not reviewed for reasons noted.
- E NOT REVIEWED. Submittal not required by Contract Documents.
- F RECEIVED FOR CLIENT'S RECORD ONLY. Submittal not reviewed.

Gensler has reviewed this Submittal, but only for the purpose of checking for conformance with the design intent expressed in the Contract Documents. Gensler's action on a specific item does not indicate approval of an assembly of which the item is a component, nor of an item as delivered and installed if it does not conform to the Contract Documents.

Contractor is responsible for checking for deviations between this Submittal and differing information or conditions in the Contract Documents and field conditions; for determining or substantiating the accuracy and completeness of other details such as dimensions and quantities; for substantiating instructions for installation or performance of equipment or systems designed by Contractor; for construction means, methods, techniques, schedules, sequences, procedures, and fabrication processes; for errors and omissions in Submittals; for coordination of the Work of the trades, safety precautions and performing the Work in a safe and satisfactory manner and in conformance with the Contract Documents. If more than one submittal review stamp appears on this Submittal, the most stringent action and notations thereon apply. Signature of a submittal review stamp by Gensler or a consultant does not imply that it has reviewed work not within its professional discipline or scope of services.

By _____ Date _____
Project No. _____ Submittal No. _____

SECTION 01 40 00 – QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections:
 - 1. Division 01 Section "Execution" for repair and restoration of construction disturbed by testing and inspecting activities.
 - 2. Divisions 02 through 49 Sections for specific test and inspection requirements.

1.2 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction complies with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Mockups: Full-size physical assemblies that are constructed on-site, unless indicated otherwise. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

- D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.
- E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- F. Source Quality-Control Testing: Tests and inspections that are performed at the source (e.g., plant, mill, factory, or shop).
- G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.
- K. Professional Engineer: Engineer currently licensed to practice in the State of Texas.

1.3 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.4 ACTION SUBMITTALS

- A. Shop Drawings: For mockups, provide plans, sections, and elevations, indicating materials and size of mockup construction.
 - 1. Indicate manufacturer and model number of individual components.
 - 2. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

1.5 INFORMATIONAL SUBMITTALS

- A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
- B. Qualification Data: For Contractor's quality-control personnel.
- C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:
 - 1. Main wind-force-resisting system or a wind-resisting component listed in the wind-force-resisting system quality-assurance plan prepared by Architect.
- D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Specification Section number and title.
 - 2. Description of test and inspection.
 - 3. Identification of applicable standards.
 - 4. Identification of test and inspection methods.
 - 5. Number of tests and inspections required.
 - 6. Time schedule or time span for tests and inspections.
 - 7. Entity responsible for performing tests and inspections.
 - 8. Requirements for obtaining samples.
 - 9. Unique characteristics of each quality-control service.
- F. Testing Agency and Inspection Reports: Prepare and submit certified written reports that include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.

9. Test and inspection results and an interpretation of test results.
 10. Ambient conditions at time of sample taking and testing and inspecting.
 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 12. Name and signature of laboratory inspector.
 13. Recommendations on retesting and reinspecting.
- G. **Manufacturer's Technical Representative's Field Reports:** Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of technical representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Statement that products at Project site comply with requirements.
 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement whether conditions, products, and installation will affect warranty.
 7. Other required items indicated in individual Specification Sections.
- H. **Factory-Authorized Service Representative's Reports:** Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of factory-authorized service representative making report.
 2. Statement that equipment complies with requirements.
 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 4. Statement whether conditions, products, and installation will affect warranty.
 5. Other required items indicated in individual Specification Sections.
- I. **Permits, Licenses, and Certificates:** For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.
- 1.6 **CONTRACTOR'S QUALITY-CONTROL PLAN**
- A. **Quality-Control Plan, General:** Submit quality-control plan within 10 days of Commencement of Work, and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.
- B. **Quality-Control Personnel Qualifications:** Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.

1. Project quality-control manager may also serve as Project superintendent.
- C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
- D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:
 1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
 2. Owner-performed tests and inspections indicated in the Contract Documents.
- E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.
- F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.7 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Fabricator Qualifications: A firm experienced and expert in producing products similar to those indicated for this Project and with a three-year record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a three-year record of successful in-service performance.
- E. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a five-year record of successful in-service performance.
- F. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation

of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

- G. Professional Engineer Qualifications: A professional engineer who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.
- H. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
1. Requirement for specialists shall not supersede building codes and similar regulations governing the Work, nor interfere with local trade-union jurisdictional settlements and similar conventions.
- I. Testing Agency Qualifications: An NRTL, an NVLAP-accredited, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 329, and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities..
1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
1. Contractor responsibilities include the following:
 - a. Provide test specimens and assemblies representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
 - d. Fabricate and install test assemblies and mockups using installers who will perform the same tasks for Project.
 - e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
 - f. When testing is complete, remove test specimens, assemblies, and mockups; do not reuse products on Project.
 2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

- K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish specified in individual Sections, to comply with the following requirements, using materials indicated for the completed Work:
1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
 2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
 3. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed during the construction at Project.
 4. Demonstrate the proposed range of aesthetic effects and workmanship.
 5. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
 - a. Allow seven days for initial review and each re-review of each mockup.
 6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 7. Demolish and remove mockups when directed, unless otherwise indicated.

1.8 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of the types of testing and inspecting they are engaged to perform.
 2. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.
 3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not..
1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. Contractor shall not employ the same entity engaged by Owner, unless agreed to in writing by Owner.
 3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.

4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
 7. Provide quality assurance and control services required due to changes in the Work proposed by or made by the Contractor.
 8. Provide quality control services for Work done contrary to the Contract Documents, without prior notice, when so specified, or without proper supervision.
 9. Overtime expenses and schedule delays accruing as a result of executing quality control services shall be the Contractor's responsibility and shall not be charged to the Owner.
- C. **Manufacturer's Field Services:** Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."
- D. **Manufacturer's Technical Services:** Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- E. **Retesting/Reinspecting:** Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that revised or replaced Work that failed to comply with requirements established by the Contract Documents. Architect retains the right to require the use of a different testing agency for retesting and reinspecting.
- F. **Testing Agency Responsibilities:** Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
 6. Do not perform any duties of Contractor.
 7. Attend Project progress meetings as requested by Architect.
- G. **Associated Services:** Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 4. Facilities for storage and field-curing of test samples.
 5. Delivery of samples to testing agencies or arranging for pick-up of test samples after normal business hours.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit schedule concurrently with Contractor's Construction Schedule as specified in Division 01 Section "Construction Progress Documentation."
1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
1. Date test or inspection was conducted.
 2. Description of the Work tested or inspected.
 3. Date test or inspection results were transmitted to Architect.
 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for Division 01 Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 40 00

SECTION 01 42 00 – REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

- A. *Approved*: When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- B. *Directed*: A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "approved," "required," and "permitted" have the same meaning as "directed."
- C. *Indicated*: Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- D. *Regulations*: Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- E. *Furnish*: Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- F. *Install*: Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- G. *Provide*: Furnish and install, complete and ready for the intended use.
- H. *Installer*: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations. Installers shall be experienced in the operation they are engaged to perform.
- I. *Experienced*: Unless otherwise specified in the technical sections when used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.
- J. *Project Site*: Space available for performing construction activities. The extent of Project site is shown on Drawings.
- K. *As Required*: As required by regulatory bodies, by referenced standards, by existing conditions, by generally accepted construction practice or by the Contract Documents. In the event of ambiguity or conflicts, the most stringent requirements shall apply.

- L. *By Others* refers to work that is not a part of the Contract.
- M. *N.I.C.: Not in Contract* means the work or the item indicated is not a part of the Contract and will be provided by the Owner.

1.2 STANDARDS, REGULATIONS AND CODES

- A. **Applicability of Standards:** Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. **Publication Dates:** Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.
- C. **Conflicting Requirements:** If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
 - 1. **Minimum Quantity or Quality Levels:** The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum..
- D. **Abbreviations and Acronyms for Standards and Regulations:** Where abbreviations and acronyms are used, they shall mean the recognized name of the standards and regulations in the following list.

| | | |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| ADAAG | Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities Available from Access Board www.access-board.gov | (800) 872-2253 (202) 272-5434 |
| CFR | Code of Federal Regulations Available from Government Printing Office www.access.gpo.gov/nara/cfr | (888) 293-6498 (202) 512-1530 |
| FS | Federal Specification Available from General Services Administration www.fss.gsa.gov/pub/fed-specs.cfm | (202) 619-8925 |
| E. | Abbreviations and Acronyms for Industry Standards and Regulations: Where abbreviations and acronyms are used they shall mean the recognized name of the entities in the following list. | |
| AA | Aluminum Association, Inc. (The) www.aluminum.org | (202) 862-5100 |
| AABC | Associated Air Balance Council www.aabchq.com | (202) 737-0202 |

| | | |
|--------|-------------------------------------------------------------------------------------------------------|----------------------------------|
| AAMA | American Architectural Manufacturers Association www.aamanet.org | (847) 303-5664 |
| ADC | Air Diffusion Council www.flexibleduct.org | (312) 201-0101 |
| AGA | American Gas Association www.aga.org | (202) 824-7000 |
| AHA | American Hardboard Association www.ahardbd.org | (847) 934-8800 |
| AIA | American Institute of Architects (The) www.e-architect.com | (202) 626-7300 |
| AISC | American Institute of Steel Construction www.aisc.org | (800) 644-2400 (312) 670-2400 |
| AISI | American Iron and Steel Institute www.steel.org | (202) 452-7100 |
| AMCA | Air Movement and Control Association International, Inc. www.amca.org | (847) 394-0150 |
| ANSI | American National Standards Institute www.ansi.org | (202) 293-8020 |
| APA | APA - The Engineered Wood Association www.apawood.org | (253) 565-6600 |
| ARI | Air-Conditioning & Refrigeration Institute www.ari.org | (703) 524-8800 |
| ASHRAE | American Society of Heating, Refrigerating and Air-Conditioning Engineers www.ashrae.org | (800) 527-4723 (404) 636-8400 |
| ASME | ASME International (The American Society of Mechanical Engineers International) www.asme.org | (800) 843-2763 (212) 591-7722 |
| ASPE | American Society of Plumbing Engineers www.aspe.org:8080 | (773) 693-2773 |
| ASSE | American Society of Sanitary Engineering www.asse-plumbing.org | (440) 835-3040 |
| ASTM | American Society for Testing and Materials www.astm.org | (610) 832-9585 |

| | | |
|-------|------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| AWCI | AWCI International (Association of the Wall and Ceiling Industries International) www.awci.org | (703) 534-8300 |
| AWI | Architectural Woodwork Institute www.awinet.org | (800) 449-8811 (703) 733-0600 |
| AWPA | American Wood-Preservers' Association www.awpa.com | (817) 326-6300 |
| AWS | American Welding Society www.aws.org | (800) 443-9353 (305) 443-9353 |
| BHMA | Builders Hardware Manufacturers Association www.buildershardware.com | (212) 297-2122 |
| CDA | Copper Development Association Inc. www.copper.org | (800) 232-3282 (212) 251-7200 |
| CISCA | Ceilings & Interior Systems Construction Association www.cisca.org | (630) 584-1919 |
| CPA | Composite Panel Association (Formerly: National Particleboard Association) www.pbmdf.com | (301) 670-0604 |
| CRI | Carpet & Rug Institute (The) www.carpet-rug.com | (800) 882-8846 (706) 278-3176 |
| DHI | Door and Hardware Institute www.dhi.org | (703) 222-2010 |
| EIA | Electronic Industries Alliance www.eia.org | (703) 907-7500 |
| GA | Gypsum Association www.gypsum.org | (202) 289-5440 |
| GANA | Glass Association of North America (Formerly: FGMA - Flat Glass Marketing Association) www.glasswebsite.com/gana | (785) 271-0208 |
| HPVA | Hardwood Plywood & Veneer Association www.hpva.org | (703) 435-2900 |
| IEEE | Institute of Electrical and Electronics Engineers, Inc. (The) www.ieee.org | (212) 419-7900 |
| IESNA | Illuminating Engineering Society of North America www.iesna.org | (212) 248-5000 |

| | | |
|--------|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| MFMA | Maple Flooring Manufacturers Association www.maplefloor.org | (847) 480-9138 |
| MIA | Marble Institute of America www.marble-institute.com | (614) 228-6194 |
| NAAMM | National Association of Architectural Metal Manufacturers www.naamm.org | (312) 332-0405 |
| NEBB | National Environmental Balancing Bureau www.nebb.org | (301) 977-3698 |
| NECA | National Electrical Contractors Association www.necanet.org | (301) 657-3110 |
| NeLMA | Northeastern Lumber Manufacturers' Association www.nelma.org | (207) 829-6901 |
| NEMA | National Electrical Manufacturers Association www.nema.org | (703) 841-3200 |
| NFPA | National Fire Protection Association www.nfpa.org | (800) 344-3555 (617) 770-3000 |
| NOFMA | National Oak Flooring Manufacturers Association www.nofma.org | (901) 526-5016 |
| NPA | National Particleboard Association (See CPA) | |
| NTMA | National Terrazzo and Mosaic Association, Inc. www.ntma.com | (800) 323-9736 (703) 779-1022 |
| NWWDA | National Wood Window and Door Association (See WDMA) | |
| PDCA | Painting and Decorating Contractors of America www.pdca.com | (800) 332-7322 (703) 359-0826 |
| SDI | Steel Door Institute www.steeldoor.org | (440) 899-0010 |
| SGCC | Safety Glazing Certification Council www.sgcc.org | (315) 646-2234 |
| SMACNA | Sheet Metal and Air Conditioning Contractors' National Association www.smacna.org | (703) 803-2980 |

| | | |
|-------|--------------------------------------------------------------|----------------------------------|
| SPIB | Southern Pine Inspection Bureau (The) www.spib.org | (850) 434-2611 |
| SSPC | SSPC: The Society for Protective Coatings www.sspc.org | (800) 837-8303 (412) 281-2331 |
| TCA | Tile Council of America, Inc. www.tileusa.com | (864) 646-8453 |
| TIA | Telecommunications Industry Association www.tiaonline.org | (703) 907-7700 |
| UL | Underwriters Laboratories Inc. www.ul.com | (800) 704-4050 (847) 272-8800 |
| WCLIB | West Coast Lumber Inspection Bureau www.wclib.org | (800) 283-1486 (503) 639-0651 |
| WWPA | Western Wood Products Association www.wwpa.org | (503) 224-3930 |

F. Federal Government Agencies: Where abbreviations and acronyms are used, they shall mean the recognized name of the entities in the following list.

| | | |
|------|-------------------------------------------------------------|----------------------------------|
| CPSC | Consumer Product Safety Commission www.cpsc.gov | (800) 638-2772 (301) 504-0990 |
| DOC | Department of Commerce www.doc.gov | (202) 482-2000 |
| OSHA | Occupational Safety & Health Administration www.osha.gov | (202) 693-1999 |

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 42 00

SECTION 01 50 00 – TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities and security and protection facilities.
 - 1. Provide and maintain all temporary facilities and controls necessary for the performance of the Work.
 - 2. Locate and install all temporary facilities and controls where acceptable to the local authorities having jurisdiction and utility owner and remove same and terminate, in a manner suitable to the local authorities having jurisdiction and utility owner, at completion of Work or when otherwise directed.
 - 3. Unless otherwise specified, pay all costs associated with the use, provision, and maintenance of, temporary facilities and controls including power, water, and fuel (if any) consumed until Substantial Completion.

1.2 PROJECT CONDITIONS

- A. Use of Permanent Utilities: When each permanent utility is operational, it may be used for construction purposes, if acceptable, in writing, by the Owner. The written request for permission for use of the system from the Owner shall include, as a minimum, the conditions and reasons for use, provisions for, and effect on equipment warranties. In the event that the Owner accepts the Contractor's use of the permanent utility for the balance of the Work, the Contractor shall be fully responsible for it, and shall pay all costs for operation, power, restoration and maintenance of same.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Engage appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.
1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
 2. Provide adequate capacity at each stage of construction.
- B. Water Service: Pay water service use charges, by use of submetering for all entities engaged in construction activities at Project site.
- C. Toilet Facilities: The Contractor shall make arrangements with the Landlord or Property Manager for placing a chemical toilet in the dumpster enclosure.
- D. Ventilation and Humidity Control: Provide adequate ventilation in enclosed areas throughout construction period required to: facilitate progress of Work; to protect Work and products against dampness and heat; to prevent moisture condensation on surfaces; to provide suitable ambient temperatures for installation and curing of finish materials; to provide adequate ventilating; to meet health regulations for safe working environment; and, to prevent hazardous accumulations of dusts, fumes, mists, vapors or gases in areas occupied during construction. Provide local exhaust ventilating to prevent harmful dispersal of hazardous substances into atmosphere of occupied areas. Dispose of exhaust materials in manner that will not result in harmful exposure to persons or property. Provide ventilating operations at all times personnel occupy an area, when subject to hazardous accumulations of harmful elements. Continue operation of ventilating system for as long as required after cessation of Work to assure removal of harmful elements.
1. In the event that the Owner accepts the Contractor's use of the permanent ventilation and air conditioning systems for the balance of the Work, provide and maintain temporary filters to adequately filter air being distributed through the ductwork and air handling units to the supply outlets; disposable filter shall be placed in front of all exhaust registers to keep construction dirt out of exhaust duct work.
- E. Electric Power and Lighting Service: Pay electric power service use charges if low voltage convenience outlet on house panel between TQLA and Les Gival is not adequate power.
1. Arrange with local electric utility for temporary electric service to the site. Provide all installation and equipment for temporary lighting and power. The electrical service shall be of adequate capacity for all construction tools and equipment without overloading the temporary facilities.
 - a. Provide power distribution throughout the site as required to facilitate construction operations. Terminations shall be provided for each voltage supply complete with circuit breakers, disconnect switches and other electrical devices as required to protect the power supply system.
 - b. Provide and maintain temporary lighting system as required to satisfy the minimum requirements of security and safety. Provide general illumination for the

entire project. Provide increased levels of illumination where the work is being installed.

2. All temporary equipment and wiring for power and lighting shall be in accordance with the applicable provisions of the governing codes and regulations, the NEC, NEMA, and OSHA standards. All temporary power and lighting shall be maintained to give safe working conditions, continuous service, and so as not to pose a threat to the Owner's property. Modify and extend temporary power and lighting systems as the Work progress requires.

3.3 TEMPORARY SUPPORT FACILITIES AND PROTECTION

- A. Project Signs: Project identification signs or advertisements are not permitted on the Project site. Provide other signs as required to inform public and individuals seeking entrance to Project.
- B. Construction Aids: Provide all items, such as lifting devices, scaffolding, staging, platforms, runways, ladders; and temporary flooring, as required by the various trades for the proper execution of the Work. Provide such construction aids with proper guys, bracing, guards, railings and other safety devices as required by the governing authorities and OSHA.
 1. Protect existing construction to remain when installing and using temporary construction aids to prevent damage. Do not overload structure.
- C. Elevator: Make arrangements with the Landlord or Property Manager for the use of elevators as required for transporting material and workmen to work areas and for disposal of rubbish and waste materials.
- D. Security: Provide and maintain provisions for closing and locking the site to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
- E. Temporary Partitions: Provide and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate occupied areas from fumes and noise.
- F. Temporary Fire Protection: Throughout the site, during construction, provide for fire protection and fire prevention in accordance with all applicable Federal, state and local codes and regulations.

3.4 TERMINATION AND REMOVAL

- A. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Remove and dispose of temporary filters and thoroughly clean the interior of the air handling units and ductwork prior to acceptance of the Work. Provide all new filters in heating, ventilation and air conditioning systems.
2. Replace all lamps of the permanent lighting system, at no cost to the Owner.
3. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 01 Section "Closeout Procedures."

END OF SECTION 01 50 00

SECTION 01 60 00 – PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes the following administrative and procedural requirements for the selection of products for use in the Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and product substitutions.

1.2 DEFINITIONS

- A. **Products:** Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
- B. **Substitutions:** Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents as proposed by Contractor.
- C. **Basis-of-Design Product Specification:** Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.
- D. **Manufacturer's Warranty:** A written warranty authored by the manufacturer of its furnished product whose provisions are conveyed by manufacturer directly to Owner.
- E. **Special Warranty:** Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

1.3 SUBMITTALS

- A. **Substitution Requests:** Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. **Substitution Request Form:** Use form provided at end of Section.
 - 2. **Documentation:** Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified material or product cannot be provided.

- b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, product material content, product manufacture, weight, size, durability, service life, maintenance, visual effect, and specific features and requirements indicated.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
 - i. Cost information, including a proposal of change, if any, in the Contract Sum.
 - j. Time value to be added to, or subtracted from, the Contract time of Completion.
 - k. Benefit(s) to the Owner.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation. Architect will notify Contractor of acceptance or rejection of proposed substitution. Substitution requests, if any, shall be submitted so as to allow a reasonable time for their consideration and shall not be justification for delay of the Work.

1.4 QUALITY ASSURANCE

- A. General: All bids shall be based on the products required in the Contract Documents.
- B. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.

3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
5. Store products to allow for inspection and measurement of quantity or counting of units.
6. Store materials in a manner that will not endanger Project structure.
7. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
8. Protect stored products from damage.

- B. Storage: Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.6 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Specified Form: Forms are included with the Specifications. Prepare a written document using appropriate form properly executed.
 3. Refer to Divisions 03 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SUBSTITUTIONS

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged, and unless otherwise indicated, that are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: Unless custom products or nonstandard options are specified, provide products of both quality and type that have been used successfully in similar situations on equal quality projects.
 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.

4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.

B. Product Selection Procedures: Procedures for product selection include the following:

1. **Product:** Where Specification paragraphs or subparagraphs titled "Product" name a single product and manufacturer, provide the product named.
2. **Manufacturer/Source:** Where Specification paragraphs or subparagraphs titled "Manufacturer" or "Source" name single manufacturers or sources, provide a product by the manufacturer or from the source named that complies with requirements.
3. **Products:** Where Specification paragraphs or subparagraphs titled "Products" introduce a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
4. **Manufacturers:** Where Specification paragraphs or subparagraphs titled "Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
5. **Basis of Design Products:** Where paragraphs or subparagraphs titled "Basis of Design Product(s)" are included. Provide either the specified product or a comparable product. Drawings and specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named.
6. **Visual Matching Specification:** Where Specifications require matching an established Sample, select a product (and manufacturer) that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches satisfactorily.
 - a. If no product available within specified category matches satisfactorily and complies with other specified requirements, comply with provisions of the Contract Documents on "substitutions" for selection of a matching product.
7. **Visual Selection Specification:** Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product (and manufacturer) that complies with other specified requirements.

C. Substitutions: Substitutions after the Contract is signed will be considered only under one of the following conditions:

1. That the specified product is not available due to lockout, strike, bankruptcy, product discontinuance, Acts of God, and that the proposed product will match or exceed the quality of the specified product while either providing the Owner with a cost savings or expediting the Work.
2. When a warranty of performance is specified and, in the judgment of the Contractor, the specified product will not provide the desired performance.
3. Substitutions will be considered within 10 days of Bid.

Gensler
02.7005.000

May 20, 2010
Issue for Permit & Bid

tqla
4601 Washington Avenue
Houston, Texas

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00

Substitution Request

Gensler

| | |
|---------------------------|-----------------------|
| Project | Date |
| Project Location | Project Number |
| General Contractor | File |
| | 6S |
| Prepared by | This is page |
| | 1 of |

We certify that the following product is equal or superior to the specified product in appearance, durability, performance, and in every other respect, and we hereby submit it for your consideration as a substitute for the specified item for the above-mentioned project:

1. **Specified Item** **Section**
2. **Proposed Substitution**
3. **Reason for Substitution**
4. **Costs** (Provide a complete breakdown of costs, including the cost amount to be DEDUCTED from the Contract Sum if the proposed substitution is accepted. Include documentation for both materials and labor.)
5. **Schedule** (Describe substitution's affect on construction schedule)
6. **Supporting Data**
 - **Cutsheets: Attach complete technical data, including laboratory tests, if applicable.**
 - **Installation: Include complete information on changes to Drawings and/or Specifications describing the steps that the proposed substitution will require for its proper installation.**
 - **Samples: Submit with request all necessary samples and substantiating data clearly marked to prove equal quality and performance to that which is specified.**
7. **List ways in which the substitution affects dimensions shown on Drawings.**
8. **List affects of proposed substitution on other trades**
9. **List ways in which proposed substitution will be affected by applicable code requirements and agency approval**
10. **List differences between proposed substitution and specified item**
11. **Manufacturer's warranties of the proposed and specified items are:** Same Different
Explain
12. **List information on availability of maintenance service and source of replacement materials**
13. **Certification of, and Assumption of Liability for, Equivalent Performance**

The undersigned certifies that the function, appearance and quality of the proposed substitution is equivalent or superior to the specified item and is in full compliance with the Contract Documents and applicable regulatory requirements.

| | | | |
|----------------------|-------|------------------|-------|
| Supplier | _____ | Signature | _____ |
| Telephone No. | _____ | Date | _____ |

Signature must be by person authorized to legally bind his/her firm to the above terms. Failure to provide legally binding signature will result in retraction of approval.

| | | | |
|---------------------------|-------|------------------|-------|
| General Contractor | _____ | Signature | _____ |
| Telephone No. | _____ | Date | _____ |

SECTION 01 73 00 – EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes general procedural requirements governing execution of the Work.

1.2 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.3 QUALITY ASSURANCE

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 - 1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
 - 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
 - 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
 - a. Water, moisture, or vapor barriers.
 - b. Membranes and flashings.
 - c. Sprayed fire-resistive material.
 - d. Equipment supports.
 - e. Piping, ductwork, vessels, and equipment.
 - f. Noise- and vibration-control elements and systems.
 - 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner

that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

- B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
 - 1. Before construction, verify the location and points of connection of utility services.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance.
 - 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

3.3 CONSTRUCTION LAYOUT

- A. General: The Work to be performed under the Contract Documents shall be laid out solely by the Contractor. Provide and pay for all construction layout work required for the Project. Under no circumstances will the Architect assume any responsibilities for laying out the Work.
 - 1. Verify all dimensions shown on the Drawings. Do not scale Drawings to obtain required dimensions. Notify the Architect in writing of any discrepancies found before proceeding or continuing with the Work.
- B. Construction Layout: During the progress of the Work establish additional bench marks, reference lines and reference points and levels at each floor and as otherwise necessary for the guidance and information of each trade and for the field verification of specified construction tolerances. Calculate and measure required dimensions within indicated or recognized tolerances.

3.4 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
- F. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- G. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.5 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 01 33 00 "Summary."
- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.
- G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.

4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 5. Proceed with patching after construction operations requiring cutting are complete.
- H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.6 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 1. Remove liquid spills promptly.

2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

3.7 STARTING AND ADJUSTING

- A. Start and test equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.8 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 01 73 00

SECTION 01 73 29 – CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes procedural requirements for cutting and patching, and selective demolition.

1.2 DEFINITIONS

- A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.
- C. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- D. Remove and Salvage: Detach items from existing construction and deliver them to Owner ready for reuse.
- E. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- F. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.3 SUBMITTALS

- A. Activity Schedule: Indicate the following:
 - 1. Detailed sequence of alteration and removal work, with starting and ending dates for each activity. Ensure Owner's, Landlord's or Property Manager's, and other tenants' on-site operations are uninterrupted.
 - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
 - 3. Coordination for shutoff, capping, and continuation of utility services.
 - 4. Use of elevator and stairs.
 - 5. Locations of proposed dust- and noise-control temporary partitions and means of egress, including for other tenants affected by selective demolition operations.
 - 6. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
 - 7. Means of protection for items to remain and items in paths of ingress and egress, for the removal of waste from building.

1.4 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
- C. Visual Requirements: Do not alter, cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not alter, cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the aesthetic qualities of the site. Remove and replace construction that has been altered, cut and patched in a visually unsatisfactory manner.

1.5 PROJECT CONDITIONS

- A. Owner will occupy portions of the site immediately adjacent to area where cutting, demolition and patching work is to be prosecuted. Conduct cutting, demolition, and patching work so Owner's operations will not be disrupted.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Patching Materials: Use patching materials identical to existing materials and which visually match existing adjacent surfaces.

PART 3 - EXECUTION

3.1 PREPARATION

- A. General: Comply with the Landlord's or Property Manager's Lease requirements, tenant work letter, and the building rules and requirements for using and protecting elevators, stairs, walkways, loading docks, building entries, and other building facilities during cutting and patching operations.
- B. Temporary Partitions: Erect dustproof partitions to limit spread of dust and dirt during cutting and demolition work. Mop hard surfaced floors, and vacuum carpeted areas, to eliminate tracked dust, cutting, and demolition debris. Dust off ceiling and wall surfaces indicated to remain in areas where cutting and demolition operations have occurred.
- C. Cover and protect fixtures, furnishings, and equipment that are not to be removed in areas where cutting and demolition operations are to be prosecuted.

- D. Do not close or obstruct walkways, passageways, or stairways. Do not store or place materials in passageways, stairs, or other means of egress. Conduct cutting and demolition operations with minimum traffic interference.
- E. Provide adequate fire protection in accordance with local fire department requirements.
- F. Existing Utilities and Services: Before starting work relating to existing utilities and services (electrical, plumbing, HVAC, gas, fire protection, telephone, etc.) that will temporarily discontinue or disrupt service to the existing building, or Owner occupied spaces, notify the Architect, Owner, and Landlord or Property Manager.
 - 1. Provide at least 72 hours' notice to Architect, Owner, and Landlord or Property Manager, and obtain the Owner's and Landlord's or Property Manager's approval in writing before proceeding with this aspect of the Work.
- G. Drilling and Cutting: Before starting work relating to drilling and the cutting of structural members, notify the Architect, Owner, and Landlord or Property Manager. Prior to drilling and cutting of existing structural concrete members locate reinforcing using non-destructive methods, notify the Architect, Owner, and the Landlord or Property Manager where drilling and cutting operations will sever or cut into a portion of the existing reinforcing.
 - 1. Provide at least 72 hours' notice to Architect, Owner, and Landlord or Property Manager, and obtain the Owner's and Landlord's or Property Manager's approval in writing before proceeding with this aspect of the Work.

3.2 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching and demolition work. Proceed with cutting and patching and demolition work at the earliest feasible time, and complete without delay.
 - 1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
 - 2. Remove all debris as the cutting and demolition work progresses in a manner that will prevent spillage or damage to adjacent surfaces, areas in the building, and to the Owner occupied portions of the existing tenant space. Do not allow debris to accumulate on-site. Transport debris off Owner's property and legally dispose of it.
 - 3. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, removed materials shall become Contractor's property and shall be removed from Project site.
- B. Cutting and Demolition Work: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, using methods least likely to damage elements retained or adjoining construction.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces.

2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Cut off projecting anchorage and attachment items as required to properly provide for patching and repair of the respective finishes.
 4. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 5. Mechanical and Electrical Services and Utilities: Cut off ducts, pipe or conduit in walls or partitions to be removed. Cap, or plug and seal remaining portion of ducts, pipe or conduit to provide a watertight closure after cutting.
 6. Removed and Salvaged Items: Remove and transport items to storage area designated by Owner unless otherwise indicated on the Drawings.
 7. Removed and Reinstalled Items: Clean and repair items to functional condition adequate for intended reuse. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
 8. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
1. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 2. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance
 - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 3. Ceilings: Patch, and repair, existing ceilings as necessary to provide an even-plane surface of uniform appearance.
- D. Workmanship: If a wall, or ceiling that has been patched is to be painted, the final 2 coats of paint shall be applied to the entire wall, corner to corner, or the entire ceiling wall to wall.

END OF SECTION 01 73 29

SECTION 01 77 00 – CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout.

1.2 ACTION SUBMITTALS

- A. Product Data: For cleaning agents.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.3 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Operation and maintenance manual(s).
- D. Project record documents:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record product data.
 - 4. Miscellaneous record submittals.

1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.5 SUBSTANTIAL COMPLETION

- A. Submittals Prior to Substantial Completion: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete at time of request.
 - 1. Prepare a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list, and reasons why the Work is not complete.

2. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 3. Certificates of Release: Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 4. Prepare and submit Project Record Documents, operation and maintenance manuals, and similar final record information.
 5. Submit test/adjust/balance records.
 6. Submit maintenance material submittals specified in individual Divisions 02 through 33 Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number where applicable.
 - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect's signature for receipt of submittal.
 7. Submit sustainable design submittals required in Division 01 section "Sustainable Design Requirements" and in individual Division 02 through 33 Sections.
 8. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- B. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Advise Owner of pending insurance changeover requirements.
 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 3. Complete startup and testing of systems and equipment.
 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
 6. Advise Owner of changeover in heat and other utilities.
 7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
 8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 9. Complete final cleaning requirements, including touchup painting.
 10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- C. Inspection: Submit a written request for inspection for Substantial Completion a minimum of 10. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.6 FINAL COMPLETION

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining date of Final Completion, complete the following:
1. Submit a final Application for Payment.
 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.7 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize list of spaces in sequential order, proceeding from lowest floor to highest floor.
 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Page number.

1.8 PROJECT RECORD DOCUMENTS

- A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.
- B. Record Drawings: Maintain and submit one set of blue- or black-line white prints of Contract Drawings and Shop Drawings.
 - 1. Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up record prints.
 - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later, and the locations of those items that need to be located for servicing.
 - b. Accurately record information in a readily understandable drawing technique.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 - d. Mark record prints completely and accurately.
 - e. Mark important additional information that was either shown schematically or omitted from original Drawings.
 - f. Note Change Order numbers, alternate numbers, and similar identification where applicable.
- C. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications. Clearly mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - 3. Note related Change Orders, Record Drawings, and Product Data, where applicable.
- D. Record Product Data: Submit one copy of each Product Data submittal. Mark one set to indicate the actual product installation where installation varies substantially from that indicated in Product Data.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 - 3. Note related Change Orders, Record Drawings, where applicable.
- E. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections such as tests and inspections, and inspections by authorities having jurisdiction. Bind or file miscellaneous records and identify each, ready for continued use and reference.

1.9 OPERATION AND MAINTENANCE MANUALS

- A. Assemble a complete set of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:

1. Operation Data:

- a. Emergency instructions and procedures.
- b. System, subsystem, and equipment descriptions, including operating standards.
- c. Operating procedures, including startup, shutdown, seasonal, and weekend operations.
- d. Description of controls and sequence of operations.
- e. Piping diagrams.
- f. Noise and vibration adjustments.
- g. Effective energy utilization.

2. Maintenance Data:

- a. Manufacturer's information, including list of spare parts.
- b. Name, address, and telephone number of Installer or supplier.
- c. Maintenance procedures.
- d. Maintenance and service schedules for preventive and routine maintenance.
- e. Maintenance record forms.
- f. Sources of spare parts and maintenance materials.
- g. Copies of maintenance service agreements.
- h. Copies of warranties and bonds.
- i. Cleaning.
- j. Control sequence.
- k. Fuels, lubricants, tool, and other related items.
- l. Identification systems.

- B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents.

1.10 WARRANTIES

- A. Submittal Time: Submit written warranties for designated portions of the Work.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period.
- C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual and bind in loose-leaf binder. Provide additional copies of each warranty in operation and maintenance manuals.

PART 2 - PRODUCTS (Not Used)

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

2.2 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.

PART 3 - EXECUTION

3.1 DEMONSTRATION AND TRAINING

- A. Instruction: Instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Provide instructors experienced in operation and maintenance procedures.
 - 2. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
 - 3. Schedule training with Owner, through Architect, with at least seven days' advance notice.
 - 4. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.
- B. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections. For each training module, develop a learning objective and teaching outline. Include instruction for the following:
 - 1. System design and operational philosophy.
 - 2. Review of documentation.
 - 3. Operations.
 - 4. Adjustments.
 - 5. Troubleshooting.
 - 6. Maintenance.
 - 7. Repair.

3.2 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - b. Clean exposed hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Restore reflective surfaces to their original condition.
 - c. Remove debris and surface dust from limited access spaces, including plenums, shafts, and similar spaces.
 - d. Sweep concrete floors broom clean in unoccupied spaces.
 - e. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 - f. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - g. Remove labels that are not meant to be permanent.
 - h. Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - i. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - j. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - k. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
 - l. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
 - m. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

3.3 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
 - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
 3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
 4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 01 77 00

Certificate of Substantial Completion

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| Project | Project Number |
| Project Location | Date Issued |
| Owner / Client | File 6SC |
| Contractor | This is page 1 of |
| Contract Date | |
| Date of Substantial Completion | |
| Date of Substantial Completion is applicable to <input type="checkbox"/> Entire Project <input type="checkbox"/> Designated Portion of Project, as described below | |
| Punch List <input type="checkbox"/> Attached <input type="checkbox"/> Transmitted Separately <input type="checkbox"/> None | |

The Work performed under the Contract for Construction has been reviewed and found, to Architect's best knowledge, information and belief, to be substantially complete as of the Date of Substantial Completion entered above. The Date of Substantial Completion is the date when the Work, or designated portion thereof, is sufficiently complete in accordance with the Contract Documents (including any approved change Orders) and all required final inspections and permits have been obtained so Owner can occupy or utilize the Work for its intended use, subject only to completion of minor items (Punch List).

The Work, or designated portion thereof shall include:

A list of items to be completed or corrected and the date(s) when such items are to be completed (Punch List) may be attached hereto or transmitted separately. This Certificate of Substantial Completion, or omission of any item from the Punch List shall not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. The Architect shall not be responsible for any omission from, or other discrepancy on, the Punch List. Contractor agrees to complete or correct the items listed on the Punch List within _____ days of the above date of Substantial Completion.

Warranties required under the Contract Documents shall commence on the Date of Substantial Completion, except for Punch List items and other incomplete work, warranties for which shall commence on the date such work is satisfactorily completed, unless otherwise agreed in writing by Owner and Contractor.

The Owner and Contractor shall fulfill and transfer responsibilities with regard to insurance, utilities, maintenance, damage, security, surety, and the like, in accordance with the Contract Documents or other written agreement between them.

The Architect has conducted no tests for, and made no determination of the presence or lack of asbestos or other hazardous or toxic substances or pollutants.

The Basic Services of the Architect shall end 30 days after the Date of Substantial Completion, unless otherwise stated in the Owner/Architect Agreement or agreed in writing.

Begin text here . . .

| | | |
|-----------------------------|-----------|--------------------|
| Architect Gensler | By | Date Signed |
| Owner/Client | By | Date Signed |
| Contractor | By | Date Signed |

SECTION 02 41 19 – SELECTIVE STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of a building or structure.
2. Demolition and removal of selected site elements.
3. Repair procedures for selective demolition operations.
4. Salvage of existing items to be reused or recycled.

B. Related Sections:

1. Division 01 Section "Summary" for use of the premises and Owner occupancy requirements.
2. Division 01 Section "Work Restrictions" for restrictions on use of the premises due to Owner or tenant occupancy.
3. Division 01 Section "Construction Progress Documentation" for preconstruction photographs taken before selective demolition.
4. Division 01 Section "Temporary Facilities and Controls" for temporary construction and environmental-protection measures for selective demolition operations.
5. Division 01 Section "Cutting and Patching" for cutting and patching procedures for selective demolition operations.

1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Owner ready for reuse.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.3 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site.

1.4 INFORMATIONAL SUBMITTALS

- A. Proposed Dust-Control and Noise-Control Measures: Submit statement or drawing that indicates the measures proposed for use, proposed locations, and proposed time frame for their operation. Identify options if proposed measures are later determined to be inadequate.
- B. Schedule of Selective Demolition Activities: Indicate the following:
 - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's building manager's and other tenants' on-site operations are uninterrupted.
 - 2. Interruption of utility services and duration of interruption.
 - 3. Coordination for shutoff, capping, and continuation of utility services.
 - 4. Use of elevator and stairs.
 - 5. Locations of temporary partitions and means of egress, including for other tenants affected by selective demolition operations.
 - 6. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
 - 7. Means of protection for items to remain and items in path of waste removal from building.

1.5 CLOSEOUT SUBMITTALS

- A. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged.
- B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.6 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- B. Professional Engineer Qualifications: Comply with Division 01 Section "Quality Requirements."
- C. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. Standards: Comply with ANSI A10.6 and NFPA 241.
- E. Predemolition Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

1.7 PROJECT CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.
 - 1. Comply with requirements specified in Division 01 Section "Summary."
- B. Owner assumes no responsibility for condition of areas to be selectively demolished.
 - 1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
 - 1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- D. Storage or sale of removed items or materials on-site will not be permitted.
- E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Maintain fire-protection facilities in service during selective demolition operations.

1.8 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 REPAIR MATERIALS

- A. Use repair materials identical to existing materials.
 - 1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
 - 2. Use materials whose installed performance equals or surpasses that of existing materials.
- B. Comply with material and installation requirements specified in individual Specification Sections.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- E. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.
- F. Survey of Existing Conditions: Record existing conditions by use of measured drawings and preconstruction photographs.
 - 1. Comply with requirements specified in Division 01 Section "Photographic Documentation."
 - 2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.
- G. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems: Maintain services indicated to remain and protect them against damage during selective demolition operations.
 - 1. Comply with requirements for existing services/systems interruptions specified in Division 01 Section "Summary."
- B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
 - 1. Building Manager will arrange to shut off indicated services/systems when requested by Contractor.
 - 2. Arrange to shut off indicated utilities with utility companies.
 - 3. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass

area of selective demolition and that maintain continuity of services/systems to other parts of building.

4. Do not interrupt existing utilities serving occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to authorities having jurisdiction.
 - a. Provide at least 72 hours' notice to Owner if shutdown of service is required during changeover.
 5. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.
 - a. Where entire wall is to be removed, existing services/systems may be removed with removal of the wall.
- C. Utility Requirements: Refer to Divisions 22 and 26 Sections for shutting off, disconnecting, removing, and sealing or capping utilities. Do not start selective demolition work until utility disconnecting and sealing have been completed and verified in writing.

3.3 PREPARATION

- A. Dangerous Materials: Drain, purge, or otherwise remove, collect, and dispose of chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with selective demolition operations.
1. Pest Control: Employ a certified, licensed exterminator to treat building and to control rodents and vermin before and during selective demolition operations.
- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
 2. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
 3. Protect existing site improvements, appurtenances, and landscaping to remain.
 4. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
- C. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.

2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
 5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Division 01 Section "Temporary Facilities and Controls."
- D. Temporary Enclosures: Provide temporary enclosures for protection of existing building and construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
1. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
- E. Temporary Partitions: Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise.
- F. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, and structural supports to preserve stability and prevent movement, settlement, or collapse of construction indicated to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
1. Strengthen or add new supports when required during progress of selective demolition.
- 3.4 POLLUTION CONTROLS
- A. Dust Control: Use water mist, temporary enclosures, and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations.
1. Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.
 2. Wet mop floors to eliminate trackable dirt and wipe down walls and doors of demolition enclosure. Vacuum carpeted areas.
- B. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
1. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

3.5 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
 5. Maintain adequate ventilation when using cutting torches.
 6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 9. Dispose of demolished items and materials promptly.
 10. Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.
- B. Existing Facilities: Comply with building manager's requirements for using and protecting elevators, stairs, walkways, loading docks, building entries, and other building facilities during selective demolition operations.
- C. Removed and Salvaged Items: Comply with the following:
1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until delivery to Owner.
 4. Transport items to Owner's storage area designated by Owner.
 5. Protect items from damage during transport and storage.
- D. Removed and Reinstalled Items: Comply with the following:
1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
 3. Protect items from damage during transport and storage.

4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.6 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Concrete: Demolish in small sections. Cut concrete to a depth of at least **3/4 inch (19 mm)** at junctures with construction to remain, using power-driven saw. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete indicated for selective demolition. Neatly trim openings to dimensions indicated.
- B. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.
- C. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.
- D. Air-Conditioning Equipment: Remove equipment without releasing refrigerants.

3.7 PATCHING AND REPAIRS

- A. General: Promptly repair damage to adjacent construction caused by selective demolition operations.
- B. Patching: Comply with Division 01 Section "Cutting and Patching."
- C. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
 1. Completely fill holes and depressions in existing masonry walls that are to remain with an approved masonry patching material applied according to manufacturer's written recommendations.
- D. Finishes: Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.
- E. Floors and Walls: Where walls or partitions that are demolished extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

1. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
 2. Where patching occurs in a painted surface, apply primer and intermediate paint coats over patch and apply final paint coat over entire unbroken surface containing patch. Provide additional coats until patch blends with adjacent surfaces.
 3. Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
- F. Ceilings: Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

3.8 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
1. Do not allow demolished materials to accumulate on-site.
 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
 4. Comply with requirements specified in Division 01 Section "Construction Waste Management and Disposal."
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.9 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

3.10 SELECTIVE DEMOLITION SCHEDULE

- A. Existing Items Construction to Be Removed: Entry door, transom sidelite.
- B. Existing Items to Be Removed and Salvaged: As indicated.
- C. Existing Items to Be Removed and Reinstalled: As indicated.
- D. Existing Items to Remain: As indicated.

END OF SECTION 02 41 19

SECTION 03 35 19 – COLORED CONCRETE FINISHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Requirements including but not limited to:

1. Staining exterior concrete.
2. Accessories necessary for a complete installation.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data, preparation and application instructions, and recommendations. Include data substantiating that products to be furnished comply with requirements of the contract documents.
- B. Samples: Prepare 24" x 24" reference sample of each type color textured concrete surface for approval. Indicate anticipated variation in color.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer of stain and sealer products having minimum 10 years experience in the production of the concrete floor stain.
- B. Installer Qualifications: Experienced application having minimum 5 years documented experience in staining applications and successfully completed not less than 5 projects comparable in scale and complexity.
- C. Single Source Responsibility: Obtain concrete stain from a single manufacturer.
- D. Construction Waste Management: Take measurements and consider conditions to determine amount of stain required. To the extent possible, avoid leftover stain for disposal.
- E. Mock Up:
1. At location selected by Architect, prepare mockup 4 by 4 feet (1.2 by 1.2 m) for review and approval.
 2. Construct mockup using processes and techniques intended for use on permanent work, including curing procedures. Include samples of control, construction, and expansion joints in mockup panels.
 3. Mockup shall be stained and sealed by the individual workers who will be performing the work for the Project.
 4. Obtain written approval of mockup from Architect before start of work.

5. Retain approved mockup through completion of the Work for use as a quality standard for finished work.
6. Approved mockup may become part of the completed Work if undisturbed at time of Substantial Completion.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers with seals unbroken and bearing manufacturer's labels.
- B. Store materials in clean, dry location protected from exposure to direct sunlight. In storage areas, maintain environmental conditions within range recommended in writing by manufacturer.

1.5 PROJECT CONDITIONS

- A. Environmental Requirements: Do not proceed with installation until temperature and relative humidity are stabilized and will be maintained within values established by the manufacturer for optimum quality control.
- B. Protection: Take precautions to avoid damage or contamination of surfaces near the work area. Protect completed stain work from dirt, stains, moisture, or contamination.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Chemical Stains: Reactive water based solution of metallic salts reacting with calcium hydroxide in cured concrete substrate to produce permanent, variegated or translucent color effects.
 1. Basis of Design: LM Scofield, Lithochrome Chemstain Classic.
 2. Color: As indicated on the Finish Schedule.
- B. Sealer: Compatible with chemical stain; clear aliphatic polyurethane specifically formulated for protecting chemically stained concrete floors.
 1. Basis of Design: LM Scofield, As recommended by manufacturer for outdoors application.
 2. Sheen: As indicated on the Finish Schedule.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Inspect substrates and conditions under which the work will be performed to verify installation properly may commence. Do not proceed with the work until unsatisfactory conditions have been resolved fully.

3.2 PREPARATION

- A. Existing Concrete: Clean concrete surfaces so surfaces are completely penetrable before receiving the initial application of chemical stain.
 - 1. Test surfaces to receive stain by spotting with water. Water should immediately darken the substrate and be readily absorbed. If water beads and does not penetrate or only penetrates in some areas, additional surface preparation and testing shall be performed. On denser floors, acid wash with a solution of one part muriatic acid (20° Baume or 31.4 percent pool acid) to 20 parts water, or sand lightly to open up surfaces. Retest and continue surface preparation until water spots immediately darken and uniformly penetrate concrete surfaces.
 - 2. Cleaning method used depends on the condition of the concrete surface. To remove dirt and contaminants, consider and test detergents and commercial grade cleaners.
 - 3. Rinse concrete substrates until rinse water is completely clean.
- B. Mask off or otherwise protect adjacent surfaces not scheduled to receive stain or sealer.

3.3 APPLICATION

- A. Chemical Stain: Comply with manufacturer's instructions, except where more stringent requirements are shown or specified, and except where project conditions require extra precautions or provisions to ensure satisfactory performance of the work.
 - 1. Verify concrete surfaces are dry and properly prepared. Protect surrounding areas from overspray, run off and tracking. Divide surfaces into small work sections using wall, joint lines, or stationary breaks as natural stopping points.
 - 2. Apply chemical stains full strength (undiluted) at the coverage rate recommended by manufacturer and use application equipment described in the manufacturer's printed technical literature. The color of the liquid chemical stain has no resemblance to the final color produced on the concrete substrate.
 - 3. Chemical stains normally fizz when reacting with the concrete. If fizzing does not occur, the substrate has not been adequately prepared or the concrete pH level is too low. If this should happen, contact the local representative for further recommendations.
 - 4. Transfer chemical stain to the substrate by brush or spray and immediate scrub into surface.
 - 5. Reaction time depends on wind conditions, temperatures, and humidity levels.
 - 6. When multiple coats of one or more colors are required, washing and drying between colors is desirable to evaluate the color prior to the next coat.

7. After the final coat of chemical stain has remained on the surface for a minimum of four hours, remove residue by wet scrubbing with commercial grade detergent. Rinse surfaces after scrubbing until rinse water is completely clean. Run off may stain the adjacent areas or harm plants. Collect rinse water by wet vacuuming or absorbing with an inert material.

B. Sealer: Verify concrete substrate is completely dry.

1. Test surface for proper pH level prior to applying sealer.
2. Apply sealer according to manufacturer's written instructions at a rate of 300 to 500 square feet per gallon per coat.
3. Maintain a wet edge at all times.
4. Allow sealer to completely dry before applying additional coats.
5. Apply second coat of sealer at 90 degrees to the direction of the first coat using the same application method and rates.
6. Seal horizontal joints in areas subject to pedestrian or vehicular traffic.

3.4 MAINTENANCE

- A. Maintain chemically stained and sealed floors by sweeping. Clean spills immediately upon occurrence and rinse dirt off with water. Wet clean heavily soiled areas by mopping or by scrubbing with a rotary floor machine equipped with a scrubbing brush and a suitable, high quality commercial detergent.

3.5 PROTECTION

- A. Institute protective procedures and install protective materials as required ensuring work will be without damage or deterioration at Substantial Completion.

END OF SECTION 03 35 19

SECTION 03 54 16 – HYDRAULIC CEMENT UNDERLAYMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes cement-based, polymer-modified, self-leveling underlayment for interior finish flooring.

1.2 ACTION SUBMITTALS

- A. Product Data: Submit product data for each product indicated.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer (applicator) who is acceptable to manufacturer, who has completed cement-based underlayment applications similar in material and extent to that required for this Project, and whose work has resulted in construction with a record of successful in-service performance.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage, mixing with other components, and application.
- B. Store materials to comply with manufacturer's written instructions to prevent deterioration from moisture or other detrimental effects.

1.5 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with manufacturer's written recommendations for substrate temperature and moisture content, ambient temperature and humidity, ventilation, and other conditions affecting underlayment performance.
- B. Close areas to traffic during underlayment application and for time period after application recommended in writing by manufacturer.

1.6 COORDINATION

- A. Coordinate cement-based underlayment with requirements of finish flooring products, including adhesives, specified in Division 09 Sections.

1. Before installing surface sealers, if recommended by underlayment manufacturer, verify compatibility with finish flooring installation adhesives.

PART 2 - PRODUCTS

2.1 CEMENT-BASED UNDERLAYMENT

- A. Underlayment: Portland cement-based, polymer-modified, products that can be applied in thicknesses required for conditions indicated and that can be feathered at edges to match adjacent floor elevations.
 1. Cement Binder: ASTM C 150, Portland cement, or hydraulic or blended hydraulic cement as defined by ASTM C 219.
 2. Compressive Strength:
 - a. Self-Leveling Grade: Not less than 4000 psi at 28 days when tested according to ASTM C 109/C 109M.
 - b. Trowel Grade: Not less than 4000 psi at 28 days when tested according to ASTM C 109/C 109M.
- B. Manufacturers and Products:
 1. Ardex, Inc.:
 - a. Self-Leveling: K-15 Self-Leveling Underlayment Concrete.
 - b. Trowel Grade: SD-F Feather Finish or SD-P Instant Patch.
 2. Parachem:
 - a. Self-Leveling: Parabond PFU.
 - b. Trowel Grade: Parabond Microfinish.
- C. Water: Potable and at a temperature of not more than 70 deg F.
- D. Primers: Product of the underlayment manufacturer recommended in writing for substrate, thickness, and conditions indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for conditions affecting performance of underlayment including substrate moisture content. Begin underlayment application only after unsatisfactory conditions have been corrected.

3.2 APPLICATION

- A. Prepare and clean substrates indicated to receive underlayment according to manufacturer's written instructions. Provide clean, dry, neutral-pH substrate for underlayment application.
- B. Treat non-moving substrate cracks with a crack filler or elastomeric compound in accordance with the manufacturer's written instructions.
- C. Concrete Substrates: Mechanically remove laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, existing flooring adhesive residues, existing paint droppings, and other contaminants that might impair underlayment bond according to the underlayment manufacturer's written instructions.
- D. Adhesion Tests: After substrate preparation, test substrate for adhesion with underlayment according to manufacturer's written instructions.

3.3 APPLICATION

- A. General: Mix and apply underlayment components according to manufacturer's written instructions. Coordinate application of components, including primer, to provide optimum underlayment-to-substrate and intercoat adhesion.
- B. Apply primer over prepared substrate at manufacturer's recommended spreading rate.
- C. Apply underlayment to produce uniform, surface that is completely level at areas indicated to receive self-leveling type underlayment.
 - 1. Apply without aggregate to produce smooth surface.
 - 2. Feather edges as required for smooth transitions to adjacent floor elevations.
- D. Cure underlayment according to manufacturer's written instructions. Prevent contamination during application and curing processes.
- E. Do not install finish flooring over underlayment until after time period recommended by underlayment manufacturer.
- F. Remove and replace underlayment areas that evidence lack of bond with substrate, including areas that emit a "hollow" sound when tapped.

3.4 PROTECTION

- A. Protect underlayment from concentrated and rolling loads for remainder of construction period.

END OF SECTION 03 54 16

SECTION 05 40 00 – COLD-FORMED METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes cold-formed metal framing.
- B. The Owner will engage an independent testing and inspection agency to verify the adequacy of the Contractor's quality control; refer to Division 01 Section Quality Control. Before concealing the cold-formed metal framing work obtain the required inspections of same from a representative of the Owner's independent testing and inspection agency.

1.2 ACTION SUBMITTALS

- A. Product Data: Submit product data for each type of cold-formed metal framing product and accessory indicated.
- B. Shop Drawings: Submit shop drawings of cold formed metal framing work. Show layout, spacings, sizes, thicknesses, and types of cold-formed metal framing; fabrication; and fastening and anchorage details. Show reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining Work. Plans and elevations shall be submitted at not less than 1/8" = 1'-0" scale, details of sections and connections shall be shown at not less than 1-1/2" = 1'-0" scale.
 - 1. Shop drawings shall be fully coordinated, and submitted simultaneously with shop drawing submittals required under Division 04 Sections pertaining to masonry, and Division 08 Sections pertaining to storefront.

1.3 INFORMATIONAL SUBMITTALS

- A. Structural Calculations: Submit, for information only, copies of structural calculations indicating complete compliance with the specified performance requirements. Calculations shall be prepared, signed and sealed by a Professional Engineer registered in the state wherein the work is to be erected.
- B. Mill Certificates: Submit mill certificates signed by steel sheet producer or test reports from a qualified independent testing agency indicating steel sheet complies with requirements.
- C. Welding Certificates: Copies of certificates for welding procedures and personnel.
- D. Product Test Reports: Submit product test reports from a qualified testing agency indicating that each of the following complies with requirements, based on comprehensive testing of current products:

1. Expansion anchors.
2. Mechanical fasteners.
3. Vertical deflection clips.

- E. Research/Evaluation Reports: Evidence of cold-formed metal framing's compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer who has completed cold-formed metal framing on a minimum of 3 projects similar in material, design, and extent to that indicated for this Project in the last 10 years that have a record of successful in-service performance.
- B. Mill certificates signed by steel sheet producer indicating steel sheet complies with requirements, including uncoated steel thickness, yield strength, tensile strength, total elongation, chemical requirements, ductility, and galvanized-coating thickness.
- C. Standards: Comply with the applicable provisions and recommendations of the following standards below, where standards conflict the more stringent shall apply:
1. AISI Specifications: Comply with AISI's "Specification for the Design of Cold-Formed Steel Structural Members" and the following for calculating structural characteristics of cold-formed metal framing:
 - a. CCFSS Technical Bulletin: "AISI Specification Provisions for Screw Connections."
 2. Welding: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code--Steel," and AWS D1.3, "Structural Welding Code--Sheet Steel."
- D. Fire-Test-Response Characteristics: Where metal framing is part of a fire-resistance-rated assembly, provide framing identical to that of assemblies tested for fire resistance per ASTM E 119 by a testing agency acceptable to authorities having jurisdiction.
1. Fire-Resistance Ratings: Indicated by GA File Numbers in GA-600, "Fire Resistance Design Manual," or by design designations from UL's "Fire Resistance Directory" or from the listings of another testing agency.
- E. Pre-Installation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Prior to the start of the cold-formed metal framing work, and at the Contractor's direction, meet at the site and review the installation procedures and coordination with other work. Meeting shall include Contractor, Owner, Owners Testing and Inspection Agency, mason, window installer, flashing installer, sealant installer, as well as any other subcontractors or material technical service representatives whose work, or products, must be coordinated with the cold formed metal framing work.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect cold-formed metal framing from moisture, soiling, corrosion, deformation (bending, denting, and twisting), and other damage during delivery, storage, and handling. Store cold-formed metal framing, protect with a waterproof covering, and ventilate to avoid condensation.
- B. Deliver gypsum sheathing materials in original packages, containers, or bundles, bearing brand name and identification of manufacturer or supplier. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, construction traffic, and other causes. Neatly stack gypsum sheathing flat to prevent sagging. Handle gypsum sheathing to prevent damage to edges, ends, and surfaces.

1.6 ENVIRONMENTAL CONDITIONS

- A. The environmental conditions required for the installation of gypsum sheathing materials shall be in strict accordance with the written recommendations of the gypsum sheathing manufacturer.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General: Provide cold-formed metal framing meeting or exceeding the following performance requirements:
 - 1. Structural Properties:
 - a. Wind Loads: The cold-formed metal framing work, including veneer, shall be designed, fabricated and installed to withstand the maximum inward and outward wind pressures as required by ASCE 7.
 - b. Deflection Limitations:
 - 1) Deflections: Base calculations for the following deflections upon the combination of maximum direct wind loads, building deflections, thermal stresses, and erection tolerances.
 - a) The deflection of any framing member in a direction normal to the plane of the wall when subjected to the full code required wind loads specified above shall not exceed 1/720 of its clear span.
 - c. Dead Loads:
 - 1) Limit deflections of metal members spanning door openings to 1/300. The clearance between the member and an operable door shall be no less than 1/16 inch (1.5 mm).

- B. Thermal Movements: Fabricate the cold formed metal framing work to accommodate for such expansion and contraction of component materials, and supporting elements, as will be caused by surface temperatures ranging from -5 to +180 deg F (-20.5 to +82 deg C), without causing buckling, failure of joint sealants, sheathing failures, undue stress on metal members and fasteners, weld failures, failure of doors or other operating units to function properly, reduction of performance, and other detrimental effects.
 - 1. Dimensions shown on Drawings are based on an assumed design temperature of +70 deg F (+21 deg C). Fabrication and erection procedures shall take into account the ambient temperature range at the time of the respective operations.
- C. Building Frame Movement: Design, fabricate and install cold formed metal framing to withstand building movements including thermal movements, loading deflections, shrinkage, creep and similar movements. Thermal movements shall be as specified above. Building frame deflections, shrinkage, creep and other movements are available from the structural engineer.

2.2 MATERIALS

- A. Recycled Content of Steel Products: Provide products with an average recycled content of steel products so post-consumer recycled content plus one-half of pre-consumer recycled content is not less than 25 percent.
- B. Steel Sheet: ASTM A 653/A 653M, structural steel, zinc coated, of grade and coating as follows:
 - 1. Grade: 33 (230) unless higher grade is required to suit performance requirements.
 - 2. Coating: G90 (Z275).

2.3 NON-LOAD-BEARING CURTAIN-WALL FRAMING

- A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, complying with ASTM C 955, and as follows:
 - 1. Minimum Uncoated-Steel Thickness: Minimum 0.0538 inch (1.37 mm) unless greater thickness is required to suit performance criteria.
 - 2. Flange Width: 1-5/8 inches (41 mm).
- B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened (straight) flanges, complying with ASTM C 955, and as follows:
 - 1. Minimum Uncoated-Steel Thickness: Matching steel studs.
 - 2. Flange Width: 1-1/4 inches (32 mm).
- C. Single Deflection Track: Manufacturer's single, deep-leg, U-shaped steel track; unpunched, with unstiffened flanges, of web depth to contain studs while allowing free vertical movement, with flanges designed to support horizontal and lateral loads, and as follows:
 - 1. Minimum Uncoated-Steel Thickness: As required to suit performance requirements.

2. Flange Width: Size to accommodate deflection of primary structure. Primary structure deflections are available from the structural engineer.
3. Vertical Deflection Clips: Manufacturer's standard bypass or head clips, capable of accommodating upward and downward vertical displacement of primary structure. Primary structure deflections are available from the structural engineer.

2.4 FRAMING ACCESSORIES

- A. Fabricate steel-framing accessories of the same material and finish used for framing members, with a minimum yield strength of 33,000 psi (230 MPa).
- B. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:
 1. Supplementary framing.
 2. Bracing, bridging, and solid blocking.
 3. End clips.
 4. Stud kickers, knee braces, and girts.
 5. Hole reinforcing plates.
 6. Backer plates.

2.5 ANCHORS, CLIPS, AND FASTENERS

- A. Steel Shapes and Clips: ASTM A 36/A 36M, zinc coated by hot-dip process according to ASTM A 123.
- B. Expansion Anchors: Comply with FS FF-S-325 with group, type, class best suited for application indicated. Provide expansion anchors in diameter, and length as required to suit performance requirements. Fabricate from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 5 times design load, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.
- C. Mechanical Fasteners: Corrosion-resistant-coated, self-drilling, self-threading steel drill screws, low-profile hex washer head. Provide screw type and size as required to suit performance requirements and as required for specific condition and materials being joined.
- D. Welding Electrodes: Comply with AWS standards.

2.6 MISCELLANEOUS MATERIALS

- A. Galvanizing Repair Paint: High zinc dust content primer paint complying with SSPC-Paint 20, DOD-P-21035, or ASTM A 780.
- B. Thermal Insulation: ASTM C 665, Type I, unfaced mineral-fiber blankets produced by combining slag fibers with thermosetting resins.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine supporting substrates and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Provide the sizes, gage and spacing of cold-formed metal framing indicated and as required by the performance requirements. Install cold-formed metal framing according to ASTM C 1007, unless more stringent requirements are indicated.
- B. Install cold-formed metal framing and accessories plumb, square, and true to line, and with connections securely fastened, according to manufacturer's written recommendations and requirements in this Section.
 - 1. Cut framing members by sawing or shearing; do not torch cut.
 - 2. Fasten cold-formed metal framing members by screw fastening. Wire tying of framing members is not permitted. Locate screws according to the structural design calculations and install in accordance with the screw manufacturer's printed instructions, with screw penetrating joined members by not less than three exposed screw threads.
- C. Install framing members in one-piece lengths. Splices in framing members will not be permitted.
- D. Do not bridge building expansion and control joints with cold-formed metal framing. Independently frame both sides of joints.
- E. Fasten hole-reinforcing plate over web penetrations that exceed size of manufacturer's standard punched openings.
- F. Erection Tolerances: Install cold-formed metal framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and spaced so as to permit the proper attachment of cladding systems.

3.3 FIELD QUALITY CONTROL

- A. Field and shop welds will be subject to inspection and testing.
- B. Testing agency will report test results promptly and in writing to Contractor and Architect.
- C. Remove and replace Work that does not comply with specified requirements.
- D. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of corrected Work with specified requirements.

3.4 REPAIRS AND PROTECTION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed metal framing with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- B. Provide protection and maintain conditions, in a manner acceptable to manufacturer and installer, that ensure cold-formed metal framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION 05 40 00

SECTION 05 50 00 – METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes metal fabrications.

1.2 ACTION SUBMITTALS

- A. Shop Drawings: Submit shop drawings including plans, elevations, sections, details of installation, and attachments to other Work.
 - 1. For installed products indicated to comply with performance requirements, include structural analysis data, for information only, signed and sealed by the qualified professional engineer responsible for their preparation.
 - 2. Include plans and elevations at not less than 1" to 1'-0" scale, and include details of sections and connections at not less than 3" to 1'-0" scale.

1.3 QUALITY ASSURANCE

- A. Fabricator/Installer Qualifications: A firm experienced in producing metal fabrications similar to those indicated for this Project for a minimum of 5 years, with a record of successful in-service performance, with sufficient production capacity to produce required units without causing delay in the work.
- B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of metal fabrications that are similar to those indicated for this Project in material, design, and extent.
- C. Welding: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code--Steel."
- D. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

1.4 PROJECT CONDITIONS

- A. Field Measurements: Where metal fabrications are indicated to fit walls and other construction, verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

- B. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating metal fabrications without field measurements. Coordinate construction to ensure that actual dimensions correspond to established dimensions. Allow for trimming and fitting.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance:

1. Countertop and Vanity Framing: Provide countertop and vanity framing capable of withstanding the following structural loads without exceeding the allowable design working stress of the materials involved, including anchors and connections, or of exhibiting excessive deflections in any of the components making up the countertops and vanities:
 - a. All deadloads.
 - b. 500 pound live load placed on the countertop and vanity.
 - c. Deflection at Midspan: $L/1000$ times span or 1/8 inch (3 mm) whichever is less.
2. Tube Framing for Partial Height Walls: Provide tube framing for partial height walls capable of withstanding a deflection not to exceed $2L/1440$ of the wall height when subjected to a positive and negative pressure of 5 psf.

2.2 METALS

A. Metal Surfaces, General: For metal fabrications exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.

B. Ferrous Metals:

1. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
2. Steel Tubing: Cold-formed steel tubing complying with ASTM A 500, or hot formed steel tubing complying with ASTM A 501.
3. Steel Pipe: ASTM A 53, Type S – Seamless, Grade A suitable for close coiling or cold bending, standard weight (Schedule 40) minimum, unless otherwise indicated or required to satisfy performance requirements, black finish.
4. Slotted Channel Framing: Cold-formed metal channels 1-5/8 by 1-5/8 inches (41 by 41 mm) with flange edges returned toward web and with 9/16 inch (14.3 mm) wide slotted holes in webs at 2 inches (51 mm) o.c.
5. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

2.3 PAINT

- A. Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with performance requirements in FS TT-P-664 and compatible with finish paint systems indicated.

2.4 MISCELLANEOUS MATERIALS

- A. Fasteners: Zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, of type, grade, and class required by application indicated.
- B. Non-Shrink, Non-Metallic Grout: ASTM C 1107, factory-packaged, non-staining, non-corrosive, non-gaseous grout.

2.5 FABRICATION

- A. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation. Welded connections may be used where bolted connections are shown.
- B. Shear and punch metals cleanly and accurately. Remove burrs.
- C. Weld corners and seams continuously along entire line of contact. Use materials and methods that minimize distortion and develop strength of base metals. Obtain fusion without undercut or overlap. Remove welding flux immediately. Finish exposed welds smooth and blended.
- D. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous. Make up threaded connections tight so that threads are entirely concealed.
- E. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices and fasteners to secure metal fabrications rigidly in place and to support indicated loads.
- F. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- G. Miscellaneous Framing and Supports: Provide steel framing and supports indicated and as necessary to complete the Work and which are not a part of the structural framework, including but not limited to framing and supports for countertop and vanities, ceiling hung televisions and cameras, tube framing for partial height walls, mechanical and electrical equipment.
 - 1. Fabricate units from structural-steel shapes, plates, and bars of welded construction, unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as

necessary to receive adjacent construction retained by framing and supports. Cut, drill, and tap units to receive hardware, hangers, and similar items.

2. Countertop and Vanity Framing: Custom fabricate countertop and vanity framing, using steel shapes and plates, and cold finished mild steel bars at exposed conditions, for support framing and plywood, to the thicknesses, sizes and shapes shown, and as required to produce work of adequate strength and durability, without objectionable deflections. Use proven details of fabrication, as required, to achieve proper assembly and alignment of the various components of the work.

- H. Surface Applied Corner Guards: Provide corner guards fabricated from angles of sizes shown, or if not shown, of minimum 4-1/2 x 4-1/2 x 1/4 inch- (114.3 x 114.3 x 6 mm) thick equal leg angles. Drill and countersink legs of angles, for fastening to substrates indicated, with holes spaced 24 inch (610 mm) on center. Provide corner guard lengths of 42 inch (1068 mm) if not otherwise indicated.

2.6 FINISHES

- A. Finish metal fabrications after assembly. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Shop prime ferrous-metal items.
 1. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces by removing oil, grease, and similar contaminants in accordance with SSPC -SP 1 "Solvent Cleaning," followed with SSPC-SP 3, "Power Tool Cleaning."
 2. Apply a minimum of one coat of shop primer to uncoated surfaces of metal fabrications, except those to be field welded, and those to be embedded in sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1," for shop painting.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Provide anchorage devices and fasteners for securing metal fabrications to in-place construction. Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, with edges and surfaces level, plumb, and true. Drill holes for bolts to the exact diameter of the bolt. Provide screws threaded full length to the screw head.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations.
- C. Field Welding: Comply with the following requirements:
 1. Use materials and methods that minimize distortion and develop strength of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove welding flux immediately.

4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Touch up surfaces and finishes after erection. Clean field welds, bolted connections, and abraded areas and touch up paint with the same material as used for shop painting.

END OF SECTION 05 50 00

SECTION 05 52 13 - PIPE AND TUBE RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes pipe and tube handrails and railings.

1.2 ACTION SUBMITTALS

- A. Product Data: Submit product data for handrails and railings, grout, anchoring cement, and paint products.
- B. Shop Drawings: Submit shop drawings including plans, elevations, sections, details of installation, attachments to other Work.
 - 1. For installed handrails and railings indicated to comply with performance requirements, include structural analysis data, for information only, signed and sealed by the qualified professional engineer responsible for their preparation.
- C. Samples: Submit samples for each infill panel required.

1.3 INFORMATIONAL SUBMITTALS

- A. Welding Certificates: Copies of certificates for welding procedures and personnel.

1.4 QUALITY ASSURANCE

- A. Fabricator/Installer Qualifications: A firm experienced in producing handrails and railings similar to those indicated for this Project for a minimum of 5 years, with a record of successful in-service performance, with sufficient production capacity to produce required units without causing delay in the work.
 - 1. Employ only experienced tradesmen for both fabrication and installation, who are capable of producing work of the highest standards of quality in the industry.
- B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of handrails and railings that are similar to those indicated for this Project in material, design, and extent.
- C. Welding: Qualify procedures and personnel according to the following:
 - 1. AWS D1.1, "Structural Welding Code--Steel."

2. AWS D1.3, "Structural Welding Code--Sheet Steel."
3. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

1.5 STORAGE, DELIVERY AND HANDLING

- A. Store handrails and railings in a dry, well-ventilated, weathertight place. Deliver and handle so as to prevent any type of damage to the fabricated work.

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify handrail and railing dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating handrails and railings without field measurements. Coordinate construction to ensure that actual dimensions correspond to established dimensions.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance of Handrails and Railings:
 1. Capable of withstanding performance requirements required by ASCE 7 without exceeding allowable design working stresses of materials involved.
 2. Capable of withstanding the following performance requirements without exceeding the allowable design working stress of materials involved:
 - a. Top Rail of Guards: Concentrated load of 200 lbf (890 N) applied at any point and in any direction, and a uniform load of 50 lbf/ft. (730 N/m) applied horizontally and concurrently with uniform load of 100 lbf/ft. (1460 N/m) applied vertically downward. Concentrated and uniform loads need not be assumed to act concurrently.
 - b. Handrails Not Serving as Top Rails: Concentrated load of 200 lbf (890 N) applied at any point and in any direction, and a uniform load of 50 lbf/ft. (730 N/m) applied in any direction. Concentrated and uniform loads need not be assumed to act concurrently.
- B. Regulatory Requirements: Comply with the requirements of Part 1910 of the Occupational Safety and Health Standards (OSHA), the American Disabilities Act (ADA), and local regulatory requirements as applicable to stairs, handrails and the protection of openings; where regulatory requirements conflict the more stringent shall apply.

2.2 METALS

A. Steel and Iron:

1. Steel Pipe: ASTM A 53, Type S – Seamless, Grade A suitable for close coiling or cold bending, standard weight (Schedule 40) minimum, unless otherwise indicated or required to satisfy performance requirements, black finish.
2. Steel Tubing: Cold-formed steel tubing, ASTM A 500, Grade A, unless otherwise indicated or required to satisfy the performance requirements.
3. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
4. Cold Finished Steel Bars: ASTM A108, grade as selected by fabricator.
5. Uncoated, Cold-Rolled Steel Sheet: Commercial quality, complying with ASTM A 366/A 366M; or structural quality, complying with ASTM A 611, Grade A, unless another grade is required by performance requirements.

- B. Recycled Content of Steel Products: Provide products with an average recycled content of steel products so post-consumer recycled content plus one-half of pre-consumer recycled content is not less than 25 percent.

2.3 MISCELLANEOUS MATERIALS

- A. Welding Electrodes and Filler Metal: Provide type and alloy as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.
- B. Fasteners: Same basic metal as fastened metal; concealed, unless otherwise indicated or unavoidable, and standard with systems indicated.
- C. Anchors: Fabricated from materials with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined per ASTM E 488.
- D. Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with performance requirements in FS TT-P-664; with good resistance to corrosion; and compatible with finish paint systems indicated.
- E. Grout and Anchoring Cement: Premixed, non-shrink, non-metallic grout complying with ASTM C 1107 or erosion-resistant, non-shrink, anchoring cement; recommended by manufacturer for use indicated.

2.4 FABRICATION

- A. General: Fabricate to design, dimensions, and details indicated, but not less than that required to comply with the performance requirements.
- B. Form changes in direction of railing members by bending, mitering, or inserting prefabricated flush-elbow fittings.

- C. Form curves by bending in jigs to produce uniform curvature without buckling, twisting, cracking, or otherwise deforming exposed surfaces.
- D. Welded Connections: Connect handrail and railing members by welding. Cope and weld or use welded-in fittings. Weld connections continuously. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.
- E. Brackets, Flanges, Fittings, and Anchors: Fabricate wall brackets, flanges, miscellaneous fittings, and anchors to connect handrails and railings to other work.
 - 1. Cast or form metal of same material and finish as rails.
- F. Close exposed ends of handrail and railing members with prefabricated end fittings.
- G. Provide wall returns at ends of wall-mounted handrails.

2.5 FINISHES

- A. Shop-Primed Steel Finish: Prepare uncoated ferrous-metal surfaces by removing oil, grease, and similar contaminants in accordance with SSPC -SP 1 "Solvent Cleaning," followed with SSPC-SP 7, "Brush-off Blast Cleaning."
- B. Apply a minimum of one coat of shop primer to uncoated surfaces of pipe and tube railings, unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1," for shop painting.
- C. Do not deliver primed pipe and tube railing work until primer has dried.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Perform cutting, drilling, and fitting required to install handrails and railings. Set units accurately in location, alignment, and elevation.
 - 1. Set posts plumb within a tolerance of 1/16 inch in 3 feet (2 mm in 1 m).
 - 2. Align rails so variations from level for horizontal members and from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet (5 mm in 3 m).
- B. Anchor posts to metal surfaces with oval flanges.
- C. Anchor railing ends into concrete and masonry with round flanges connected with post-installed anchors and bolts.

- D. Touch up surfaces and finishes after erection. Clean field welds, bolted connections, and abraded areas and touch up paint with the same material as used for shop painting.

END OF SECTION 05 52 13

SECTION 05 70 00 - DECORATIVE METAL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes custom undulating bar foot rail.
- B. Related Sections:
 - 1. Division 05 Section "Metal Fabrications" for non-decorative metal fabrications.
 - 2. Division 05 Section "Decorative Metal Railings" for decorative metal railings.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated, including finishing materials.
- B. Shop Drawings: Show fabrication and installation details for decorative metal.
 - 1. Include plans, elevations, component details, and attachments to other work.
 - 2. Indicate materials and profiles of each decorative metal member, fittings, joinery, finishes, fasteners, anchorages, and accessory items.
- C. Samples for Initial Selection: For products involving selection of color, texture, or design including mechanical finishes.
- D. Samples for Verification: For each type of exposed finish required.
 - 1. Sections of linear shapes.
 - 2. Samples of welded joints showing quality of workmanship and color matching of materials.

1.3 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified fabricator.
- B. Mill Certificates: Signed by manufacturers of stainless-steel certifying that products furnished comply with requirements.
- C. Welding certificates.

1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: A firm experienced in producing decorative metal similar to that indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- B. Installer Qualifications: Fabricator of products.
- C. Welding Qualifications: Qualify procedures and personnel according to the following:
 - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
 - 2. AWS D1.3, "Structural Welding Code - Sheet Steel."
- D. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 - 1. Build mockups for the following types of decorative metal:
 - a. Foot rail.
 - 2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store decorative metal in a well-ventilated area, away from uncured concrete and masonry, and protected from weather, moisture, soiling, abrasion, extreme temperatures, and humidity.
- B. Deliver and store cast-metal products in wooden crates surrounded by sufficient packing material to ensure that products will not be cracked or otherwise damaged.

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with decorative metal by field measurements before fabrication and indicate measurements on Shop Drawings.

1.7 COORDINATION

- A. Coordinate installation of anchorages for decorative metal items. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 DECORATIVE METAL FABRICATORS

- A. Fabricators: Subject to compliance with requirements, fabricators offering decorative metal work that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Bid Source.

2.2 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. Provide materials without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.

2.3 IRON AND STEEL FINISHES

- A. Powder-Coated Finish:
 - 1. Prepare, treat, and coat ferrous metal to comply with resin manufacturer's written instructions.
 - 2. Preparation of Uncoated Ferrous Metals: Comply with SSPC-SP-6, "Commercial Blast Cleaning."
 - 3. Preparation of Galvanized Metal: Thoroughly remove grease, dirt, oil, flux, and other foreign matter.
 - 4. Treat prepared metal with metallic-phosphate pretreatment, rinse, and seal surfaces.
 - 5. Apply thermosetting polyester or acrylic urethane powder coating with cured-film thickness not less than 1.5 mils (0.04 mm).
 - 6. Color: Selected from manufacturer's full range.
- B. Plated Finish: Oil-rubbed bronze.

2.4 FASTENERS

- A. Fastener Materials: Same basic metal as fastened metal; concealed, unless otherwise indicated, provide the following:
 - 1. Uncoated-Steel Items: Plated steel fasteners complying with ASTM B 633, Class Fe/Zn 25 for electrodeposited zinc coating where concealed, Type 304 stainless-steel fasteners where exposed.
 - 2. Dissimilar Metals: Type 304 stainless-steel fasteners.
- B. Fasteners for Anchoring to Other Construction: Unless otherwise indicated, select fasteners of type, grade, and class required to produce connections suitable for anchoring indicated items to other types of construction indicated.

- C. Provide concealed fasteners for interconnecting components and for attaching decorative metal items to other work unless otherwise indicated.
 - 1. Provide square or hex socket flat-head machine screws for exposed fasteners unless otherwise indicated.
- D. Anchors, General: Anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
- E. Post-Installed Anchors: Torque-controlled expansion type.
 - 1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B 633 or ASTM F 1941 (ASTM F 1941M), Class Fe/Zn 5 unless otherwise indicated.

2.5 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

2.6 FABRICATION, GENERAL

- A. Assemble items in the shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.
- B. Form decorative metal to required shapes and sizes, true to line and level with true curves and accurate angles and surfaces. Finish exposed surfaces to smooth, sharp, well-defined lines and arris.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing the Work.
- D. Form simple and compound curves in bars, pipe, tubing, and extruded shapes by bending members in jigs to produce uniform curvature for each configuration required; maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces.
- E. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm) unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- F. Mill joints to a tight, hairline fit. Cope or miter corner joints. Fabricate connections that will be exposed to weather in a manner to exclude water.

- G. Provide weep holes where water may accumulate. Locate weep holes in inconspicuous locations.
- H. Provide necessary rebates, lugs, and brackets to assemble units and to attach to other work. Cut, reinforce, drill, and tap as needed to receive finish hardware, screws, and similar items unless otherwise indicated.
- I. Comply with AWS for recommended practices in shop welding. Weld behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded joints of flux, and dress exposed and contact surfaces.
 - 1. Where welding cannot be concealed behind finished surfaces, finish joints to comply with NOMMA's "Voluntary Joint Finish Standards" for Type 1 Welds: no evidence of a welded joint.

2.7 BAR FOOT RAIL

- A. Fabricate foot rail from bar stock of profile indicated, fabricated to shapes indicated. Form curves by bending to produce uniform curvature of radii indicated; maintain profile of member throughout entire bend without buckling, twisting, or otherwise deforming exposed surfaces. Where radii of bends are too small to avoid buckling, grind bars after bending to restore original profile. Drill and tap rails to receive through bolts for attachment to bar.

2.8 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of decorative metal.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Provide anchorage devices and fasteners where needed to secure decorative metal to in-place construction.

- B. Perform cutting, drilling, and fitting required to install decorative metal. Set products accurately in location, alignment, and elevation, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items to be built into concrete, masonry, or similar construction.
- C. Fit exposed connections accurately together to form tight, hairline joints or, where indicated, uniform reveals and spaces for sealants and joint fillers. Where cutting, welding, and grinding are required for proper shop fitting and jointing of decorative metal, restore finishes to eliminate evidence of such corrective work.
- D. Do not cut or abrade finishes that cannot be completely restored in the field. Return items with such finishes to the shop for required alterations, followed by complete refinishing, or provide new units as required.
- E. Install concealed gaskets, joint fillers, insulation, and flashings as work progresses.
- F. Restore protective coverings that have been damaged during shipment or installation. Remove protective coverings only when there is no possibility of damage from other work yet to be performed at same location.
 - 1. Retain protective coverings intact; remove coverings simultaneously from similarly finished items to preclude nonuniform oxidation and discoloration.
- G. Field Welding: Comply with applicable AWS specification for procedures of manual shielded metal arc welding and requirements for welding and for finishing welded connections in "Fabrication, General" Article. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations.
- H. Corrosion Protection: Coat concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

3.3 INSTALLING FOOT RAILS

- A. Mount decorative foot rails at heights and in positions indicated.
 - 1. Secure to framing and blocking with specified fasteners.

3.4 CLEANING AND PROTECTION

- A. Unless otherwise indicated, clean metals by washing thoroughly with clean water and soap, rinsing with clean water, and drying with soft cloths.
- B. Protect finishes of decorative metal from damage during construction period with temporary protective coverings approved by decorative metal fabricator. Remove protective covering at time of Substantial Completion.

- C. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

END OF SECTION 05 70 00

SECTION 06 10 53 – MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes miscellaneous carpentry.

1.2 ACTION SUBMITTALS

- A. Product Data: Submit product data for each type of process and factory-fabricated product indicated. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that materials comply with requirements.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber, plywood, and other panels; for lumber and plywood pressure treated with waterborne chemicals place spacers between each bundle to provide air circulation.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: Comply with DOC PS 20 "American Softwood Lumber Standard" and applicable rules of lumber grading agencies certified by the American Lumber Standards Committee Board of Review.
 - 1. Factory mark each piece of lumber with grade stamp of grading agency.
 - 2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
 - 3. Provide dressed lumber, S4S, unless otherwise indicated.
 - 4. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2 inch nominal (38 mm actual) thickness or less, unless otherwise indicated.
- B. Wood Panels:
 - 1. Plywood: Comply with DOC PS 1 "Construction and Industrial Plywood" for plywood panels.
 - 2. Thickness: As needed to comply with requirements specified but not less than thickness indicated.

2.2 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Provide chemical fire retardant process tested and labeled by UL with flame spread and smoke developed ratings of 25 or less. Comply with performance requirements in AWWA C20 (lumber) and AWWA C27 (plywood) for Interior Use Type A High Temperature (HT) as a minimum for pressure treatment. Size wood before treatment so that minimum cutting will be required after treatment. Kiln dry lumber to a maximum 19% moisture content, kiln dry plywood to a maximum 15% moisture content, after treatment. Treat indicated items and wood members that are required to be treated by Building Code having jurisdiction at the site and wood members specified as fire retardant treated.
- B. Identify fire-retardant-treated wood with appropriate classification marking of UL.

2.3 MISCELLANEOUS LUMBER

- A. Provide miscellaneous lumber for support or attachment of other construction, including blocking, nailers, and similar members.
- B. For concealed boards, provide mixed southern pine, No. 2 grade; SPIB, with 19 percent maximum moisture content.

2.4 PANEL PRODUCTS

- A. Concealed Plywood for Countertop Underlayment: APA Exterior sheathing, in thickness as indicated but not less than 3/4 inch.
- B. Telephone, Data, Security, Mirror, and Electrical Equipment Backing Panels: APA, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 15/32 inch thick.

2.5 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
- B. Power-Driven Fasteners: CABO NER-272.
- C. Nails, Wire, Brads, and Staples: FS FF-N-105.
- D. Wood Screws: ASME B18.6.1.
- E. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.
- F. Lag Bolts: ASME B18.2.1. (ASME B18.2.3.8M).
- G. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

- H. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency. Provide carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Securely attach carpentry work as indicated and according to applicable codes and recognized standards.
- C. Use fasteners of appropriate type and length. Pre-drill members when necessary to avoid splitting wood.

3.2 WOOD BLOCKING AND NAILER INSTALLATION

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

3.3 PANEL PRODUCT INSTALLATION

- A. General: Comply with applicable recommendations contained in APA Form No. E30K, "APA Design/Construction Guide: Residential & Commercial," and local utility requirements, if any, for plywood backing panels utilized as indicated.
- B. Fastening Methods: Fasten panels as indicated below:
 - 1. Countertop Underlayment: Bolt to miscellaneous steel framing.
 - 2. Plywood Backing Panels: Secure to wall using proper fastening devices for substrates encountered spaced 12 inches o.c. maximum at perimeter 1/2 inch from corners and three rows of 3 fasteners each in the backerboard field. Countersink fasteners flush with plywood surface. Butt adjacent panels without lapping.

END OF SECTION 06 10 53

SECTION 06 40 23 - INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes interior architectural woodwork.

1.2 ACTION SUBMITTALS

- A. Product Data: Submit product data for each material and product specified and incorporated into items of architectural woodwork during fabrication, finishing, and installation.
 - 1. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.
- B. Shop Drawings: Submit shop drawings showing locations of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components. Elevations shall be drawn at a scale of not less than 1/2" = 1'-0". Details shall be drawn at a scale of not less than 3" = 1'-0".
 - 1. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
 - 2. Show locations and sizes of cutouts and holes for plumbing, electrical, computer and telephone equipment and other items installed in architectural woodwork.
 - 3. Show veneer leaves with dimensions, grain direction, exposed face, and identification numbers indicating the flitch and sequence within the flitch for each leaf.
 - 4. Show means of support and attachment for custom resin countertop.
- C. Samples: Submit samples of the following:
 - 1. Three (3) veneer leaves representative of and selected from each flitch to be used for transparent-finished woodwork.
 - 2. Three 12 inch by 12 inch sample sets containing a minimum of 2 or more samples of transparent finished wood veneer, fabricated from each core product, for each veneer specified and demonstrating the proposed full range of appearance characteristics to be expected in completed work. Include at least one face-veneer seam in each sample.
 - 3. Lumber and panel products for transparent finish, for each species and cut, finished on one side and one edge. Furnish lumber in 12 inch lengths, furnish panel samples in 12 inch squares.
 - 4. Lumber and panel products with shop-applied opaque finish, for each finish system and color, with exposed surface finished. Furnish lumber in 12 inch lengths, furnish panel samples in 12 inch squares.
 - 5. Thermoset decorative-overlay surfaced panel products, for each type, color, pattern, and surface finish.
 - 6. Metal Trim Shapes: Three samples of each type and finish, 12 inches long.

7. Submit samples of each type of door specified showing construction and finishes selected. Samples shall be 12 inch by 12 inch corner section.
8. Glass and Acrylic Panels: 12 inch by 12 inch of each type specified.
9. Stone: 12 inch by 12 inch of each species, finished as specified, and finish matching samples on file, and indicative of the entire range.

D. Maintenance Instructions: Submit maintenance instructions for manmade stone tops.

1.3 QUALITY ASSURANCE

- A. Single-Source Manufacturing and Installation Responsibility: Engage a qualified manufacturer, acceptable to the Architect, to assume undivided responsibility for woodwork specified in this Section, including fabrication, finishing, and installation. The manufacturer shall have a minimum of 15 years successful experience in the custom fabrication and installation of architectural woodwork comparable to that shown and specified, maintain an organized quality control program, perform its own in-house veneer lay-up work, and who retains facilities with sufficient capacity and quality to produce the required architectural woodwork without causing delay to the project.
- B. Quality Standard: Fabricate and install all architectural woodwork in accordance with the applicable requirements of AWI's "Architectural Woodwork Quality Standards" 8th Edition Version 1.0, unless more stringent requirements are specified or shown.
- C. Fire Performance Characteristics: Provide materials identical to those tested for the following fire performance characteristics per ASTM test methods indicated by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify treated lumber with classification marking of inspecting and testing organization in the form of separable paper label or, where required by authorities having jurisdiction, of imprint on lumber surfaces that will be concealed from view after installation.
 1. Surface Burning Characteristics: Not exceeding a flame spread of 25, and smoke developed of 50 when tested per ASTM E 84 for 30 minutes.
- E. Mockups: An in-place mockup of a segment of the bar will be required to coordinate the custom bar countertop.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Protect woodwork during transit, delivery, storage, and handling to prevent damage, soilage, deterioration, and exposure to sunlight. Do not deliver woodwork until painting, wet work, grinding, and similar operations that could damage, soil, or deteriorate woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas whose environmental conditions meet requirements specified in "Project Conditions" Article.

1.5 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at levels planned for building occupants during the remainder of the construction period.
- B. Field Measurements: Where woodwork is indicated to fit to other construction, verify actual dimensions of other construction by accurate field measurements before fabrication of woodwork and indicate measurements on final Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 - 1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed and indicate measurements on Shop Drawings.

1.6 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.
- B. Coordinate with Artist on fabrication of support and accommodation of bar countertop.

1.7 PRE-INSTALLATION COORDINATION MEETING

- A. Meet at the project site, prior to installation of architectural woodwork, to review the substrate preparation, installation and coordination with other trades, special details and conditions, and other topics related to the architectural woodwork. The preinstallation meeting shall include the Architect, the Contractor, architectural woodworker, and any subcontractors affected by the architectural woodwork installation.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Provide materials that comply with requirements of the AWI quality standard for each type of woodwork and quality grade specified.
- B. Lumber Standards: Comply with applicable provisions for grading and workmanship of AWI Quality Standards, Sections 100-T-1, 100-T-4, 100-T-5, Grade I and the requirements shown and specified, where standards conflict the more stringent shall apply. Provide lumber surfaced 4 sides (S4S) and fabricated to profiles shown. All lumber shall be kiln-dried to the moisture content indicated in AWI Section 100-T-11.
 - 1. Furring, Blocking, Shims: No. 1 Common; Southern Pine.

2. Door Subframes: No. 1 Common Southern Pine, fire-retardant treated to reduce combustibility.
 3. Solid Hardwood for Transparent Finish (WD-03): Matching each of the Architect's veneer samples; refer to Finish Schedule on the Drawings for each species.
 4. Veneer-Faced Panel Products (Hardwood Plywood) (WD-01): HPVA HP-1.
- C. Wood Veneers:
1. Species, Matching, and Cut for Transparent Finish: Complying with AWI 1500 and the following:
 - a. (WD-01): Specie and figuring as indicated on the finish schedule, book matched unless otherwise indicated, minimum 5 inch width leaves, complying with HPVA HP-1, Grade AA, matching Architect's sample.
- D. Wood Panel Products:
1. Medium-Density Fiberboard: Comply with ANSI A208.2, Density Classification Interior MD minimum 45 pcf density except that minimums for screw holding capacity on face and edge shall be 225 pounds and 300 pounds respectively; minimum 3/4 inch thick, edged and faced as specified, fabricated from formaldehyde-free resins.
 - a. SierraPine Ltd.; Medite II or Medex.
 2. Medium Density Particleboard: Comply with ANSI A208.1, Grade M-2-Exterior Glue composed of phenolic resins and waxes, with a minimum 45 pcf density; minimum 3/4 inch thick, internal bond of 170 psi, edge screw pull out of 250 pounds, face screw pull out of 350 pounds, Class 3 or C flammability per ASTM E84, edged and faced as specified and manufactured from 100% post industrial recycled woods and resins free of urea-formaldehyde.
 - a. Resin-Core-I by Rodman Industries.
 3. Hardboard: AHA A135.4.
- E. Acrylic Resin Composite Wood Chip (WD-02):
1. TorZo; Orient.
- F. Thermoset Decorative Overlay (Melamine): Particleboard or medium-density fiberboard with surface of thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.
1. Types: As indicated in the Finish Schedule on the Drawings.
- G. Glass: Clear tempered float glass, complying with ASTM C1036, Type I, Class 1, Quality q3, and ASTM C1048 Kind FT, thickness as indicated.
1. Prior to tempering, cut glass to required sizes and profiles as determined by accurate measurement of supporting standoff hole locations.

2. Hole Cutting: Unless otherwise recommended by the glass manufacturer, comply with the requirements of ASTM C1048, Article 7.8 for hole placement, minimum hole diameter, and dimensional tolerances of holes and this specification. Unless otherwise recommended by the glass manufacturer, locate holes not less than 4 inches from glass edges, hole diameter shall be at least 1/8 inch larger than the shank of the screw fastener and screw sleeve spacers used for the rosette assemblies. Chips and flakes at hole edges shall not be permitted, and the inner surfaces of holes shall be smooth polished to match glass panel edges.
 3. Edge Treatment: All glass edges shall have an arrised edge profile (small bevel of width not exceeding 1/16 inch at an angle of approximately 45 degrees to the surface of the glass) with a polished (surface is reflective in appearance similar to the major surface of glass) surface.
- H. High-Pressure Decorative Laminate (PL-01, PL-02, and PL-04): Complying with NEMA LD 3 for Horizontal General Purpose Grade (HGS) typically and Vertical General Purpose Grade (VGS) where specified. Nominal thickness for HGS and VGS laminates to be 0.048" +/- 0.005" and 0.028" +/- 0.004" respectively.
1. Where high pressure decorative laminate is indicated to be faced with aluminum, provide aluminum sheet goods specifically made for laminating to vertical MDF and particleboard substrates in sheet thickness of 0.025" +/- 0.002".
 2. Types: As indicated in the Finish Schedule on the Drawings.
 - a. Provide factory applied protective peel coat to prevent surface damage during fabrication and handling of aluminum faced decorative laminates. Remove protective peel coat after installation in accordance with the manufacturer's recommendations. If the film is left in place after installation, exposure to direct sunlight for a prolonged period may cause a paste residue and create other problems.
 3. Backing sheets: Non-decorative, high pressure laminate, NEMA LD3, Grade, types and thickness to match face sheets and equalize pull.
- I. Stone: Refer to Division 12 "Simulated Stone Countertops."
- J. Adhesives, General: Use only low-emitting VOC adhesives which leave no glue lines on finished surfaces of architectural woodwork.
- 2.2 FIRE-RETARDANT-TREATED MATERIALS
- A. General: Where indicated, use materials impregnated with fire-retardant chemical formulations indicated by a pressure process or other means acceptable to authorities having jurisdiction to produce products with fire-test-response characteristics specified.
1. Do not use treated material that does not comply with requirements of referenced woodworking standard. Do not use twisted, warped, bowed, discolored, or otherwise damaged or defective lumber or panel products.

2. Use fire-retardant-treatment formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants in solution to distinguish treated material from untreated material.
 3. Treat only door subframing, blocking and furring items.
- B. Fire-Retardant-Treated Lumber and Plywood: Materials impregnated with fire-retardant chemical formulations to comply with AWPA C20 (lumber) and AWPA C27 (plywood), Interior Type A. Kiln-dry material after treatment to levels required for untreated woodwork.
- C. Fire-Retardant Particleboard: Panels made from softwood particles and fire-retardant chemicals mixed together at time of panel manufacture with flame-spread index of 25 or less and smoke-developed index of 25 or less per ASTM E 84.
- D. Fire-Retardant Fiberboard: ANSI A208.2 medium-density fiberboard panels made from softwood fibers, synthetic resins, and fire-retardant chemicals mixed together at time of panel manufacture with flame-spread index of 25 or less and smoke-developed index of 200 or less per ASTM E 84.

2.3 ACCESSORY MATERIALS

- A. Cabinet Shelf Rests: Nickel plated 7-mm diameter shelf support pegs in brass sockets, complying with BHMA A156.9, B04013. (Hafele 282.01.701 x 282.50.704).
- B. Exposed Hardware Finishes: Unless otherwise specified above, or on the Drawings, all exposed portions of the woodwork hardware shall comply with BHMA A156.18 for BHMA finish number indicated.
1. Dark, Oxidized, Satin Bronze, Oil Rubbed: BHMA 613 for bronze base; BHMA 640 for steel base.
- C. Steel Reinforcing: Carbon steel shapes, tubes and plates complying with ASTM A 36 (shapes and plates), and ASTM A500 or A501 (for tubes).
1. Shop Primer for Concealed Steel Reinforcing: Provide fast curing, lead and chromate free, universal modified alkyd primer complying with performance requirements in FS TT-P-664.
 2. Electrodes for Concealed Steel Reinforcing: Provide type and alloy of filler metal and electrodes as recommended by producer of metal to be welded.
- D. Door Hardware: At full sized doors, provide door hardware as scheduled under Division 08 Section "Door Hardware."
- E. Hanging (Zee Clip) Strips: Extruded aluminum zee type interlocking clips; type, size and quantity for the condition of use.
- F. Screws: Select material, type, size, and finish required for each use. Comply with FS FF-S-111 for applicable requirements.

- G. Nails: Select material, type, size, and finish required for each use. Comply with FS FF-N-105 for applicable requirements.
- H. Anchors: Select material, type, size, and finish required by each substrate for secure anchorage. Provide toothed steel or lead expansion bolt devices for drilled-in-place anchors.
- I. Blind Splines: Specialty devices, as required for tight butt joining, types and size as recommended by woodwork fabricator.
- J. Covercaps: Where mortises of fastener heads, or draw downs are exposed (blind holes) in finished work, provide black plastic covercaps.

2.4 FABRICATION, GENERAL

- A. General: Complete fabrication, including assembly, finishing, and hardware application, before shipment to Project site to the maximum extent possible. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide allowance for scribing, trimming, and fitting. The width of scribe and filler panels shall not exceed 1/2 inch, or 1/2 inch clear dimension from adjacent wall to outside face of cabinet door in a 90 degree position, whichever is greater.
 - 1. Interior Woodwork Grades:
 - a. Premium Grade at transparent finishes.
 - b. Custom Grade at plastic laminate.
- B. Fabricate woodwork to dimensions, profiles, and details indicated.
 - 1. Reinforcing shown is minimum. Provide additional steel and lumber reinforcing as required to sustain imposed loads and to ensure a rigid assembly.
 - 2. Exposed surfaces shall be free from dents, tool marks, warpage, buckle, glue and open joints, or other defects affecting serviceability or appearance. Accurately fit all joints, corners and miters. Conceal all fasteners. Make threaded connections up tight so that threads are entirely concealed.
- C. Shop cut openings to maximum extent possible, to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
 - 1. Seal edges of openings in countertops with a coat of varnish.
 - 2. Install glass to comply with applicable requirements in Division 08 Section "Glazing" and in GANA's "Glazing Manual." For glass in wood frames, secure glass with removable stops.

2.5 WOOD CABINETS FOR LAMINATE FINISH

- A. AWI Type of Cabinet Construction: Flush overlay.

- B. Laminate Cladding for Exposed Surfaces: High-pressure decorative of grade indicated.
 - 1. Horizontal Surfaces Other Than Tops: HGS.
 - 2. Postformed Surfaces: HGP.
 - 3. Vertical Surfaces: VGS.
 - 4. Edges: HGS unless otherwise indicated.
 - 5. Colors, Patterns, and Finishes: As indicated on the Drawings and in the Finish Schedule.
 - C. Materials for Semi-exposed Surfaces Other Than Drawer Bodies: High-pressure decorative laminate, Grade VGS.
 - 1. Drawer Sides and Backs: Solid-hardwood lumber.
 - 2. Drawer Bottoms: Hardwood plywood.
 - D. Provide dust panels of 1/4 inch (6.4 mm) plywood or tempered hardboard above compartments and drawers, unless located directly under tops.
 - E. Cabinet Locks: Provide door and drawer locks.
- 2.6 POS MILLWORK (WB-02)
- A. Finish:
 - 1. Provide two coats of a clear penetrating sealer.
 - 2. Topcoat with a lacquer or varnish.
- 2.7 INTERIOR STANDING AND RUNNING TRIM FOR OPAQUE AND TRANSPARENT FINISHES
- A. General: Complying with AWI 300, fabricated from solid hardwood with scarfed joints, profiles as indicated, finishes as indicated.
 - B. Backout or groove backs of flat trim members and kerf backs of other wide, flat members, except for members with ends exposed in finished work.
 - C. Wood Species: Solid hardwood factory finished with transparent finished wood veneer in veneer cut as indicated on the drawings to match adjacent transparent finished veneered items.
- 2.8 SHOP FINISHING
- A. Production finish architectural woodwork at fabrication shop. Defer only final touchup, cleaning, and polishing until after installation.
 - B. Preparations for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.

1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling and to end grain surfaces. Concealed surfaces of plastic-laminate-clad woodwork do not require backpriming when surfaced with plastic laminate, backing paper, or thermoset decorative overlay.
 2. Gluing of face veneers shall, where possible, be by the hot plate method; glued surfaces shall be in close contact throughout. Glue stains will not be permitted.
 3. Grain of all transparent finished wood shall run in the direction shown, or if not shown, as accepted on the shop drawings.
- C. Exposed Surfaces:
1. Transparent Finish:
 - a. Grade: Premium.
 - b. AWI Finish System: Catalyzed vinyl exceeding the performance requirements of AWI Finish System TR-5 for closed grain woods.
 - c. Staining: Natural to match Architect's sample.
 - d. Sheen: Match Architect's samples.
 2. Plastic Laminate Finish: Gluing of plastic laminate surfacing materials shall be by the hot plate method, glued surfaces shall be in close contact throughout. Glue stains shall not be permitted.
- D. Unexposed Wood Finish: Alkyd type primer-sealer.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Condition woodwork to average prevailing humidity conditions in installation areas.
- B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming before installation.

3.2 INSTALLATION

- A. Quality Standard: Install woodwork to comply with AWI Section 1700 for the same grade specified in this Section for type of woodwork involved.
 1. Install woodwork level, plumb, true, with no distortions, and with no variations in flushness of adjoining surfaces. Shim as required with concealed shims.
 2. Scribe and cut woodwork to fit adjoining work, and refinish cut surfaces and repair damaged finish at cuts.
- B. Anchor woodwork to blocking built in or directly attached to substrates. Secure to blocking with countersunk, concealed fasteners and blind nailing as required for complete installation.

Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.

- C. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Do not use pieces less than 96 inches long, except where shorter single-length pieces are necessary. Scarf running joints and stagger in adjacent and related members.
 - 1. Fill gaps, if any, between top of base and wall with plastic wood filler, sand smooth, and finish same as wood base, if finished.
- D. Cabinets: Install without distortion and accurately aligned. Complete installation of hardware and accessory items as indicated.
 - 1. Install cabinets without sag, bow, or other variation from a straight line.
 - 2. Maintain veneer sequence matching of cabinets with transparent finish.
 - 3. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches (400 mm) o.c. with No. 10 wafer-head screws sized for 1 inch (25 mm) penetration into wood blocking, or hanging strips or with No. 10 wafer-head sheet metal screws through metal backing or metal framing behind wall finish.
- E. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
 - 1. Caulk space between backsplash and wall with silicone sanitary sealant specified in Division 07 Section "Joint Sealants."
 - 2. Align adjacent solid-surfacing-material countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
 - 3. Secure backsplashes to tops with concealed metal brackets at 16 inches o.c. and to walls with adhesive.
 - 4. Simulated Stone Tops: Refer to Division 12 Section "Simulated Stone Countertops."
- F. Complete the finishing work specified in this Section to extent not completed at shop or before installation of woodwork.

3.3 ADJUSTING AND CLEANING

- A. Repair damaged and defective woodwork to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean woodwork on exposed and semiexposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.
 - 1. Anodized aluminum surfaces shall be cleaned with warm water and mild soaps such as those used for hands or dishes. Do NOT use cleaners that contain abrasives, acids or alkalis, as they will mar the surface. Do NOT clean metal face with solvents, paint thinner or adhesive remover. After washing, always wipe the surface completely dry

with a soft, clean cloth. Stubborn stains may be removed with a thin, clean oil and dry cloth.

3.4 PROTECTION

- A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer, that ensures that woodwork will be without damage or deterioration at time of Substantial Completion.

END OF SECTION 06 40 23

SECTION 07 84 13 - PENETRATION FIRESTOPPING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes through-penetration firestop systems for penetrations through the following fire-resistance-rated assemblies, including both empty openings and openings containing penetrating items:
 - 1. Floors.
 - 2. Roofs.
 - 3. Walls and partitions.
 - 4. Smoke barriers.

1.2 ACTION SUBMITTALS

- A. Product Data: Submit product data for each type of through penetration firestop system product indicated.

1.3 INFORMATIONAL SUBMITTALS

- A. Through-Penetration Firestopping Schedule: Submit, for information only, a Through-Penetration Firestopping Schedule indicating the type of through-penetration firestop system to be installed for each penetration. Indicate each kind of construction condition penetrated and kind of penetrating item. Include firestop design designation of testing and inspection agency acceptable to the authorities having jurisdiction that evidences compliance with requirements for each condition indicated, and listed in the "Through Penetration Firestopping Schedule" at the end of Part 3 of this Section.
 - 1. Submit documentation, including illustrations, from Underwriters Laboratories applicable to each through-penetration firestop.
 - 2. Where Project conditions require modification of qualified testing and inspecting agency's illustration to suit a particular through-penetration firestop condition, submit illustration, with modifications marked, approved by through-penetration firestop system manufacturer's fire-protection engineer.
 - 3. At Project Closeout, submit a Record Schedule, signed by the Installer, of systems installed, the UL design designations, and the location of each system.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: A firm or individual certified or licensed, by firestop system manufacturer as experienced and with sufficient trained staff to install manufacturer's products according to specified requirements. A manufacturer's willingness to sell its firestop system

materials to Contractor or to an installer engaged by Contractor does not in itself confer qualification on the buyer.

- B. Source Limitations: Obtain through-penetration firestop systems, for each kind of penetration and construction condition indicated, from a single manufacturer.
- C. Fire-Test-Response Characteristics: Provide through-penetration firestop systems that comply with the following requirements and those specified in "Performance Requirements" Article:
 - 1. Firestop tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency is UL, ITS, or another agency performing testing and follow-up inspection services for firestop systems acceptable to authorities having jurisdiction.
 - 2. Through-penetration firestop systems identical to those tested per ASTM E 814. Provide rated systems complying with the following requirements.
 - a. Through-penetration firestop systems corresponding to those indicated by reference to through-penetration firestop system designations listed by the following:
 - 1) UL in "Fire Resistance Directory."
 - 2) ITS in "Directory of Listed Products."

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver through-penetration firestop system products to Project site in original, unopened containers or packages with intact and legible manufacturers' labels identifying product and manufacturer; date of manufacture; lot number; shelf life, if applicable; qualified testing and inspecting agency's classification marking applicable to Project; curing time; and mixing instructions for multi-component materials.
- B. Store and handle materials for through-penetration firestop systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install through-penetration firestop systems when ambient or substrate temperatures are outside limits permitted by through-penetration firestop system manufacturers or when substrates are wet.
- B. Ventilate through-penetration firestop systems per manufacturers written instructions by natural means or, where this is inadequate, forced-air circulation.

1.7 COORDINATION

- A. Coordinate construction of openings and penetrating items to ensure that through-penetration firestop systems are installed according to specified requirements.

- B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate through-penetration firestop systems.
- C. Do not cover up through-penetration firestop system installations that will become concealed behind other construction until Owner's inspecting agency and building inspector, if required by authorities having jurisdiction, have examined each installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide through-penetration firestop systems that are produced by manufacturers listed in UL-Classified Through Penetration Fire Stopping Assemblies in the Schedule at the end of Part 3 of this Section.

2.2 PERFORMANCE REQUIREMENTS

- A. General: For the following constructions, provide through-penetration firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of assembly penetrated.
 - 1. Fire-resistance-rated non-load-bearing walls, including partitions, with fire-protection-rated openings.
 - 2. Fire-resistance-rated floor assemblies.
 - 3. Fire-resistance-rated roof assemblies.
- B. F-Rated Systems: Provide through-penetration firestop systems with F-ratings indicated, as determined per ASTM E 814, but not less than that equaling or exceeding fire-resistance rating of constructions penetrated.
- C. T-Rated Systems: For the following conditions, provide through-penetration firestop systems with T-ratings indicated, as well as F-ratings, as determined per ASTM E 814, where systems protect penetrating items exposed to potential contact with adjacent materials in occupiable floor areas:
 - 1. Penetrations located outside wall cavities.
 - 2. Penetrations located outside fire-resistive shaft enclosures.
 - 3. Penetrations located in construction containing fire-protection-rated openings.
 - 4. Penetrating items larger than 4 inch (100 mm) diameter nominal pipe or 16 sq. in. (10 sq. mm) in overall cross-sectional area.
- D. For through-penetration firestop systems exposed to view, traffic, moisture, and physical damage, provide products that after curing do not deteriorate when exposed to these conditions both during and after construction.
 - 1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.

2. For floor penetrations with annular spaces exceeding 4 inches (100 mm) in width and exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved either by installing floor plates or by other means.
3. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.

2.3 FIRESTOPPING, GENERAL

- A. **Compatibility:** Provide through-penetration firestop systems that are compatible with one another, with the substrates forming openings, and with the items, if any, penetrating through-penetration firestop systems, under conditions of service and application, as demonstrated by through-penetration firestop system manufacturer based on testing and field experience.
- B. **VOC Content:** Provide penetration firestopping that complies with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 1. Architectural Sealants: 250 g/L.
 2. Sealant Primers for Nonporous Substrates: 250 g/L.
 3. Sealant Primers for Porous Substrates: 775 g/L.
 4. Plastic Foam Adhesives: 50 g/L.
 5. Adhesives for Porous Materials (Except Wood): 50 g/L.
 6. Fiberglass Adhesives: 80g/L.
 7. Primers, sealers and undercoaters: 200 g/L.
- C. **Accessories:** Provide components for each through-penetration firestop system needed to install fill materials and to comply with "Performance Requirements" Article. Use only components specified by through-penetration firestop system manufacturer and approved by the qualified testing and inspecting agency for firestop systems indicated. Accessories include, but are not limited to, the following items:
 1. Permanent forming/damming/backing materials, including the following:
 - a. Slag-/rock-wool-fiber insulation.
 - b. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state.
 - c. Fire-rated form board.
 - d. Fillers for sealants.
 2. Temporary forming materials.
 3. Substrate primers.
 4. Collars.
 5. Steel sleeves.
- D. **Gypsum Products:** The use of gypsum products for through-penetration firestopping is strictly prohibited.

2.4 FILL MATERIALS

- A. General: Provide through-penetration firestop systems containing the types of fill materials indicated in the Through-Penetration Firestop System Schedule at the end of Part 3 by reference to the types of materials described in this Article. Fill materials are those referred to in directories of the referenced testing and inspecting agencies as fill, void, or cavity materials.
- B. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer metallic sleeve lined with an intumescent strip, a radial extended flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.
- C. Latex Sealants: Single-component latex formulations that after cure do not re-emulsify during exposure to moisture.
- D. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.
- E. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized steel sheet.
- F. Intumescent Putties: Nonhardening dielectric, water-resistant putties containing no solvents, inorganic fibers, or silicone compounds.
- G. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.
- H. Mortars: Prepackaged, dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.
- I. Pillows/Bags: Reusable, heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents and fire-retardant additives.
- J. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.
- K. Silicone Sealants: Moisture-curing, single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below:
 - 1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces and nonsag formulation for openings in vertical and other surfaces requiring a nonslumping, gunnable sealant, unless indicated firestop system limits use to nonsag grade for both opening conditions.

2.5 MIXING

- A. For those products requiring mixing before application, comply with through-penetration firestop system manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning: Clean out openings immediately before installing through-penetration firestop systems to comply with written recommendations of firestop system manufacturer and the following requirements:
 - 1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of through-penetration firestop systems.
 - 2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with through-penetration firestop systems. Remove loose particles remaining from cleaning operation.
 - 3. Remove laitance and form-release agents from concrete.
- B. Priming: Prime substrates where recommended in writing by through-penetration firestop system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- C. Masking Tape: Use masking tape to prevent through-penetration firestop systems from contacting adjoining surfaces that will remain exposed on completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestop system materials. Remove tape as soon as possible without damaging substrate or disturbing firestop system's seal with substrates.

3.3 THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLATION

- A. General: Install through-penetration firestop systems to comply with "Performance Requirements" Article and firestop system manufacturer's written installation instructions and published drawings for products and applications indicated.

- B. Install forming/damming/backing materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
 - 1. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.
- C. Install fill materials for firestop systems by proven techniques to produce the following results:
 - 1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
 - 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
 - 3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.4 FIELD QUALITY CONTROL

- A. Inspecting Agency: Owner may engage a qualified independent inspecting agency to inspect through-penetration firestop systems and to prepare test reports.
 - 1. Inspecting agency will state in each report whether inspected through-penetration firestop systems comply with or deviate from requirements.
- B. Proceed with enclosing through-penetration firestop systems with other construction only after inspection reports are issued.
- C. Where deficiencies are found, repair or replace through-penetration firestop systems so they comply with requirements.

3.5 IDENTIFICATION

- A. Identify through-penetration firestop systems with pressure-sensitive, self-adhesive, preprinted vinyl labels. Attach labels permanently to surfaces of penetrated construction on both sides of each firestop system installation where labels will be visible to anyone seeking to remove penetrating items or firestop systems. Include the following information on labels:
 - 1. The words: "Warning--Through-Penetration Firestop System--Do Not Disturb. Notify Building Management of Any Damage."
 - 2. Contractor's name, address, and phone number.
 - 3. Through-penetration firestop system designation of applicable testing and inspecting agency.
 - 4. Date of installation.
 - 5. Through-penetration firestop system manufacturer's name.
 - 6. Installer's name.

3.6 CLEANING AND PROTECTION

- A. Clean off excess fill materials adjacent to openings as Work progresses by methods and with cleaning materials that are approved in writing by through-penetration firestop system manufacturers and that do not damage materials in which openings occur.
- B. Provide final protection and maintain conditions during and after installation that ensure through-penetration firestop systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated through-penetration firestop systems immediately and install new materials to produce through-penetration firestop systems complying with specified requirements.

3.7 THROUGH-PENETRATION FIRESTOP SYSTEM SCHEDULE

- A. Select UL-classified systems from the attached schedule and submit "Through-Penetration Firestopping Schedule" as specified in Article 1.3, Submittals.

THROUGH PENETRATION FIRE STOPPING SCHEDULE

THIS SCHEDULE INDICATES WHICH SERIES OF UL CLASSIFIED THROUGH PENETRATION FIRE STOPPING (TPFS) ASSEMBLIES ARE ACCEPTABLE FOR THIS PROJECT BASED ON BARRIER TYPE, BARRIER CONSTRUCTION AND PENETRANT TYPE. EACH SYSTEM WITHIN A GIVEN SERIES IS CLASSIFIED FOR SPECIFIC PENETRATION CONDITIONS. CONTRACTOR SHALL SELECT TPFS ASSEMBLIES THAT ARE CLASSIFIED FOR USE WITH EACH PENETRATION'S CONDITION BASED ON CRITERIA SUCH AS THE FOLLOWING: PENETRATION SIZE, PENETRATION SHAPE, PENETRANT SIZE(S), PENETRANT MATERIAL(S), PENETRANT QUANTITY, LOCATIONS(S) OF PENETRANT(S) WITHIN PENETRATION.

| BARRIER | | FIRE STOPPING REQUIREMENTS | PENETRANT TYPE | | | | | | | | | | OTHER RECESSED DEVICES (NOTE 3) | | | | |
|-------------------------|--------------------------------------|-----------------------------------------------------------|---------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|------------------------------|----------------------------|---------------------------------|--|--|--|--|
| TYPE | BASIS OF CONSTRUCTION | | NO PENETRANTS | METALLIC, UNINSULATED PIPE, CONDUIT, OR TUBING (EXAMPLES: COPPER, IRON, STEEL) | NONMETALLIC, UNINSULATED PIPE, CONDUIT, OR TUBING (EXAMPLES: PVC, CPVC, GLASS) | ELECTRICAL CABLES | CABLE TRAYS W/ELECTRICAL CABLES (NOTE 9) | INSULATED PIPES (EXAMPLES: COPPER, GLASS, IRON, PLASTIC, STEEL) IN SYSTEMS OPERATING BETWEEN 32 DEGF (0 DEGC) AND 122 DEGF (50 DEGC) (NOTE 1) | INSULATED PIPES (EXAMPLES: COPPER, GLASS, IRON, PLASTIC, STEEL) IN SYSTEMS OPERATING BETWEEN 32 DEGF (0 DEGC) OR ABOVE 122 DEGF (50 DEGC) (NOTE 2) | MISC ELECTRICAL PENETRATIONS (EXAMPLES: BUS DUCTS) | METAL DUCT | UL LISTED ELECTRICAL BOXES | | | | | |
| WALL | WOOD STUDS & GYPSUM WALLBRD | SINGLE UL CLASSIFIED PENETRANT SYSTEM MULTIPLE PENETRANTS | W-L-0000 SERIES OR NOTE 4 | W-L-1000 SERIES | W-L-2000 SERIES | W-L-3000 SERIES | W-L-4000 SERIES | W-L-5000 SERIES | W-L-5000 SERIES | W-L-6000 SERIES | W-L-7000 SERIES | CLIV OR NOTE 8 | NOTE 8 | | | | |
| | | | | W-L-8000 SERIES NOTE 5 | | | | W-L-8000 SERIES NOTE 5 | W-L-8000 SERIES NOTE 5 | N/A | N/A | N/A | | | | | |
| | | | | EQUAL TO BARRIER RATING | | | | | | | | | | | | | |
| | | | | EQUAL TO F RATING (NOTE 9) | | | | | | | | | | | | | |
| ADDITIONAL REQUIREMENTS | | | NONE | NONE | NONE | NONE | NONE | NONE | NOTE 6 | NONE | NOTE 7 | NONE | NONE | | | | |
| WALL | METAL STUDS & GYPSUM WALLBRD | SINGLE UL CLASSIFIED PENETRANT SYSTEM MULTIPLE PENETRANTS | W-L-0000 SERIES OR NOTE 4 | W-L-1000 SERIES | W-L-2000 SERIES | W-L-3000 SERIES | W-L-4000 SERIES | W-L-5000 SERIES | W-L-5000 SERIES | W-L-6000 SERIES | W-L-7000 SERIES | CLIV OR NOTE 8 | NOTE 8 | | | | |
| | | | | W-L-8000 SERIES NOTE 5 | | | | W-L-8000 SERIES NOTE 5 | W-L-8000 SERIES NOTE 5 | N/A | N/A | N/A | | | | | |
| | | | | EQUAL TO BARRIER RATING | | | | | | | | | | | | | |
| | | | | EQUAL TO F RATING (NOTE 9) | | | | | | | | | | | | | |
| ADDITIONAL REQUIREMENTS | | | NONE | NONE | NONE | NONE | NONE | NONE | NOTE 6 | NONE | NOTE 7 | NONE | NONE | | | | |
| WALL | POURED CONC., CONC. BLOCK OR MASONRY | SINGLE UL CLASSIFIED PENETRANT SYSTEM MULTIPLE PENETRANTS | W-J-0000 SERIES OR NOTE 4 | C-AJ-1000 OR W-J-1000 SERIES | C-AJ-2000 OR W-J-2000 SERIES | C-AJ-3000 OR W-J-3000 SERIES | C-AJ-4000 OR W-J-4000 SERIES | C-AJ-5000 OR W-J-5000 SERIES | C-AJ-5000 OR W-J-5000 SERIES | C-AJ-6000 SERIES | C-AJ-7000 OR W-J-7000 SERIES | ?? | NOTE 8 | | | | |
| | | | | C-AJ-8000 OR W-J-8000 SERIES - NOTE 5 | | | | C-AJ-8000 OR W-J-8000 SERIES - NOTE 5 | N/A | | N/A | | | | | | |
| | | | | EQUAL TO BARRIER RATING | | | | | | | | | | | | | |
| | | | | EQUAL TO F RATING (NOTE 9) | | | | | | | | | | | | | |
| ADDITIONAL REQUIREMENTS | | | NONE | NONE | NONE | NONE | NONE | NONE | NOTE 6 | NONE | NOTE 7 | NONE | NONE | | | | |

| | | | | | | | | | | | | | |
|--------------|--------------------------------------|------------------------------------------|--------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------|------------------------------|--------|
| WALL | POURED CONC. BLOCK OR MASONRY | SINGLE UL CLASSIFIED PENETRANT SYSTEM | NOTE 4 | C-BK-1000 OR W-K-1000 SERIES | N/A | N/A | W-K-4000 SERIES | N/A | N/A | N/A | N/A | N/A | NOTE 8 |
| | | | | EQUAL TO BARRIER RATING | | | | | | | | | |
| | | | | EQUAL TO F RATING (NOTE 9) | | | | | | | | | |
| | | | | ADDITIONAL REQUIREMENTS | NONE | | | | | | | | |
| FLOOR | FRAMED | SINGLE UL CLASSIFIED PENETRANT SYSTEM | NOTE 4 | F-C-1000 SERIES | F-C-2000 SERIES | F-C-3000 SERIES | N/A | F-C-5000 SERIES | F-C-5000 SERIES | N/A | F-C-7000 SERIES | ?? | NOTE 8 |
| | | | | EQUAL TO BARRIER RATING | | | | | | | | | |
| | | | | EQUAL TO F RATING (NOTE 9) | | | | | | | | | |
| | | | | ADDITIONAL REQUIREMENTS | NONE | NONE | NONE | NONE | NONE | NONE | NOTE 6 | NONE | NOTE 7 |
| FLOOR | POURED CONC. | SINGLE UL CLASSIFIED PENETRANT SYSTEM | NOTE 4 | C-AJ-0000 OR F-A-0000 SERIES | C-AJ-1000 OR F-A-1000 SERIES | C-AJ-2000 OR F-A-2000 SERIES | C-AJ-3000 OR F-A-3000 SERIES | C-AJ-4000 OR F-A-4000 SERIES | C-AJ-5000 OR F-A-5000 SERIES | C-AJ-5000 OR F-A-5000 SERIES | C-AJ-6000 SERIES | C-AJ-7000 OR F-A-7000 SERIES | NOTE 8 |
| | | | | EQUAL TO BARRIER RATING | | | | | | | | | |
| | | | | EQUAL TO F RATING (NOTE 9) | | | | | | | | | |
| | | | | ADDITIONAL REQUIREMENTS | NONE | NONE | NONE | NONE | NONE | NONE | NOTE 6 | NONE | NOTE 7 |
| FLOOR | POURED CONC. | SINGLE UL CLASSIFIED PENETRANT SYSTEM | NOTE 4 | C-BJ-1000 OR F-B-1000 SERIES | C-BJ-2000 OR F-B-2000 SERIES | C-BJ-3000 OR F-B-3000 SERIES | C-BJ-4000 OR F-B-4000 SERIES | C-BJ-5000 OR F-B-5000 SERIES | C-AJ-5000 OR F-A-5000 SERIES | C-AJ-5000 OR F-A-5000 SERIES | C-AJ-6000 SERIES | C-BJ-7000 OR F-B-7000 SERIES | NOTE 8 |
| | | | | EQUAL TO BARRIER RATING | | | | | | | | | |
| | | | | EQUAL TO F RATING (NOTE 9) | | | | | | | | | |
| | | | | ADDITIONAL REQUIREMENTS | NONE | NONE | NONE | NONE | NONE | NONE | NOTE 6 | NONE | NOTE 7 |

THIS SCHEDULE USES THE IDENTIFICATION SYSTEMS OF UNDERWRITERS LABORATORIES, INC. AS DEFINED IN THEIR "FIRE RESISTANCE DIRECTORY" AND AS USED BY MANUFACTURERS ON THEIR UL CLASSIFIED SYSTEM.

INDICATED RATINGS MAY BE EXCEEDED. "N/A" = NOT APPLICABLE

NOTES

1. EXAMPLES OF SYSTEMS THAT OPERATE BETWEEN 32 DEGF (0DEGC) AND 122 DEGF (50 DEGC):

| | |
|------------------------------------|---------------------------------------------------------------------|
| CHILLED WATER SUPPLY & RETURN | DOMESTIC HOT WATER LESS THAN 122 DEGF (50 DEGC) |
| HEAT PUMP WATER SUPPLY & RETURN | DOMESTIC HOT WATER RECIRCULATION LESS THAN 122 DEGF (50 DEGC) |
| DOMESTIC COLD WATER | |
2. EXAMPLES OF SYSTEMS OPERATING BELOW 32 DEGF (0DEGC) OR ABOVE 122 DEGF (50 DEGC):

| | |
|------------------------------|-----------------------------------------------------------|
| STEAM SUPPLY & RETURN | HEATING HOT WATER SUPPLY & RETURN |
| STEAM VENT | HOT-CHILLED WATER SUPPLY & RETURN |
| CONDENSATE PUMP DISCHARGE | GLYCOL HEATING HOT WATER SUPPLY & RETURN |
| BOILER BLOW DOWN | DOMESTIC HOT WATER SUPPLY 140 DEGF (60 DEGC) |
| CRYOGENIC VENT | DOMESTIC HOT WATER RECIRCULATION 140 DEGF (60 DEGC) |
3. EXAMPLES OF OTHER RECESSED DEVICES:

| | |
|----------------------------|------------------------------|
| MEDICAL GAS ZONE VALVES | UNIT HEATERS |
| MEDICAL GAS OUTLETS | FIRE FIGHTERS' PHONE |
| FIRE VALVE CABINETS | FIRE EXTINGUISHER CABINET |
| FIRE HOSE CABINETS | |
4. SEAL OPENING USING BARRIER'S ORIGINAL CONSTRUCTION.
5. WHERE A SERIES 8000 CLASSIFIED SYSTEM IS NOT AVAILABLE, INSTALL PENETRANTS SINGLY, AND PROVIDE SINGLE-PENETRANT SYSTEMS.
6. FOR SYSTEMS THAT OPERATE BELOW 32 DEGF (0DEGC) OR ABOVE 122 DEGF (50 DEGC), COMPLY WITH THE FOLLOWING ADDITIONAL REQUIREMENTS:
 - A. PROVIDE TPFS SYSTEM USING INTUMESCENT ELASTOMERIC WRAP STRIP AS ITS FILL, VOID, OR CAVITY MATERIAL.
 - B. DO NOT USE SERIES 8000 PENETRATIONS. PROVIDE ONLY SINGLE PENETRATIONS.
7. FOR PENETRATIONS PROTECTED WITH DAMPERS, PROVIDE TPFS SYSTEM APPROVED BY DAMPER MANUFACTURER.
8. WHERE UL CLASSIFIED SYSTEMS ARE NOT AVAILABLE FOR OTHER RECESSED DEVICES, MAINTAIN CONTINUITY OF RATED BARRIER CONSTRUCTION AROUND RECESS.
9. PROVIDE PILLOW TYPE FIRESTOP SYSTEM TO FILL VOIDS IN CABLE TRAYS AT COMPUTER SERVER ROOMS, AND WHERE INDICATED AS "FREQUENTLY MODIFIED" LOCATIONS.
10. **THE USE OF GYPSUM PRODUCTS IS STRICTLY PROHIBITED.**

NOTE:

For Project Closeout, submit a list of systems installed, the UL numbers, and the location of each system. The submittal must have the installer's signature.

END OF SECTION 07 84 13

SECTION 07 84 46 – FIRE-RESISTIVE JOINT SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes fire-resistive joint systems for the following:

1. Floor-to-floor joints.
2. Floor-to-wall joints.
3. Head-of-wall joints.
4. Wall-to-wall joints.

1.2 ACTION SUBMITTALS

- A. Product Data: Submit product data for each type of product indicated.
- B. Fire Resistive Joint System Schedule: Submit, for information only, a Fire Resistive Joint Schedule indicating the type of fire resistive joint system to be installed for each joint. Indicate each kind of construction condition. Include fire resistive joint design designation of testing and inspection agency acceptable to the authorities having jurisdiction that evidences compliance with requirements for each condition indicated.
1. Submit documentation, including illustrations, from a qualified testing and inspecting agency that is applicable to each fire-resistive joint system configuration for construction and penetrating items.

1.3 INFORMATIONAL SUBMITTALS

- A. Product Certificates: Signed by manufacturers of fire resistive joint system products certifying that products furnished comply with requirements.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: A firm or individual certified or licensed, by the fire resistive joint system manufacturer as experienced and with sufficient trained staff to install manufacturer's products according to specified requirements. A manufacturer's willingness to sell its fire resistive joint system materials to Contractor or to an installer engaged by Contractor does not in itself confer qualification on the buyer.
- B. Source Limitations: Obtain fire-resistive joint systems, for each kind of joint and construction condition indicated, through one source from a single manufacturer.
- C. Fire-Test-Response Characteristics: Provide fire-resistive joint systems that comply with the following requirements and those specified in Part 2 "Performance Requirements" Article:

1. Fire-resistance tests shall be performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency is UL or another agency performing testing and follow-up inspection services for fire-resistive joint systems acceptable to authorities having jurisdiction.
2. Fire-resistive joint systems shall be identical to those tested per methods indicated in Part 1 "Performance Requirements" Article and comply with the following:
 - a. Fire-resistive joint system products bear classification marking of qualified testing and inspecting agency.
 - b. Fire-resistive joint systems correspond to those indicated by referencing system designations of the qualified testing and inspecting agency.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver fire-resistive joint system products to Project site in original, unopened containers or packages with qualified testing and inspecting agency's classification marking applicable to Project and with intact and legible manufacturers' labels identifying product and manufacturer, date of manufacture, lot number, shelf life, curing time, and mixing instructions for multi-component materials.
- B. Store and handle materials for fire-resistive joint systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install fire-resistive joint systems when ambient or substrate temperatures are outside limits permitted by fire-resistive joint system manufacturers or when substrates are wet.
- B. Ventilate fire-resistive joint systems per manufacturer's written instructions by natural means or, if this is inadequate, forced-air circulation.

1.7 COORDINATION

- A. Coordinate construction of joints to ensure that fire-resistive joint systems are installed according to specified requirements.
- B. Coordinate sizing of joints to accommodate fire-resistive joint systems.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide fire resistive joint systems indicated for each application in the Fire-Resistive Joint System Schedule at the end of Part 3.

2.2 PERFORMANCE REQUIREMENTS

- A. General: Provide fire-resistive joint systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of assembly in which fire-resistive joint systems are installed.
- B. Joint Systems in and Between Fire Resistance Rated Constructions: Provide systems with assembly ratings not less than that equaling or exceeding fire-resistance rating of constructions in which joints are located, as determined by UL 2079.

2.3 FIRE-RESISTIVE JOINT SYSTEMS

- A. Compatibility: Provide fire-resistive joint systems that are compatible with joint substrates, under conditions of service and application, as demonstrated by fire-resistive joint system manufacturer based on testing and field experience.
- B. Accessories: Provide components of fire-resistive joint system, including forming materials, that are needed to install fill materials and to comply with "Performance Requirements" Article. Use only components specified by fire-resistive joint system manufacturer and approved by the qualified testing and inspecting agency for systems indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for joint configurations, substrates, and other conditions affecting performance of work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning: Clean joints immediately before installing fire-resistive joint systems to comply with fire-resistive joint system manufacturer's written instructions and the following requirements:
 - 1. Remove from surfaces of joint substrates foreign materials that could interfere with adhesion of fill materials.
 - 2. Clean joint substrates to produce clean, sound surfaces capable of developing optimum bond with fill materials. Remove loose particles remaining from cleaning operation.
 - 3. Remove laitance and form-release agents from concrete.
- B. Priming: Prime substrates where recommended in writing by fire-resistive joint system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

- C. Masking Tape: Use masking tape to prevent fill materials of fire-resistive joint system from contacting adjoining surfaces that will remain exposed on completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from fire-resistive joint system materials. Remove tape as soon as possible without disturbing fire-resistive joint system's seal with substrates or damaging adjoining surfaces.

3.3 INSTALLATION

- A. Install fire-resistive joint systems to comply with Part 1 "Performance Requirements" Article and fire-resistive joint system manufacturer's written installation instructions for products and applications indicated.
- B. Install forming/packing/backing materials and other accessories of types required to support fill materials during their application and in position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
- C. Install fill materials for fire-resistive joint systems by proven techniques to produce the following results:
 - 1. Fill voids and cavities formed by openings and forming/packing/backing materials as required to achieve fire-resistance ratings indicated.
 - 2. Apply fill materials so they contact and adhere to substrates formed by joints.
 - 3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.4 FIELD QUALITY CONTROL

- A. Inspecting Agency: Owner may engage a qualified independent inspecting agency to inspect fire-resistive joint systems and to prepare inspection reports. Inspecting agency shall state in each report whether inspected fire-resistive joint systems comply with or deviate from requirements.
- B. Proceed with enclosing fire-resistive joint systems with other construction only after inspection reports are issued and inspecting agency has approved installed fire-resistive joint systems.
- C. If deficiencies are found, repair or replace fire-resistive joint systems so they comply with requirements.

3.5 CLEANING AND PROTECTING

- A. Clean off excess fill materials adjacent to joints as Work progresses by methods and with cleaning materials that are approved in writing by fire-resistive joint system manufacturers and that do not damage materials in which openings occur.
- B. Provide final protection and maintain conditions during and after installation that ensure fire-resistive joint systems are without damage or deterioration at time of Substantial Completion. If

damage or deterioration occurs despite such protection, cut out and remove damaged or deteriorated fire-resistive joint systems immediately and install new materials to produce fire-resistive joint systems complying with specified requirements.

3.6 FIRE-RESISTIVE JOINT SYSTEM SCHEDULE

- A. Designation System for Joints in or between Fire-Resistance-Rated Constructions: Alphanumeric designations listed in UL's "Fire Resistance Directory" under product Category XHBN.
- B. Designation System for Joints at the Intersection of Fire-Resistance-Rated Floor or Floor/Ceiling Assembly: Alphanumeric designations listed in UL's "Fire Resistance Directory" under product Category XHDG.
- C. Floor-to-Floor, Fire-Resistive Joint Systems: UL-Classified (FF-Series) system as required to maintain floor fire rating indicated.
- D. Floor-to-Wall, Fire-Resistive Joint Systems: UL-Classified (FW-Series) system as required to maintain floor to wall fire rating indicated.
- E. Head-of-Wall, Fire-Resistive Joint Systems: UL-Classified (HW-Series) system as required to maintain floor to wall fire rating indicated.
- F. Wall-To-Wall, Fire-Resistive Joint Systems: UL-Classified (WW-Series) system as required to maintain floor to wall fire rating indicated.

END OF SECTION 07 84 46

SECTION 07 92 00 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes joint sealants.

1.2 ACTION SUBMITTALS

- A. Product Data: Submit product data for each joint sealant product indicated.
- B. Samples: Submit samples for each exposed joint sealant product indicated.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original unopened containers. Store and handle materials in compliance with manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Colors: For fully concealed joints, provide the manufacturer's standard color of sealant which has the best overall performance characteristics for the application shown. For exposed joints, the Architect will select colors from the manufacturer's standard colors.

2.2 JOINT SEALANTS

- A. Butt Glazing Sealant: Comply with ASTM C920, Type S, Grade NS, Class 50; use NT, G, and A, black color unless otherwise indicated.
 - 1. Products and Manufacturers: Provide one of the following:
 - a. 795; Dow Corning.
 - b. Spectrem 2; Tremco, an RPM Co.
 - c. Silpruf SCS 2000; GE Advanced Materials – Silicone.
- B. Sealants for Contact with Food: Comply with 21 CFR 177.2600, NSF Standard 51, and ASTM C 920 for Type S, Grade NS, Class 25, Use NT.
 - 1. Dow Corning; 786 Mildew Resistant Silicone Sealant.

- C. Mildew-Resistant Silicone Sealant (use for joints at plumbing fixtures, toilet room countertops and vanities): Complying with ASTM C920, Type S (single component), Grade NS (non-sag), class 25, Use NT (non-traffic), Substrate uses G, A, and O; and containing a fungicide for mildew resistance; white color.
 - 1. Products: Provide one of the following:
 - a. Dow Corning; 786 Mildew Resistant Silicone Sealant.
 - b. GE Advanced Materials - Silicones; Sanitary SCS 1700.
 - c. Pecora Corporation; 898 Silicone Sanitary Sealant.
 - d. Tremco, an RPM Co.; Tremsil 200 Sanitary.

- D. Latex Sealant: Complying with ASTM C 834, Type OP (opaque sealants):
 - 1. Products: Provide one of the following:
 - a. Pecora Corporation; AC-20 + Silicone.
 - b. BASF; Sonneborn Systems, Sonolastic Sonolac.
 - c. Tremco, an RPM Co.; Tremflex 834.

2.3 MISCELLANEOUS MATERIALS

- A. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants with joint substrates.

- B. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and which will not stain nor mar the finish of surfaces adjacent to joints to which it is applied.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with the recommendations of joint sealant manufacturer and the following requirements:
 - 1. Remove foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), existing joint sealants, oil, grease, water, and surface dirt.
 - 2. Clean concrete, masonry, unglazed surfaces of tile, and similar porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.

3. Remove laitance and form-release agents from concrete.
 4. Clean metal, glass, porcelain enamel, glazed surfaces of tile, and other nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
- B. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.
- C. Installation of Sealants: Install sealants so they directly contact and fully wet joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths that allow optimum sealant movement capability.
- D. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform, concave shaped beads, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint.
- E. Cleaning: Clean excess sealants or sealant smears adjacent to joints as installation progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.2 JOINT SEALANT SCHEDULE

- A. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:
1. Control and Expansion Joints on Exposed Interior Surfaces of Exterior Walls: Latex sealant.
 2. Perimeter Joints of Exterior Openings Where Indicated: Latex sealant.
 3. Tile Control and Expansion Joints: Latex sealant.
 4. Vertical Control Joints on Exposed Surfaces of Interior Unit Masonry and Concrete Walls and Partitions: Latex sealant.
 5. Perimeter Joints between Interior Wall Surfaces and Frames of Interior Doors, Windows, and Elevator Entrances: Latex sealant.
 6. Joints between Plumbing Fixtures and Adjoining Walls, Floors, and Counters: Mildew resistant silicone sealant.
 7. Joints between Glass, and between Glass and Adjacent Substrates: Butt glazing sealant.

END OF SECTION 07 92 00

SECTION 08 11 13 – HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes interior hollow metal doors and frames.
 - 1. The integration of a security system into the hollow metal door and frame work may be required. The Contractor shall be responsible for the total and complete coordination of the security system components into the Work.

1.2 ACTION SUBMITTALS

- A. Product Data: Submit product data for each product indicated. Include material descriptions, core descriptions, label compliance, sound and fire-resistance ratings, and finishes for each type of door and frame specified.
- B. Shop Drawings: Submit door and frame schedule using same reference designations indicated on Drawings. Include opening size(s), handing of doors, frame throat dimensions, details of each frame type, elevations of door design types, details of construction, location and installation requirements of door hardware and reinforcements, hardware group numbers, details of joints and connections, fire label requirements including fire rating time duration, maximum temperature rise requirements, and smoke label requirements.
 - 1. Indicate routing of electrical conduit and dimensions and locations of cutouts in doors and frames to accept electric hardware devices.
- C. Construction Samples, approximately 18 by 24 inches (450 by 600 mm), representing the required construction of doors and frames for Project.
 - 1. Doors: Show vertical-edge, top, and bottom construction; insulation; face stiffeners; and hinge and other applied hardware reinforcement. Include glazing stops if applicable.
 - 2. Welded Frames: Show profile, welded corner joint, welded hinge reinforcement, dust-cover boxes, floor and wall anchors, stops, and silencers. Include glazing stops if applicable.

1.3 INFORMATIONAL SUBMITTALS

- A. Certificate of Compliance for Fire Rated Doors: Provide copies of Certificate of Compliance for all fire rated door assemblies, all smoke and draft control door assemblies, and all temperature rise rated door assemblies.

1.4 QUALITY ASSURANCE

- A. Hollow Metal Door and Frame Standard: Comply with the applicable provisions and recommendations of the following publications by Hollow Metal Manufacturers Association (HMMA) Div. of National Association of Architectural Metal Manufacturers (NAAMM), unless more stringent requirements are indicated in the Contract Documents:
1. HMMA "Hollow Metal Manual."
 2. HMMA 861 "Guide Specifications for Commercial Hollow Metal Doors and Frames."
- B. Manufacturer Qualifications: A firm experienced in manufacturing hollow metal doors and frames similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 252 or UL 10C "Standard for Positive Pressure Fire Tests of Door Assemblies." Fire classification labels at all doors with fire ratings greater than 20 minutes shall indicate the temperature rise developed on the unexposed surface of the door after the first 30 minutes of fire exposure.
1. Provide metal labels permanently fastened on each door which is within the size limitations established by the labeling authority having jurisdiction.
 2. Temperature-Rise Rating: Where indicated, provide doors that have a temperature-rise rating of 450 deg F (250 deg C) maximum in 30 minutes of fire exposure.
 3. Positive Pressure Rated Door Assemblies: Where indicated provide positive pressure rated fire rated door assemblies. Sizes and configurations as shown on the Drawings. Installed door assemblies shall be in accordance with door manufacturer's certified assemblies.
 - a. Test Pressure: Test according to NFPA 252 or UL 10C. After 5 minutes into the test, neutral pressure level in furnace shall be established at 40 inches (1000 mm) or less above the sill.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors and frames palleted, wrapped, or crated to provide protection during transit and Project site storage.
- B. Inspect doors and frames, on delivery, for damage. Tool marks, rust, blemishes, and any other damage on exposed surfaces will not be acceptable. Remove and replace damaged items as directed by Architect. Store doors and frames at building site in a dry location, off the ground, and in such a manner as to prevent deterioration.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Specified Gage Thickness: All specified gauge thicknesses are manufacturer's standard gauge.
- B. Hot-Rolled Steel Sheets: ASTM A 1008/A 1008M, CS (commercial steel), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Cold-Rolled Steel Sheets: ASTM A 1011/A 1011M, CS (commercial steel), Type B, free from scale, pitting, coil breaks, or other defects, exposed (matte) dull finish.
- D. Inserts, Bolts, and Fasteners: Galvanized steel.
 - 1. Expansion Bolts and Shields: FS FF-S-325, Group III, Type 1 or 2.
 - 2. Machine Screws: FS FF-S-92, carbon steel, Type III cross recessed, design I or II recess, style 2C flat head.
- E. Filler: Sound deadening and heat retarding mineral fiber insulating material.
- F. Glass and Glazing: Refer to Division 08 Section "Glazing."

2.2 DOORS

- A. General: Provide flush-design doors, 1-3/4 inches (44 mm) thick, of seamless hollow construction, unless otherwise indicated. Construct doors with sheets joined at their vertical edges by continuous welding the full height of the door, with no visible seams on their faces or vertical edges, and all welds ground and finished flush.
 - 1. Visible joints or seams around glazed panel inserts are permitted.
 - 2. For single-acting swing doors, bevel both vertical edges 1/8 inch in 2 inches (3 mm in 50 mm).
 - 3. For double-acting swing doors, round vertical edges with 2-1/8 inch (54 mm) radius.
- B. Interior Door Core Construction: Provide one of the following core constructions welded to both door faces:
 - 1. Steel-Stiffened Core: 20 gauge (0.032 inch) (0.8 mm) steel vertical stiffeners extending full-door height, spaced not more than 6 inches (150 mm) apart and spot welded to face sheets a maximum of 5 inches (127 mm) o.c. Place filler between stiffeners for full height of door.
 - 2. Continuous Truss-Form Inner Core: 28 gauge thick steel reinforcement spot welded to face sheets a maximum of 2-3/4 inches (69.9 mm) o.c. vertically and horizontally.
- C. Fire Door Cores: A continuous mineral fiberboard core permanently bonded to the inside face of the outer face sheet unless otherwise required to provide fire-protection and temperature-rise ratings indicated.

- D. Astragals: As required by NFPA 80 to provide fire ratings indicated.
- E. Top and Bottom Channels: Spot weld metal channels, having a thickness of not less than thickness of face sheet, not more than 6 inches (150 mm) o.c. to face sheets.
 - 1. Reinforce tops and bottoms of doors with inverted horizontal channels of same material as face sheet so flanges of channels are even with bottom and top edges of face sheets.
- F. Hardware Reinforcement: Fabricate reinforcing from the same material as door to comply with the following. Offset reinforcement so that faces of mortised hardware items are flush with door surfaces.
 - 1. Hinges and Pivots: 7 gauge (0.167 inch) (4.2 mm) thick by 1-1/2 inches (38 mm) wide by 9 inches (229 mm).
 - 2. Lock Front, Strike, and Flushbolt Reinforcements: 12 gauge (0.093 inch) (2.3 mm) thick by size as required by hardware manufacturer.
 - 3. Lock Reinforcement Units: 14 gauge (0.067 inch) (1.7 mm) thick by size as required by hardware manufacturer.
 - 4. Closer Reinforcements: 12 gauge (0.093 inch) (2.3 mm) thick one piece channel by size as required by hardware manufacturer.
 - 5. Other Hardware Reinforcements: As required for adequate strength and anchorage.
 - 6. In lieu of reinforcement specified, hardware manufacturer's recommended reinforcing units may be used.
 - 7. Exit Device Reinforcements: 0.250 inch (6.35 mm) thick by 10 inches (245 mm) high by 4 inches (101 mm) wide centered on exit device case body, unless otherwise recommended by exit device manufacturer.
- G. Electrical Requirements: Make provisions for installation of electrical items specified elsewhere; arrange so wiring can be readily removed and replaced.
 - 1. Provide all cutouts and reinforcements required for hollow metal doors to accept security system components.
 - 2. Doors with Electric Hinges and Pivots: Provide with metal conduit or raceway to permit wiring from electric hinge or pivot to other electric door hardware.
 - a. Hinge Location: Center for doors less than 90 inches (2286 mm) tall or second hinge from door bottom for doors greater than 90 inches (2286 mm); top or bottom electric hinge locations shall not be permitted.
- H. Interior Hollow Metal Doors:
 - 1. Typical Interior Doors: Flush design with 18 gauge (0.042 inch) (1.06 mm) thick cold-rolled stretcher-leveled steel face sheets and other metal components from hot- or cold-rolled steel sheets.
 - 2. Extra Heavy Use Doors: Flush design with 14 gauge (0.067 inch) (1.7 mm) thick cold-rolled, stretcher-leveled steel face sheets and other metal components from hot- or cold-rolled steel sheets. Provide only where indicated.

2.3 FRAMES

- A. Fabricate hollow metal door frames, formed to profiles indicated, with full 5/8 inch (16 mm) stops, and of the following minimum thicknesses.
1. For interior use, form frames from cold-rolled steel sheet of the following thicknesses:
 - a. Openings up to and Including 48 Inches (1200 mm) Wide: 16 gauge (0.053 inch) (1.3 mm).
 - b. Openings More Than 48 Inches (1200 mm) Wide: 14 gauge (0.067 inch) (1.7 mm).
- B. Provide frames either saw mitered and full (continuously) profile welded, or machine mitered and full (continuously) profile welded, on back side at frame corners and stops with edges straight and true. Grind welds smooth and flush on exposed surfaces.
- C. Hardware Reinforcement: Fabricate reinforcements from same material as frame to comply with the following. Offset reinforcement so that faces of mortised hardware items are flush with surface of the frame.
1. Hinges and Pivots: 7 gauge (0.167 inch) (4.2 mm) thick by 1-1/4 inches (32 mm) wide by 10 inches (254 mm).
 2. Strike, Surface Mounted Hold Open Arms, and Flushbolt Reinforcements: 12 gauge (0.093 inch) (2.3 mm) thick by size as required by hardware manufacturer.
 3. Closer Reinforcements: 12 gauge (0.093 inch) (2.3 mm) thick one piece channel by size as required by hardware manufacturer.
 4. Other Hardware Reinforcements: As required for adequate strength and anchorage.
- D. Electrical Requirements: Make provisions for installation of electrical items specified elsewhere; arrange so wiring can be readily removed and replaced.
1. Provide all cutouts and reinforcements required for hollow metal frames to accept security system components.
 2. Frames with Electric Hinges and Pivots: Provide welded on UL listed back boxes with metal conduit or raceway to permit wiring from electric hinge or pivot to other electric door hardware.
 - a. Hinge Location: Center for doors less than 90 inches (2286 mm) tall or second hinge from door bottom for doors greater than 90 inches (2286 mm); top or bottom electric hinge locations shall not be permitted.
- E. Jamb Anchors: Locate jamb anchors above hinges and directly opposite on strike jamb as required to secure frames to adjacent construction. At metal stud partitions locate the additional jamb anchor below the top hinge.
1. Metal-Stud Partitions: Metal channel stud zee anchor sized to match stud width, welded to back of frames, formed of same material and gauge thickness as frame. Provide at least the number of anchors for each jamb according to the following heights:
 - a. Three anchors per jamb up to 60 inches (1500 mm) in height.

- b. Four anchors per jamb from 60 to 90 inches (1500 to 2250 mm) in height.
 - c. Five anchors per jamb from 90 to 96 inches (2250 to 2400 mm) in height.
 - d. One additional anchor per jamb for each 24 inches (600 mm) or fraction thereof more than 96 inches (2400 mm) in height.
- F. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, formed of same material as frame, 12 gauge (0.093 inch) (2.3 mm) thick, and punched with two holes to receive two (2) 0.375 inch (9.5 mm) fasteners. Where floor fill or setting beds occur support frame by adjustable floor anchors bolted to the structural substrate. Terminate bottom of frames at finish floor surface.
- G. Head Strut Supports: Provide 3/8 by 2 inch (9 by 50 mm) vertical steel struts extending from top of frame at each jamb to supporting construction above. Bend top of struts to provide flush contact for securing to supporting construction above by bolting, welding, or other suitable anchorage. Provide adjustable wedged or bolted anchorage to frame jamb members to permit height adjustment during installation. Adapt jamb anchors at struts to permit adjustment.
- H. Head Reinforcement: For frames more than 48 inches (1200 mm) wide in masonry wall openings, provide continuous steel channel or angle stiffener, 12 gauge (0.093 inch) (2.3 mm) thick for full width of opening, welded to back of frame at head. Head reinforcements shall not be used as a lintel or load bearing member for masonry.
- I. Spreader Bars: Provide removable spreader bar across bottom of frames, tack welded to jambs and mullions to serve as bracing during shipment and handling and to hold frames in proper position until anchorage and adjacent construction have been completed.
- J. Door Silencer Holes: Drill strike jamb stop to receive three silencers on single door frames and for two silencers on double door frames. Insert plastic plugs in holes to keep holes clear during installation.
- K. Plaster Guards and Removable Access Plates: Provide 26 gauge (0.016 inch) (0.4 mm) thick plaster guards or dust-cover boxes of same material as frame, welded to frame at back of hardware cutouts to close off interior of openings and prevent mortar or other materials from obstructing hardware operation. Provide removable access plates in the heads of frames to receive overhead concealed door closers.
- 2.4 STOPS AND MOLDINGS
- A. Form fixed stops and moldings integral with frame, on the exterior (non-secured) side of the frame.
- 2.5 FABRICATION
- A. Fabricate doors and frames rigid, neat in appearance, and free of defects, warp, wave, and buckle. Accurately form metal to sizes and profiles indicated. Accurately machine, file, and fit exposed connections with hairline joints. Weld exposed joints continuously; grind, fill, dress, and make smooth, flush, and invisible.

- B. Exposed Fasteners: Provide countersunk flat heads for exposed screws and bolts, unless otherwise indicated.
- C. Hardware Preparation: Prepare doors and frames to receive hardware, including cutouts, reinforcement, mortising, drilling, and tapping, according to final hardware schedule and templates provided by hardware supplier. Secure reinforcement by spot welding. Comply with applicable requirements of ANSI A115 Series specifications for door and frame preparation for hardware. Factory reinforce doors and frames to receive surface-applied hardware. Factory drill and tap for surface-applied hardware, except at pushplates and kickplates provide reinforcing only.
 - 1. Locate hardware as indicated on the Drawings or in Division 08 Section "Door Hardware" or, if not indicated, according to HMMA 831, "Recommended Hardware Locations for Custom Hollow Metal Doors and Frames."

2.6 STEEL SHEET FINISHES

- A. General: Clean, treat and prime surfaces of fabricated hollow metal door and frame work, inside and out, whether exposed or concealed in the construction.
- B. Surface Preparation: Clean surfaces to comply with SSPC-SP 1, "Solvent Cleaning"; remove dirt, oil, grease, or other contaminants that could impair paint bond. Remove mill scale, shavings, filings, and rust, if present, complying with SSPC-SP 3, "Power Tool Cleaning."
- C. Factory Priming for Field-Painted Finish: Apply shop primer immediately after surface preparation and pretreatment. Apply a sufficient number of coats, baked on, to obtain uniformly smooth exposed surfaces. Touch up surfaces having runs, smears, or bare spots.
 - 1. Shop Primer: Manufacturer's or fabricator's standard, fast-curing, corrosion-inhibiting, lead- and chromate-free, universal primer complying with ANSI A250.10 acceptance criteria; compatible with substrate and field-applied finish paint system indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install doors and frames according to DHI A115.IG, the Architect reviewed shop drawings, and manufacturer's written recommendations and installation instructions.
- B. Frames: Install frames where indicated. Extend frame anchorages below fills and finishes. Coordinate the installation of built-in anchors for wall and partition construction as required with other work.
 - 1. Welded Frames:
 - a. Set masonry anchorage devices where required for securing frames to in-place concrete or masonry construction.

- 1) Set anchorage devices opposite each anchor location as specified and anchorage device manufacturer's written instructions. Leave drilled holes rough, not reamed, and free of dust and debris.
 - b. Placing Frames: Set frames accurately in position; plumb; align, and brace securely until permanent anchors are set. After wall construction is complete, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.
 - 1) At concrete or masonry construction, set frames and secure in place with machine screws and masonry anchorage devices. Anchor bottom of frames to floors with anchor bolts or power driven fasteners.
 - 2) Field splice only at approved locations indicated on the shop drawings. Weld, grind, and finish as required to conceal evidence of splicing on exposed faces.
 2. At fire-rated openings, install frames according to NFPA 80.
- C. Doors:
1. Non-Fire Rated Doors: Fit non-fire-rated doors accurately in their respective frames, with the following clearances:
 - a. Jambs and Head: 3/32 inch (2 mm).
 - b. Meeting Edges, Pairs of Doors: 1/8 inch (3 mm).
 - c. Bottom: 3/8 inch (9 mm), if no threshold or carpet.
 - d. Bottom: 1/8 inch (3 mm), at threshold or carpet.
 2. Fire-Rated Doors: Install with clearances as specified in NFPA 80.
- D. Wood Door Installation: Refer to Division 08 Section "Flush Wood Doors."
- E. Apply hardware in accordance with hardware manufacturer's instructions and Division 08 Section "Door Hardware." Drill and tap for machine screws as required. Do not use self-tapping sheet metal screws. Adjust door installation to provide uniform clearance at head and jambs, and to contact stops uniformly. Adjust hardware items just prior to final inspection. Leave work in complete and proper operating condition.
1. Field cut existing hollow metal doors and frames indicated to receive new hardware. Field cutting shall be executed in a workmanlike manner and shall not void the existing door and frame labeling.

3.2 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items just before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including doors or frames that are warped, bowed, or otherwise unacceptable.
- B. Prime-Coat Touchup: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touchup of compatible air-drying primer.

1. Finish Painting: Refer to Division 09 Section "Interior Painting."
- C. Remove and replace defective work, including doors or frames that are warped, bowed, or otherwise defective.
- D. Institute protective measures required throughout the remainder of the construction period to ensure that hollow metal doors and frames will be without any damage or deterioration, at time of Substantial Completion.

END OF SECTION 08 11 13

SECTION 08 14 16 – FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes solid core flush wood doors.
 - 1. The integration of a security system into the flush wood door work is required. The Contractor shall be responsible for the total and complete coordination of the security system components into the Work.

1.2 ACTION SUBMITTALS

- A. Product Data: Submit product data for each type of door required. Include factory-finishing specifications.
 - 1. Submit laboratory test report results of hinge loading, cycle/slam, stile edge screw withdrawals, and stile edge split resistance for fire rated doors.
- B. Shop Drawings: Submit shop drawings indicating location, size, thickness, and hand of each door; elevation of each kind of door; construction details; location and extent of hardware blocking; mortises, holes, and cutouts for factory machined doors; requirements for veneer matching; factory finishing; fire label requirements including fire rating time duration, maximum temperature rise requirements, and smoke label requirements; undercuts, special beveling, and other pertinent data.
- C. Samples: Cut away corner section of each door type approximately 8 by 10 inches (200 by 250 mm) demonstrating door construction, face veneer and finish.

1.3 QUALITY ASSURANCE

- A. Quality Standard: Comply with AWI's "Architectural Woodwork Quality Standards Illustrated, 8th Edition, Version 1.0, Section 1300."

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Protect wood doors during transit, storage, and handling to prevent damage, soiling, and deterioration. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in heavy duty cardboard cartons.
- C. Handle wood doors with clean gloves. Lift and carry wood doors when moving them around the site, do not drag wood doors across one another.

1.5 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until wet work , such as masonry, concrete, stone, tile, terrazzo, plastering, wallboard joint treatment, is complete and dried, and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period. Do not expose doors to sudden changes in temperature such as forced heat used to dry out the site.

1.6 WARRANTY

- A. Special Warranty: Manufacturer's standard form, signed by manufacturer, Installer, and Contractor, in which manufacturer agrees to repair or replace doors that are defective in materials or workmanship for the life of the original installation of the door. A representative of the door manufacturer shall inspect the installed doors and shall note on the warranty that no provisions of the warranty have been nullified in the manufacture and/or installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Algoma Hardwoods Inc.
 2. Eggers Industries; Architectural Door Division.

2.2 DOOR CONSTRUCTION

- A. Provide doors made with adhesives and composite wood products that do not contain added urea-formaldehyde resins.
- B. Particleboard-Core Doors:
1. Particleboard: ANSI A208.1, Grade LD-2.
- C. Plastic-Laminate-Faced Doors:
1. Grade: Custom.
 2. Laminate Faces: High-pressure decorative laminates complying with NEMA LD 3, Grade HGS, minimum 0.050 inch thick.
 3. Colors, Patterns, and Finishes: As indicated.
 4. Thickness: 1-3/4 inch (45 mm) unless otherwise indicated.
 5. Construction: AWI Section 1300, PC-HPDL-5, particleboard core. Provide blocking for doors with closers, exit devices, and plates.
 - a. Use particleboard made with binder containing no urea-formaldehyde resin.

6. Vertical Edge Construction: Provide manufacturer's standard laminated-edge construction meeting label requirements and tested to specified direct screw withdrawal, split resistance, cycle slam, and hinge loading criteria. Finish outer bands to match door faces without joints.
 - a. Split Resistance: Not less than 696 pounds when tested in accordance with WDMA TM-5; or, not less than 1305 pounds when tested in accordance with ASTM D143.
 - b. Cycle/Slam: Not less than 200,000 cycles with no loosening of hinge screws or other visible signs of failure when tested in accordance with the requirements of WDMA TM-7; or, not less than 502,000 cycles when tested in accordance with ANSI A151.1
 - c. Direct Screw Withdrawal: Not less than 700 pounds when tested in accordance with WDMA TM-10; or, not less than 877 pounds when tested in accordance with ASTM D1037 using #12 x 1-1/4 steel screws, threaded to the head with either A or AB wood threads.
 - d. Hinge Loading: Not less than 684 pounds average when tested in accordance with WDMA TM-8.

2.3 FABRICATION

- A. Fabricate doors in sizes indicated for Project-site fitting.
- B. Factory fit doors to suit frame-opening sizes indicated.
- C. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3 unless otherwise indicated to match existing frame hardware preparations. Comply with final hardware schedules, door frame Shop Drawings, AWI Section 1300-G-20, DHI A115-W series standards, and hardware templates.
 1. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before factory machining.
 2. Locate lock and latchsets in doors to match existing strike locations on existing door frames; locate hinges in doors to match hinge locations on existing door frames.
- D. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required. Install light beads with fasteners spaced for opening size and fire rating indicated. Install wood bead moldings with finish nails and countersink without striking bead. Fill countersunk heads with putty matching wood bead color.

2.4 FACTORY FINISHING

- A. Finish doors at factory.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Hardware: Apply hardware to new doors in accordance with hardware manufacturer's instructions and Division 08 Section "Door Hardware." For particleboard core doors drill pilot holes of proper size for installing hinge screws. Adjust hardware items just prior to final inspection. Leave work in complete and proper operating condition.
1. Factory wrapping shall be maintained on new doors during construction period, and all hardware shall be installed by cutting the factory wrapping at the mounting location of the hardware item.
- B. General Door Installation Standards: Install doors in locations indicated to comply with manufacturer's written instructions, referenced quality standard, and as indicated. Where standards conflict the more stringent shall apply.
1. Install fire-rated doors in corresponding fire-rated frames according to fire label requirements.
- C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels; and to contact stops uniformly, do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Field cutting, fitting or trimming, shall be executed in a workmanlike manner. Machine doors for hardware. Seal cut and trimmed surfaces immediately after fitting and machining using clear varnish or sealer.
1. Clearances: Provide 1/8 inch (3.2 mm) at heads, jambs, and between pairs of doors. Provide 1/8 inch (3.2 mm) from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4 inch (6.4 mm) from bottom of door to top of threshold.
 2. Comply with fire label requirements for fire-rated doors.
- D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge, matching clearances specified for factory prefitting, and to contact stops uniformly. Field cutting, fitting or trimming, if required, shall be executed in a workmanlike manner.
1. Clearances: Provide 1/8 inch (3.2 mm) at heads, jambs, and between pairs of doors. Provide 1/8 inch (3.2 mm) from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4 inch (6.4 mm) from bottom of door to top of threshold.
- E. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.2 ADJUSTING AND PROTECTION

- A. Rehang or replace doors that do not swing or operate freely.

- B. Protection: Protect wood doors to ensure that the wood door work will be without damage or deterioration at the time of Substantial Completion.
 - 1. Refinish or replace wood doors damaged during installation. Replace any new wood doors that are warped, twisted, demonstrate core show through, are not true in plane, or cannot be refinished to the satisfaction of the Architect.

END OF SECTION 08 14 16

SECTION 08 31 13 - ACCESS DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes 2-hour fire-rated ceiling access doors and frames with integral folding stairway.

1.2 ACTION SUBMITTALS

- A. Product Data: Submit product data for each type of access door and frame indicated. Include construction details relative to materials, individual components and profiles, finishes, and fire ratings (if required) for access doors and frames.
- B. Coordination Drawings: Reflected ceiling plans drawn to scale and coordinating penetrations and ceiling-mounted items with concealed framing, suspension systems, piping, ductwork, and other construction. Show the following:
 - 1. Method of attaching door frames to surrounding construction.
 - 2. Ceiling-mounted items including access doors and frames, lighting fixtures, diffusers, grilles, speakers, sprinklers, and special trim.
- C. Schedule: Provide complete door and frame schedule, including types, general locations, sizes, construction details, latching or locking provisions, and other data pertinent to installation.

1.3 QUALITY ASSURANCE

- A. Single-Source Responsibility: Obtain access doors of each type for entire project from one source from a single manufacturer.
- B. Fire-Rated Access Doors and Frames: Provide access doors and frames complying with NFPA 80 that are identical to access door and frame assemblies tested for fire-test-response characteristics per the following test method and that are labeled and listed by UL.
 - 1. Vertical Access Doors: NFPA 252 or UL 10B.
- C. Size and Location Verification: Determine specific locations and sizes for access doors needed to gain access to concealed equipment, and indicate on schedule.

1.4 COORDINATION

- A. Verification: Obtain specific locations and sizes for required access doors from trades requiring access to concealed equipment, and where shown on the drawings, and indicate on schedule specified in "Submittals" Article.

PART 2 - PRODUCTS

2.1 ACCESS DOORS AND FRAMES

- A. Pull-Down Access Doors and Trimless Frames for Horizontal Surfaces: Fabricated from steel sheet.
1. Locations: Gypsum board ceiling surfaces.
 2. Door: Minimum 20 gauge steel door attached to frame with continuous steel piano hinges, set flush with surrounding gypsum wallboard finish surfaces.
 3. Frame: 1/8 inch steel framed channel, 6 inch deep and 90 degrees at each end.
 4. Stairway:
 - a. Stringers:
 - 1) 6005-T5 extruded aluminum channel, 5 inches by 1 inch by 1/8 inch.
 - 2) Tri-fold design.
 - 3) Steel blade type hinges.
 - 4) Adjustable foot with plastic Mar-guard.
 - 5) Pitch 63 degrees (standard). Other pitches optional.
 - b. Treads:
 - 1) 6005-T5 extruded aluminum channel, 5-3/16 inches by 1-1/4 inches by 1/8 inch.
 - 2) Length: 21-1/4 inches is standard for ceilings 12'-0" and less (lengths to 30-1/4 inches available). For ceilings 12'-1" and up (to maximum of 13'-6"), treads shall be 13-3/4 inches long.
 - 3) Deeply serrated top surface.
 - 4) 9-1/2 inch riser height (standard).
 - 5) 500 lb. load rating on units for ceiling heights of 12 feet or less; 300 lbs. load rating for ceiling heights of 12'-1" and above.
 - c. Frame:
 - 1) 1/8 inch steel, formed channel, 6 inches deep, 90 degrees both ends.
 - 2) If ceiling to floor height is greater than 12 inches, 1/8 inch steel formed channel, 63 degrees on hinge side, 90 degrees on the other end, custom depth to fill the distance from finished ceiling below to finished floor above. Frame shall have stationary, built-in steps to continue the climb at the same angle as the folding portion of the stair.
 5. Hardware:
 - a. Steel blade type hinge connecting stringer sections, zinc plated and chromate sealed, bolted to stringers.
 - b. Steel operating arms, cadmium plated and chromate sealed, both sides.
 - c. Double acting steel springs and cables, both sides.
 - d. Rivets rating at 1100# shear strength each.

6. Product:
 - a. Precision Ladders, LLC; The Disappearing Stairway, Model AL____.
7. Accessories:
 - a. Steel pole to aid opening and closing stairway. Pole equipped with hook on one end and bicycle grip on the other.
 - b. Keyed lock for door.
8. Finish: Mill finish on aluminum components and prime paint on frame.

2.2 FABRICATION

- A. General: Provide access door assemblies manufactured as integral units ready for installation.

2.3 CARBON STEEL FINISHES

- A. Surface Preparation: Prepare uncoated ferrous-metal surfaces to comply with SSPC-SP 3, "Power Tool Cleaning."
- B. Apply shop primer to uncoated surfaces of metal fabrications. Comply with SSPC-PA 1, "Paint Application Specification No. 1," for shop painting.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine rough opening in ceiling for opening size and squareness.

3.2 INSTALLATION

- A. Comply with manufacturer's instructions for installation of access doors. Coordinate installation with work of other trades.
- B. Advise installers of other work about specific requirements relating to access door installation, including sizes of openings to receive access door and frame, as well as locations of supports, inserts, and anchoring devices.
- C. Set frames accurately in position and attach securely to supports with plane of face panels aligned with adjacent finish surfaces.
- D. Install access doors flush with adjacent finish surfaces.
- E. Adjust doors and hardware after installation for proper operation.

- F. Remove and replace panels or frames that are warped, bowed, or otherwise damaged.

END OF SECTION 08 31 13

SECTION 08 71 00 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes furnishing and installing door hardware, thresholds, weatherstripping and seals.
- B. Related Sections include the following:
 - 1. Division 08 Section "Metal Doors and Frames."
 - 2. Division 08 Section "Wood Doors."
 - 3. Division 08 Section "Coiling Doors & Grilles."
 - 4. Division 08 Section "Entrances and Storefronts."

1.2 PERFORMANCE REQUIREMENTS

- A. Furnish and install each door hardware item to provide proper operation and required function of every unit without binding or failure.
 - 1. Interior Door Opening Force: Adjust hardware operation at interior non-fire-rated doors to provide an opening force not greater than 5 lbs at a point 3" from latch, measured to leading edge of door.
 - 2. Exterior and Fire Rated Door Opening Force: At exterior doors and fire-rated doors, adjust hardware opening force in small increments above the opening force required for interior non-fire-rated doors to close and latch the door.
 - 3. Closer Sweep Adjustment: Adjust closer sweep period so that from a 70 degree open position, door will take at least 3 seconds to move to a point 3" from latch, measured to leading edge of door.

1.3 SUBMITTALS

- A. Submit manufacturer's technical product data for each item of hardware. Final Hardware Schedule Content: Based on hardware indicated, organize schedule into vertical format "hardware sets" indicating complete designations of every item required for each door or opening. Use specification heading numbers with any variations suffixed a, b, etc
- B. Coordinate hardware with doors, frames, and related work to ensure proper size thickness, hand, function, and finish of hardware. If requested by Architect, submit one sample of each type of exposed hardware unit, finished as required, and tagged with full description for coordination with schedule. Submit data and schedule at earliest possible date, particularly where acceptance of schedule must precede fabrication of other work (e. g. hollow metal frames) that is critical to the Project construction schedule.

1. Type, style, function, size and finish of each hardware item.
 2. Name and manufacturer of each item.
 3. Fastenings and other pertinent information.
 4. Hardware set location cross-referenced to both Drawing floor plan and door schedule indications.
 5. Explanation of all abbreviations, symbols, and codes in schedule.
 6. Mounting locations for hardware.
 7. Door and frame sizes and materials.
- C. Coordinate keying instructions, and keying information. Deliver keys and key control box to Owner in person and obtain receipt (No Exceptions).

1.4 QUALITY ASSURANCE

- A. Supplier Qualifications: A recognized finish hardware supplier who has been furnishing hardware in the Project's vicinity for a period of not less than 2 years, and who is, or employs an experienced hardware consultant (AHC) who is available, at reasonable times during the course of the Work, for consultation about Project's hardware requirements, to Owner, Architect and Contractor.
- B. Coordination and Schedules: Hardware units and usage specified in Part 2 of this Section and scheduled on the Drawings establish quality, quantity, function and finish required for each door opening. Review, coordinate and confirm that hardware specified for each opening is the proper function. In case of controversy, make appropriate notations of proposed changes from specified requirements on supplier's hardware schedule and request written clarification from the Architect prior to proceeding.
- C. Fire-Rated Openings: Provide door hardware for fire rated openings that comply with NFPA Standards No. 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and tested by UL or Warnock Hersey for given type/size opening and degree of label. Provide proper latching hardware, door closers, approved-bearing hinges and seals whether listed in the Hardware Schedule or not. All hardware shall comply with standards UBC 702 (1997) and UL 10C.
1. Where emergency exit devices are required on fire-rated doors (with supplementary marking on doors' UL labels indicating "Fire Door to be equipped with Fire Exit Hardware") provide UL label on exit devices indicating "Fire Exit Hardware".

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Tag each item or package separately with identification related to final hardware schedule, and include basic installation instructions with each item or package.
- B. Packaging of door hardware is the responsibility of supplier. As material is received by hardware supplier from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set number to match set numbers of approved hardware schedule. Two or more identical sets may be packed in same container.

- C. Inventory door hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.
- D. Deliver individually packaged door hardware items promptly to place of installation (shop or Project site).
- E. Provide secure lock-up for door hardware delivered to the Project, but not yet installed. Control handling and installation of hardware items that are not immediately replaceable so that completion of the Work will not be delayed by hardware losses both before and after installation.

1.6 WARRANTY

- A. Special warranties:
 - 1. Door Closers: Ten year period.
 - 2. Exit Devices: Three year period.
 - 3. Automatic Door Operators: Two year period.
 - 4. Locks and Cylinders: Three year period.

1.7 MAINTENANCE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.
- B. Parts kits: Furnish manufacturer's standard parts kits for locksets, exit devices, and door closers.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. General: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware that has been prepared for self-tapping sheet metal screws. With each hardware item, furnish machine screws for installation into steel, and provide threaded to the head wood screws for installation into wood; all-purpose threads are not acceptable. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed screws to match the hardware finish. Provide concealed fasteners for hardware units that are exposed when the door is closed, except to the extent no standard units of the type specified are available with concealed fasteners. Provide through bolts for closer installation.

2.2 HARDWARE UNITS AND USAGE

- A. Units specified below establish the design, grade, function, finish, size, and other qualities required for this Project. Provide the following hardware units in the quantities specified and

locations indicated on the Door Schedule. Provide US 26D finish unless otherwise specified. Refer to Door Schedule on Drawings for door sizes, fire ratings, hardware function, exit devices, door closers, and other requirements at each door opening

1. Butt Hinges: Provide the following butt hinges produced by Ives, or equivalent butt hinges produced by, Hager, or Bommer, as approved. Provide 1-1/2 pair per door leaf up to 7'-6" high and one additional hinge per leaf for each additional 2'-6" of door height. Provide 5" hinge height for doors 3'-6" to 4'-0" wide and 6" hinge height for doors over 4'-0" wide.
 - a. Out-Swinging Exterior Doors Except Storefront: Ives 5BB1HW 4.5 x 4.5 NRP x non-ferrous.
 - b. In-swinging Exterior Doors: Ives 5BB1HW 4.5 x 4.5 non-ferrous.
 - c. Out-Swinging Interior High Frequency Doors: Ives 5BB1HW 4.5 x 4.5 x NRP.
 - d. In-Swinging Interior High Frequency Doors: Ives 5BB1HW 4.5 x 4.5
 - e. Out-Swinging Interior Average Frequency Doors: Ives 5BB1 4.5 x 4.5 NRP.
 - f. In-Swinging Interior Average Frequency Doors: Ives 5BB1 4.5 x 4.5.

2. Door Closers: All closers to have cast iron body with forged arms. Adjust closers to comply with ADA requirements. Provide type of arm recommended by closer manufacturer for door conditions (use, door hand and swing) indicated.
 - a. Closers for fire-rated doors shall be provided with temperature stabilizing fluid that complies with standards UBC 7-2 (1997) and UL 10C.
 - b. Door closer shall have fully hydraulic, full rack and pinion action. Closer shall have 1-1/2-inch in diameter piston.
 - c. Hydraulic fluid shall be of a type requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to minus 30 degrees F.
 - d. Spring power shall be continuously adjustable over the full range of closer sizes, and allow for reduced opening force for the physically handicapped. Closers shall have separate adjustment for latch speed, general speed, and back check.
 - e. Provide surface mounted mechanical closers certified to exceed ten million (10,000,000) full load cycles by a recognized independent testing laboratory.
 - f. Provide powder coating certified to exceed 100 hours salt Spray testing by ETL, an independent testing laboratory used by BHMA for ANSI certification.
 - g. Pressure relief valves are not accepted.
 - h. Closers to be installed to allow door swing as shown on plans. Doors swinging into exit corridors shall provide for corridor clear width as required by code. Where possible, mount closers on room side of door.
 - i. Door closers meeting this specification: LCN 1460Series.

3. Standard Duty Cylindrical Locks and latches: as scheduled, fastened with through-bolts. Provide the following Schlage AL Series x Neptune Lever or equivalent by Falcon.
 - a. Chassis: Cold-rolled steel, handing field-changeable without disassembly.
 - b. Latch bolts: Brass, chrome plated, 1/2-inch throw, deadlocking on keyed and exterior functions.
 - c. Lever Trim: Trim shall have individual heavy-duty springs behind the rose for lever return and to prevent lever sag. All levers shall be solid (no inserts) and meet

- the federal ADA and state disability requirements. Roses shall be a minimum of 3 1/2" diameter.
- d. Strikes: ANSI 16 gauge curved steel, bronze or brass with 1" deep box construction, lips of sufficient length to clear trim and project clothing.
 - e. Locksets shall adjust to fit door thickness from 1 3/8" to 2".
 - f. All locksets shall be non-handed and not require field disassembly for re-handing.
 - g. Preparation for door must be non-handed.
 - h. Certifications:
 - 1) ANSI A156.2, Series 4000, Grade 2
 - 2) UL listed for 1 1/2-hour B labeled doors.
4. Exit Devices: Provide the following at the locations shown on the Door Schedule:
- a. Exit Devices shall be touchpad type, fabricated of bronze, brass, stainless steel, or aluminum, plated to the standard architectural finishes to match the balance of the door hardware.
 - b. All exit devices shall incorporate a fluid damper, which decelerates the touchpad on its return stroke and eliminates noise associated with exit device operation. Only compression springs will be used in devices, latches, and outside trims or controls
 - c. Touchpad shall extend a minimum of one half of the door width. Touchpad shall match exit device finish, and shall be stainless steel for US26, US26D, US28, US32, and US32D finishes. All latch bolts to be dead latching type, with a self-lubrication coating to reduce wear. End-cap will install flush with the end of the device. Touchpad shall match exit device finish, and shall be stainless steel for US26, US26D, US28, US32, and US32D finishes
 - d. Exit devices shall be UL listed panic exit hardware. All exit devices for fire rated openings shall be UL labeled fire exit hardware.
 - e. Lever trim for exit devices shall be vandal-resistant type, which will travel to a 90-degree down position when more than 35 pounds of torque are applied, and which can easily be re-set.
 - f. Exit devices meeting this specification: Von Duprin 33/99 Series.
5. Kick Plates, Push, and Pulls: Provide the following at locations designated; Ives or equivalent by Trimco.
- a. Kick Plates shall be 10" high x 2" less than door width x minimum 0.0538" (1.3 mm) thick x B3E.
 - b. Mop Plates shall be 4" high x 1" less than door width x minimum 0.0538" (1.3 mm) thick x B3E.
 - c. Push/Pulls: 8200 6" x 16", 8302 6" x 16"; 8190-0; 9190-0.
6. Stops, Flush Bolts, Dust Proof Strikes, & Silencers: Provide the following at locations designated; IVES, or equivalent by Trimco.
- a. Floor Stops: Ives FS436, FS41
 - b. Wall Stops: Ives WS407
 - c. Where a wall or floor stop cannot be used, provide an overhead stop. Acceptable products are as manufactured by Glynn-Johnson. Use a 100 series concealed

overhead stop where appearance is a primary consideration or 450 series at interior and 90 series at exterior locations.

- d. Manual Flush Bolts: 1 set IVES FB458/FB358 x DP-1/DP-2 dustproof strike as required at each inactive leaf of a pair of doors (except equipped with exit devices).
 - e. Silencers: IVES SR 64; (3) per single leaf opening, (2) per double leaf opening.
7. Weather stripping, Seals and Thresholds: Provide the following at locations designated; National Guard Products or equivalent by Zero Weatherstripping.

2.3 KEYING REQUIREMENTS

- A. Key System Requirements: Initiate and conduct meeting(s) with Owner to determine. For estimate use GMK charge. Furnish Owner's written approval of the system. Provide construction key system in accordance with lock manufacturer's standard. Emboss keys "Do Not Duplicate" and key symbol.
 - 1. Key System: Schlage Everest C Family.
 - 2. Permanent keys: deliver only to Owner's representative.
 - 3. Key Transcript (bitting list): Supply to Owner upon completion.
 - 4. Provide 3 change keys per lock, including emergency over-ride keys where needed, 5 master keys and 5 grand master keys tagged and organized for Owner's use. Provide 5 construction master keys for contractor's use.
- B. Key Control System:
 - 1. Provide a Telkee (302) 678-7800 key control system, or equivalent by Lund Equipment Co., Inc., Cleveland, OH (Tel) 330-659-4800. Include envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal wall cabinet, all as recommended by system manufacturer, with capacity for 150% of the number of locks required for the Project. Hardware supplier to assist Owner in setting up key control system. Organize keys by room, by master, grand master and key blanks, in key envelopes with neatly marked room numbers, as determined at key meeting.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Mount hardware units at heights indicated in "Recommended Locations for Builders Hardware for Custom Steel Doors and Frames" by the Door and Hardware Institute, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by Architect. Reinforce the attachment substrate for secure installation and adjust for proper operation. Provide clean, properly sized mortises and drilled holes for all mortised and surface applied finish hardware

3.2 INSTALLATION

- A. General: Install each hardware item in compliance with the manufacturer's instructions and recommendations.
- B. Do not install surface-mounted items until finishes have been completed on the substrate. Before painter's finish is applied, remove all finish hardware, except prime painted items. After finish coats are dry, permanently replace and readjust finish hardware for proper operation.
- C. Set units level, plumb, and true to line and location
- D. Cut and fit threshold and floor covers to profile of doorframes, with mitered corners and hairline joints. Join units with concealed welds or concealed mechanical joints. Cut smooth openings for bolts and similar items, if any. Screw thresholds to substrate with No. 10 or larger stainless steel screws

3.3 ADJUSTMENT

- A. Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Replace units that cannot be adjusted and lubricated to operate freely and smoothly as intended for the application made.
- B. Six month hardware installation survey is to be performed by a certified "AHC" in the employ of the hardware supplier.

3.4 HARDWARE SCHEDULE:

SPECWORKS # 100391-B7L754JYG

HW SET: 01

DOOR NUMBER:

100

EACH TO HAVE:

| | | | | | |
|---|-----|--------------------|-------------------|-----|-----|
| 2 | SET | PIVOT SET | 7215 | 626 | IVE |
| 2 | EA | PIVOT | 7215 INT | 626 | IVE |
| 1 | EA | PANIC HARDWARE | 3347A-EO | 626 | VON |
| 1 | EA | PANIC HARDWARE | 3347A-NL-OP | 626 | VON |
| 1 | EA | RIM CYLINDER | 951 6 PIN | 626 | FAL |
| 2 | EA | OFFSET DOOR PULL | 8190-0-O | 630 | IVE |
| 2 | EA | SURFACE CLOSER | 4041 SCUSH | 689 | LCN |
| 2 | EA | CUSH SHOE SUPPORT | 4040-30 | 689 | LCN |
| 2 | EA | BLADE STOP SPACER | 4040-61 | 689 | LCN |
| 1 | SET | MEETING STILE SEAL | BY DOOR SUPPLIER | | B/O |
| 2 | EA | DOOR SWEEP | 101V | AL | NGP |
| 1 | EA | THRESHOLD | 425 | AL | NGP |
| 1 | SET | SEALS | BY FRAME SUPPLIER | | B/O |

NOTE: MATCH FINISH OF EXISTING STOREFRONT IF DIFFERENT FROM THAT SCHEDULED.

HW SET: 02
DOOR NUMBER:
102A

EACH TO HAVE:

| | | | | | |
|---|----|----------------|-------------------|-----|-----|
| 4 | EA | HINGE | 5BB1HW 4.5 X 4.5 | 626 | IVE |
| 1 | EA | PUSH PLATE | 8200 6" X 16" | 630 | IVE |
| 1 | EA | PULL PLATE | 8302-0 6" X 16" | 630 | IVE |
| 1 | EA | SURFACE CLOSER | 1461 CUSH FC | 689 | LCN |
| 1 | EA | ARMOR PLATE | 8400 36" X 2" LDW | 630 | IVE |
| 3 | EA | SILENCER | SR64 | GRY | IVE |

HW SET: 03
DOOR NUMBER:
102B

EACH TO HAVE:

| | | | | | |
|---|----|--------------|-------------------------|-----|-----|
| 3 | EA | SPRING HINGE | 3029-6X4.5 | 630 | BOM |
| 2 | EA | PUSH PLATE | 8200 6" X 16" | 630 | IVE |
| 2 | EA | ARMOR PLATE | 8400 36" X 2" LDW | 630 | IVE |
| 2 | EA | DOOR STOP | WS407CCV/FS436 AS REQ'D | 626 | IVE |

HW SET: 04
DOOR NUMBER:
104

EACH TO HAVE:

| | | | | | |
|---|----|-------------|-------------------------|-----|-----|
| 4 | EA | HINGE | 5BB1 4.5 X 4.5 | 626 | IVE |
| 1 | EA | OFFICE LOCK | AL50PD NEP | 626 | SCH |
| 1 | EA | DOOR STOP | WS407CCV/FS436 AS REQ'D | 626 | IVE |
| 3 | EA | SILENCER | SR64 | GRY | IVE |
| 1 | EA | COAT HOOK | 572 | 626 | IVE |

HW SET: 05
DOOR NUMBER:
106 107

EACH TO HAVE:

| | | | | | |
|---|----|----------------|-------------------------|-----|-----|
| 4 | EA | HINGE | 5BB1HW 4.5 X 4.5 | 626 | IVE |
| 1 | EA | PUSH PLATE | 8200 6" X 16" | 630 | IVE |
| 1 | EA | PULL PLATE | 8302-0 6" X 16" | 630 | IVE |
| 1 | EA | SURFACE CLOSER | 1461 FC | 689 | LCN |
| 1 | EA | DOOR STOP | WS407CCV/FS436 AS REQ'D | 626 | IVE |
| 3 | EA | SILENCER | SR64 | GRY | IVE |

HW SET: 06
DOOR NUMBER:
201

EACH TO HAVE:

| | | | | | |
|---|-----|-------------------|-------------------------|-----|-----|
| 8 | EA | HINGE | 5BB1 4.5 X 4.5 | 626 | IVE |
| 1 | EA | MANUAL FLUSH BOLT | FB358 (TOP) | 626 | IVE |
| 1 | EA | STOREROOM LOCK | AL80PD NEP | 626 | SCH |
| 1 | SET | ASTRAGAL | 115NA | AL | NGP |
| 1 | EA | SURFACE CLOSER | 1261 RW/PA SLIM | 689 | LCN |
| 2 | EA | KICK PLATE | 8400 10" X 1" LDW | 630 | IVE |
| 2 | EA | DOOR STOP | WS407CCV/FS436 AS REQ'D | 626 | IVE |
| 1 | SET | SEALS | 5050B | BRN | NGP |
| 2 | EA | DOOR BOTTOM | 335S | AL | NGP |
| 1 | EA | THRESHOLD | 411 | AL | NGP |

NOTE: INSTALL CLOSER ON ACTIVE LEAF ONLY.

END OF SECTION 08 71 00

SECTION 08 80 00 – GLAZING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:
 - 1. Doors.
 - 2. Glazed entrances.
 - 3. Interior borrowed lites.
 - 4. Storefront framing.
- B. Refer to Division 08 Section, "Aluminum Entrances and Storefronts" for requirements applicable to single subcontract responsibility for glazing.

1.2 ACTION SUBMITTALS

- A. Product Data: Submit product data for each glass product and glazing material indicated.
- B. Glass Manufacturers Letter: The glass manufacturer shall submit a letter certifying that he has reviewed the glazing details proposed for the project, including the use of gaskets and sealants, and that each product to be furnished is recommended for the application shown.
- C. Samples: Label samples to indicate product, characteristics, and locations in the work. Furnish samples of the following:
 - 1. Except for clear glass, submit samples of each glass type specified, in the form of 12 inch (300 mm) square Samples.
 - 2. Submit samples of each glass type specified where production run variations, and defects are expected.
- D. Product Certificates: Signed by manufacturers of glass and glazing products certifying that products furnished comply with requirements.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed glazing similar in material, design, and extent to that indicated for Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Safety Glass: Comply with the applicable requirements of the laws, codes, ordinances and regulations of Federal and Municipal authorities having jurisdiction, wherever requirements conflict the more stringent shall be required. Obtain approvals from all such authorities. As a

minimum provide Category II materials complying with testing requirements in 16 CFR 1201 (Consumer Product Safety Commission "Safety Standard for Architectural Glazing Materials," as published in the Code of Federal Regulations) and ANSI Z97.1.

- C. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
 - 1. GANA Publications: GANA'S "Glazing Manual."

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass and glazing materials.

PART 2 - PRODUCTS

2.1 PRODUCTS AND MANUFACTURERS

- A. Refer to the finish schedules on the drawings for the extent of glass types and locations. The Contractor shall confirm the levels of heat treatment required for each glass type scheduled as contained in Articles Performance Requirements, Submittals and Quality Assurance.

2.2 PERFORMANCE REQUIREMENTS

- A. General: Provide glazing systems capable of withstanding impact loads without failure of any kind, including loss or breakage of glass, failure of seal or gaskets, exudation of glazing sealants, and excessive deterioration of glazing materials.
- B. Glass Design: Glass thicknesses and heat treatments indicated are minimum requirements. Glazing details shown are for convenience of detailing only and are to be confirmed by the Contractor relative to cited standards and final framing details. Confirm glass thicknesses and heat treatments, as required to meet the performance and testing requirements specified in Division 08 Section, "Aluminum Entrances and Storefronts."

2.3 PRIMARY FLOAT GLASS

- A. Float Glass: ASTM C 1036, Type I (transparent glass, flat), Quality q3 (glazing select); class as indicated on the Drawings.

2.4 HEAT-TREATED FLOAT GLASS

- A. General: Heat treat glass where required to meet safety glazing requirements.

- B. Sizes and Cutting: Prior to heat treatment, cut glass to required sizes as determined by accurate measurement of openings to be glazed, making allowance for required edge clearances. Cut and process edges in accordance with glass manufacturer's recommendations. Do not cut or treat edges in the field.
- C. Fully Tempered Glass: Provide glass complying with ASTM C1048 Kind FT and meeting the requirements of ANSI Z97.1. Surface compression shall be equal to or greater than 10,000 psi (69 MPa).

2.5 GLAZING SEALANTS

- A. Gasket, Blocking, and Spacer Wet Glazing Materials: Silicone, compatible with and adherent to each material it will be in contact with, as recommended by the manufacturer to fulfill performance requirements.

2.6 GLAZING GASKETS

- A. Dense Compression Gaskets: Continuous extruded EPDM with cross sectional profile, physical properties, and tolerances as recommended by the glass manufacturer, and as required, to comply with the performance requirements specified and shown all in compliance with the applicable provisions of ASTM C864, Option II.

2.7 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces, and wet glazing materials, contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: EPDM complying with ASTM C864 (Option II), blocks, 85 +/- 5 Shore A durometer hardness, 1/16 inch (1.5 mm) less than the channel width, and length based on the face area the glass unit to be supported in accordance with GANA standards and glass manufacturer recommendations but not less than 4 inches (101.6 mm).

2.8 FABRICATION OF GLASS AND OTHER GLAZING PRODUCTS

- A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing standard, to comply with system performance requirements.
 - 1. Edge and Surface Conditions: Comply with the recommendations of AAMA "Structural Properties of Glass" for "clean-cut" edges, except comply with manufacturer's recommendations when they are at variance therewith.

2. Exposed Glass Edges and Surface Condition: All edges shall be flat with an arrissed edge profile (small bevel of uniform width not exceeding 1.5 mm at an angle of approximately 45 degrees to the surface of the glass) with a polished (surface is reflective in appearance similar to the major surface of the glass) surface.
- B. Cutting: Do not nip glass edges. Edges may be wheel cut or sawed and seamed at manufacturer's option. For glass to be cut at site, provide glass 2 inches (50.8 mm) larger than required in both dimensions, so as to facilitate cutting of clean cut edges without the necessity of seaming or nipping. Do not cut, seam, nip or abrade heat-treated glass.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine glass framing, with glazier and glass framing erector present, for compliance with the following:
1. Compliance with the specified manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
 2. Minimum required face or edge clearances.
 3. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean glazing stops, glazing channels, and rabbets that will be in contact with the glazing materials immediately before glazing. Remove coatings that might fail in adhesion or interfere with bond of sealants. Comply with manufacturers instructions for final wiping of surfaces immediately before application of primers. Wipe metal surfaces with IPA (isopropyl alcohol).
- B. Prime surfaces to receive glazing compounds. When priming, comply with wet glazing manufacturers recommendations.
- C. Inspect each piece of glass immediately before installation. Do not install any pieces that are improperly sized or have damaged edges, scratches or abrasion or other evidence of damage. Remove labels from glass immediately after installation.

3.3 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.

- B. Glazing channel dimensions, as indicated on Drawings, provide necessary bite on glass, minimum edge and face clearances, with reasonable tolerances. Adjust as required by Project conditions during installation.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
- D. Apply primers to surfaces indicated to receive glazing materials.
- E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless more stringent requirements are recommended by glass manufacturer.
 - 1. For Glass Units Less Than 72 inches (1830 mm): Locate setting blocks at sill one-quarter of the width in from each end of the glass unless otherwise recommended by the glass manufacturer.
 - 2. For Glass Units 72 inches (1830 mm) or Greater: Locate setting blocks at sill one-eighth of the width in from each end of the glass, but not less than 6 inches (150 mm), unless otherwise recommended by the glass manufacturer.
- F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- G. Set glass lites with uniform pattern, draw, bow, and similar characteristics, producing the greatest possible degree of uniformity in appearance on the entire wall elevation. Provide with void between edge of units and glazing channel.
- H. Where wedge-shaped gaskets are driven into one side of channel to pressurize gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
- I. Miter cut gaskets at corners, and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away.

3.4 PROTECTION AND CLEANING

- A. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged in any way and from any source, including natural causes, accidents, and vandalism.
- B. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended by glass manufacturer.

END OF SECTION 08 80 00

SECTION 08 83 00 - MIRRORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes wall mounted float glass mirrors.

1.2 ACTION SUBMITTALS

- A. Product Data: Submit product data for each product indicated, including description of materials and process used to produce mirrored glass, source of glass, glass coating components, edge sealer, and quality control provisions.
- B. Shop Drawings: Submit shop drawings showing plans, elevations, sections, details, and attachments to other Work.
- C. Samples: Submit samples, 12 inches (300 mm) square in size, of each type of mirror glass specified including edge treatment on 2 adjoining edges of samples.

1.3 INFORMATIONAL SUBMITTALS

- A. Product Certificates: Submit product certificates signed by manufacturers of mirror glass certifying that their products and edge sealers comply with specified requirements.
- B. Pre-Construction Test Report: Submit mirror mastic glass coating compatibility test reports from organic protective coating manufacturer indicating that mirror mastic has been tested for compatibility and adhesion with organic protective coating. Include organic coating manufacturer's interpretation of test results relative to performance and recommendations for use of mastics with organic protective coating.
- C. Warranty: Submit special warranty specified in this Section.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer who has completed work similar in material, design, and extent to that indicated; whose work has resulted in installations with a record of not less than 5 years of successful in-service performance.
- B. Glazing Publications: Comply with the applicable recommendations of the following. Where recommendations conflict the more stringent shall apply:
 - 1. Glass Association of North America (GANA): "Glazing Manual" and the Mirror Division's "Mirrors, Handle with Extreme Care: Tips for the Professional on the Care and Handling of Mirrors."

2. National Glass Association (NGA): "Custom Mirrors, Fabrication and Installation."

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with mirrored glass manufacturer's written instructions for shipping, storing, and handling mirrored glass as needed to prevent deterioration of silvering, damage to edges, and abrasion of glass surfaces and applied coatings. Store indoors, protected from moisture including condensation.

1.6 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to replace mirrored glass units that deteriorate f.o.b. the nearest shipping point to Project site, within five years from date of Substantial Completion.
 1. Deterioration of Silvered Mirrored Glass: Defects developed from normal use not caused by maintaining and cleaning mirrored glass contrary to manufacturer's written instructions. Defects include discoloration, black spots, and clouding of the silver film.

PART 2 - PRODUCTS

2.1 SILVERED FLAT GLASS MIRROR MATERIALS

- A. Clear Glass Mirrors: 6.0 mm thick and complying with ASTM C 1503, Mirror Select Quality for use in visually demanding applications requiring minimal distortions and blemishes.

2.2 FABRICATION

- A. Cutouts: Fabricate cutouts for notches and holes in mirrored glass without marring visible surfaces. Locate and size cutouts so they fit closely around penetrations in mirrored glass.
- B. Mirror Edge Treatment:
 1. Cutting and Polishing: Flat edges where the clean cut "square" edge of the glass is flat and surface edges are slightly arched. After grinding the arched edges, edges shall be polished to a high gloss surface where the surface reflectivity is similar in appearance to the major surface of the glass.
 2. Edge Sealing: Immediately after cutting to final sizes, and applying edge treatment, factory seal edges of mirrors with edge sealer to prevent chemical or atmospheric penetration of glass coating.

2.3 MISCELLANEOUS MATERIALS

- A. Setting Blocks: Non-rubber or non neoprene based elastomeric material manufactured for setting silvered flat glass mirrors, compatible with adhesive used for placement, with a Type A Shore durometer hardness of 85, plus or minus 5, 1/8" wide x 1/4" high x 4" long.
- B. Edge Sealer: Coating compatible with glass coating and approved by mirrored glass manufacturer for use in protecting against silver deterioration at mirrored glass edges.
- C. Mirror Mastic: An adhesive setting compound, produced specifically for setting mirrored glass by spot application and not containing asbestos; one of the following:
 - 1. QwikSet Mirror Mastic by Palmer Products Corporation.
 - 2. UltraBond by Gunther Mirror Mastics.
- D. Drywall and Plywood Paint: A high quality oil-based primer or sealer of type as recommended by the mirror mastic manufacturer.
- E. Top and Bottom Aluminum J Channels: Aluminum extrusions with a return deep enough to produce a glazing channel to accommodate 6 mm thick mirrors and heavy bodied mirror mastic specified and in lengths required to cover bottom and top edges of each mirror in a single piece. The ends of the back lips of all channels shall be factory snipped and filed so that they will not be seen after installation.
 - 1. Bottom Trim: J-channels formed with front leg and back leg not less than 3/8 inch and 7/8 inch in height, respectively. CRL Polished Finish 1/4" Standard "J" Channel (Part Number D636P); C. R. Laurence Co., Inc.
 - 2. Top Trim: J-channels formed with front leg and back leg not less than 5/8 inch and 1-3/16 inch in height, respectively. CRL Polished Finish 1/4" Deep Nose "J" Channel (Part Number D645P); C. R. Laurence Co., Inc.
- F. Fasteners:
 - 1. Steel Stud Framing: For fastening J-channels to drywall stud and backer sheet framing provide #8 gage diameter, 1 inch long, Phillips type pan head drywall screws in quantity as required for support and fastening of continuous j-molds to drywall stud framing.
 - 2. Plywood Fasteners: Provide #8 gage diameter, minimum 1 inch long, Phillips flat countersunk head, sharp pointed, coarse threaded, zinc coated, steel wood screw fasteners in quantity as required for support and fastening of continuous j-molds to plywood substrates.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Comply with mastic manufacturer's written installation instructions for preparation of substrates.

1. Mirror, drywall and plywood substrates shall be free of dust, be clean, and dry prior to application of mirror mastic and drywall and plywood paint. If plywood or drywall surfaces have been painted prior to application of the specified drywall and plywood paint the existing paint shall be sanded through to the original surface and the substrate cleaned prior to the application of drywall and plywood paint.

3.2 GLAZING

- A. General: Install mirrors with mirror glazing channels to comply with written instructions of mirror and mirror glazing channel manufacturers, with referenced GANA and NGA publications, and as specified. Mount mirrors plumb, in line, and in a manner that avoids distorting reflected images.
- B. Comply with mastic manufacturer's printed directions for preparation and sealing of mounting surfaces by sealing drywall, and plywood, substrates with drywall and plywood paint. Allow paint to dry before applying mirror mastic.
- C. Mirror Channel Installation:
 1. To Plywood: Drill, do not dimple, back lip of channel to receive fasteners with holes properly sized and spaced to receive fasteners. Attach mirror channels by screw attaching mirror channel through the back lip of the channel to plywood substrate in accordance with the fastener manufacturer's written instructions.
 - a. Install the web of the top channel 1/4 inch higher than the height of the mirror to allow the raising of the mirror into the top channel and its subsequent lowering onto the bottom channel. After installing fasteners place masking tape over the entire length of the back lip of the channel completely covering the fastener heads to protect the mirror from being chipped in setting. Adhere setting blocks at quarter points for bottom mirror channels using only 2 setting blocks per mirror panel.
 2. To Drywall: Drill and countersink, do not dimple, back lip of channels to receive stud fasteners with holes properly sized and spaced to receive stud fasteners. Attach mirror channels by screw attaching mirror channel through the back lip of the channel through drywall, stud framing, and sheet metal backer plate substrates in accordance with the fastener manufacturer's written instructions.
 - a. Install the web of the top channel 1/4 inch higher than the height of the mirror to allow the raising of the mirror into the top channel and its subsequent lowering onto the web of the bottom channel. After installing fasteners place masking tape over the entire length of the back lip of the channel completely covering the fastener heads to protect the mirror from being chipped in setting. Adhere setting blocks to the web of the bottom mirror channels, located at quarter points, using 2 setting blocks per mirror panel.
- D. Mirror Installation: Apply mastic in vertical beads or mounds to the wall, not to the mirror back to avoid potential damage caused by mastic applicator tools, in compliance with mastic manufacturer's written instructions to allow air circulation between back of mirrors and face of

mounting surface. Each vertical bead shall be approximately 1/2 inch in width with a minimum of one bead for every square foot of mirror. Each mound shall be approximately 1-1/2 inch in diameter with a minimum of one mound for every square foot of mirror. Do not apply mastic within 6 inches of the mirror edges to prevent squeeze out. Place beads or mounds so space will be left between them when the mirror is installed. After mastic is applied, align mirrors and press into place. Each vertical bead shall spread to approximately 2 inches in width and each mound shall spread to a pat approximately 3-1/2 inches in diameter after pressing mirror into place.

3.3 PROTECTION AND CLEANING

- A. Protect mirrored glass from breakage and contaminating substances resulting from construction operations. Using clean warm water, clean mirrors by methods recommended in referenced glazing standards.

END OF SECTION 08 83 00

SECTION 09 29 00 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes gypsum board assemblies.

1.2 ACTION SUBMITTALS

- A. Product Data: Submit product data for each product indicated.

1.3 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: For gypsum board assemblies with fire-resistance ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1. Fire-Resistance-Rated Assemblies: Indicated by design designations from UL's "Fire Resistance Directory."
- B. Sound Transmission Characteristics: For gypsum board assemblies with STC ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by a qualified independent testing agency.
- C. STC-Rated Assemblies: Indicated by design designations from GA-600, "Fire Resistance Design Manual."
- D. Single-Source Responsibility for Panel Products: Obtain each type of gypsum board and other panel products from a single manufacturer.
- E. Single-Source Responsibility for Finishing Materials: Obtain finishing materials from either the same manufacturer that supplies gypsum board and other panel products or from a manufacturer acceptable to gypsum board manufacturer.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.
- B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Stack gypsum panels flat to prevent sagging.

- C. Handle gypsum board to prevent damage to edges, ends, and surfaces. Do not bend or otherwise damage metal corner beads and trim.

1.5 PROJECT CONDITIONS

- A. Comply with ASTM C 840 requirements or wallboard material manufacturer's written recommendations, whichever are more stringent.
- B. Installation of wallboard joint treatments shall not start until the space to receive wall board joint treatments is heated to maintain a continuous and uniform temperature of not less than 55 degrees F, from one week prior to beginning of joint treatment until joint treatment is completed and thoroughly dry. Ventilation, either natural or supplied by fans, circulators or air conditioning systems shall be provided to remove excess moisture during joint treatment. Temperature requirements may be waived only on recommendation of wallboard materials manufacturer.

PART 2 - PRODUCTS

2.1 ASSEMBLY PERFORMANCE REQUIREMENTS

- A. Gypsum Board Assembly Deflections:
 - 1. Typical Walls: Wall assemblies shall be constructed for deflection not to exceed 1/240 of the wall height when subjected to a positive and negative pressure of 5 psf.
 - 2. Walls with Tile, Stone or Plaster Finish: Wall assemblies to receive finishes shall be constructed for deflection not to exceed 1/360 of the wall height when subjected to a positive and negative pressure of 5 psf.
 - 3. Ceilings, bulkheads, soffits, ceiling transitions, ledges, and coves shall be constructed for a deflection not to exceed 1/360 of the distance between supports.

2.2 MATERIALS, GENERAL

- A. General: For fire rated assemblies, provide materials, including accessories and fasteners produced by one manufacturer, or, when products of more than one manufacturer are used in a rated system, they shall be acceptable to authorities having jurisdiction.

2.3 STEEL SUSPENDED CEILING FRAMING

- A. Components, General: Provide steel framing members sized and spaced as indicated but not less than that required to comply with ASTM C 754 under the maximum deflection conditions specified under Article 'Assembly Performance Requirements.'
- B. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625 inch (1.59 mm) diameter wire, or double strand of 0.0475 inch (1.21 mm) diameter wire.

- C. Hanger Attachments to Overhead Decks: Suitable for application indicated, fabricated from corrosion-resistant materials, with eyepins, clips or other devices for attaching hangers and capable of sustaining, without failure, a load equal to 10 times that imposed by the complete ceiling system.
- D. Hangers: As follows:
 - 1. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.162 inch (4.12 mm) diameter.
- E. Carrying Channels: Cold-rolled, commercial-steel sheet with a base metal thickness of 0.0538 inch (1.37 mm), a minimum 1/2 inch (12.7 mm) wide flange, with manufacturer's standard corrosion-resistant zinc coating.
- F. Furring Channels (Furring Members): Commercial-steel sheet with ASTM A 653/A 653M, G40 (Z120), hot-dip galvanized zinc coating.
 - 1. Cold Rolled Channels: 0.0538 inch (1.37 mm) bare steel thickness, with minimum 1/2 inch (12.7 mm) wide flange, 3/4 inch (19.1 mm) deep.
 - 2. Steel Studs: ASTM C 645, 0.0312 inch (0.79 mm) minimum base metal thickness and minimum depth as required to suit deflection criteria.
 - 3. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch (22.2 mm) deep.
 - a. Minimum Base Metal Thickness: 0.0312 inch (0.79 mm).
 - 4. Resilient Furring Channels: 1/2 inch (12.7 mm) deep members designed to reduce sound transmission.
- G. Grid Suspension System for Interior Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.

2.4 STEEL PARTITION AND SOFFIT FRAMING

- A. General: Provide steel framing members sized and spaced as indicated but not less than that required to comply with ASTM C 754 under the maximum deflection conditions specified under Article "Assembly Performance Requirements."
 - 1. In areas where top of partitions are dependent on ceiling system for lateral support, coordinate design and installation to comply with the above deflection limitation.
 - 2. Steel Sheet Components: Complying with ASTM C 645 requirements for metal and with ASTM A 653/A 653M, G40, hot-dip galvanized zinc coating.
- B. Steel Studs and Runners: ASTM C 645, in minimum depth indicated in partition type details.
 - 1. Minimum Base Metal Thickness:
 - a. Typical: as indicated on the Drawings.
 - b. Partitions Supporting Wall Mounted Millwork or Casework: as indicated on the Drawings or if not indicated provide a 16 ga. minimum.

2. Depth: As indicated.
- C. Deflection Track: ASTM C645 top runner with 2 inch (50.8 mm) deep flanges. Steel sheet top runner manufactured to prevent cracking of gypsum board applied to interior partitions resulting from deflection of structure above; in thickness indicated for studs and in width to accommodate depth of studs; one of the following:
 1. Delta Star, Inc., Superior Metal Trim; Superior Flex Track System (SFT).
 2. Metal-Lite, Inc.; Slotted Track.
 3. The Steel Network, Inc; VertiClip SLD Series or VertiTrack VTD Series.
- D. Firestop Track: ASTM C645 top runner with 2 inch (50.8 mm) deep flanges. Top runner manufactured to allow partition heads to expand and contract with movement of the structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs; one of the following:
 1. Fire Trak Corp.; Fire Trak attached to studs with Fire Trak Slip Clip.
 2. Metal-Lite, Inc.; The System.
 3. The Steel Network, Inc: VertiClip SLD Series or VertiTrack VTD Series.
- E. Flat Strap and Backing Plate: 36-inch wide steel sheet for blocking and bracing required for the attachment of surface mounted items and accessories indicated.
 1. Minimum Base Metal Thickness: 0.0312 inch (0.79 mm).
- F. Cold-Rolled Channel Bridging: For channel bridging for fixture attachment or lateral bracing provide 0.0538 inch (1.37 mm) bare steel thickness, with minimum 1/2 inch (12.7 mm) wide flange:
 1. Depth: 1-1/2 inches (38.1 mm).
 2. Clip Angle: 1-1/2 by 1-1/2 inch (38.1 by 38.1 mm), 0.068 inch (1.73 mm) thick, galvanized steel.
- G. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
 1. Minimum Base Metal Thickness: 0.0179 inch (0.45 mm) .
 2. Depth: 7/8 inch (22.2 mm).
- H. Resilient Furring Channels: 1/2 inch (12.7 mm) deep, steel sheet members designed to reduce sound transmission.
- I. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members securely to substrates involved; complying with the recommendations of the gypsum board manufacturers for applications indicated..

2.5 INTERIOR GYPSUM WALLBOARD

- A. Panel Size: Provide in maximum lengths and widths available that will minimize joints in each area and correspond with support system indicated.

- B. Gypsum Wallboard: ASTM C 36 or ASTM C 1396/C 1396M.
 - 1. Type X:
 - a. Thickness: 5/8 inch (15.9 mm).
 - b. Long Edges: Tapered.
 - c. Location: Where required for fire-resistance-rated assembly.
- C. Flexible Gypsum Wallboard for Curved Surfaces: ASTM C 36 or ASTM C 1396/C 1396M, manufactured to bend to fit tight radii and to be more flexible than standard regular-type panels of the same thickness.
 - 1. Thickness: 1/4 inch (6.4 mm).
 - 2. Long Edges: Tapered.
 - 3. Location: Apply in double layer at curved assemblies.

2.6 TILE BACKING PANELS

- A. Panel Size: Provide in maximum lengths and widths available that will minimize joints in each area and correspond with support system indicated.
- B. Tile Backer Board:
 - 1. Core: 5/8 inch (15.9 mm).
- C. Cementitious Backer Units: ANSI A118.9, in thickness indicated.
 - 1. Thickness: 1/2 inch (12.7 mm).

2.7 TRIM ACCESSORIES

- A. Interior Steel Trim Accessories: ASTM C 1047; formed metal sheet steel zinc coated by hot dipped process. Shapes indicated below by reference to Fig. 1 designations in ASTM C 1047.
 - 1. Cornerbead: Use at outside corners.
 - 2. LC-Bead with both face and back flanges to receive joint compound; use at exposed panel edges.
 - 3. U-Bead with face and back flanges; face flange formed to be left without application of joint compound: Use where indicated.
 - 4. Curved-Edge Cornerbead: With notched or flexible flanges; use at curved openings.
- B. Aluminum Trim Accessories: Extruded aluminum trim with 1/4" diameter holes in fins for attachment to wallboard or studs; longest lengths available in profiles indicated; primed for finish painting; sized for scheduled wallboard thickness shown.

2.8 JOINT TREATMENT MATERIALS

- A. General: Provide joint treatment materials complying with ASTM C 475 and the recommendations of both the manufacturers of the wallboard products and joint treatment materials for each application indicated.
- B. Joint Tape:
 - 1. Interior Gypsum Wallboard over Metal Studs: Paper.
 - 2. Tile Backing Panels: As recommended by panel manufacturer.
- C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
 - 1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
 - 2. Embedding and First Coat: For embedding tape and first coat on joints, flanges of trim accessories, and fasteners, use setting-type taping compound.
 - 3. Second coat: For filling over tape, beads and fasteners. Use setting-type, sandable topping compound.
 - 4. Third coat: For finishing over tape, beads and fasteners. Use drying-type, all-purpose compound.
 - 5. Skim Coat: For final coat of Level 5 finish, use drying-type, all-purpose compound.
- D. Joint Compound for Tile Backing Panels:
 - 1. Water-Resistant Gypsum Backing Board: Use setting-type taping and setting-type, sandable topping compounds.
 - 2. Cementitious Backer Units: As recommended by manufacturer.

2.9 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Acoustical Sealant for Exposed and Concealed Joints: Nonsag, paintable, nonstaining, latex sealant complying with ASTM C 834 that effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
- C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
 - 1. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- D. Isolation Strip at Exterior Walls: Adhesive-backed, closed-cell, compressible, non-extruding, sound transmission reducing, vinyl foam tape strips with approximately 13 Shore 00 hardness that allow fastener penetration without foam displacement, 1 inch thick, in width 1/2 inch less than window mullion width.

1. V730 Norton Sealant Tape; gray color.
- E. Sound Attenuation Blankets, and Fire Resistive Insulation for Installation Within Gypsum Wallboard Partitions: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from slag wool, or rock wool.
 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
- F. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
- G. Wood Blocking and Plywood Concealed in Partition Construction: Fire retardant treated, refer to Division 06 Section "Miscellaneous Rough Carpentry."
- H. Metal Post for Tube Framing at Partial Height Walls: Refer to Division 05 Section "Metal Fabrications."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates to which gypsum board assemblies attach or abut, installed door frames and structural framing with Installer present for compliance with requirements for installation tolerances and other conditions affecting performance of assemblies specified in this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLING STEEL FRAMING, GENERAL

- A. General: Install steel framing to comply with ASTM C754, ASTM C840 and the gypsum board manufacturer's recommendations, where standards conflict the more stringent shall apply.
- B. Install supplementary framing, blocking, backerplates and bracing at locations in gypsum board assemblies which are indicated to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction. Comply with details indicated and with gypsum board manufacturer's written recommendations or, if none available, with United States Gypsum's "Gypsum Construction Handbook."
- C. Isolate steel framing from building structure to prevent transfer of loading imposed by structural movement.
 1. Isolate ceiling assemblies where they abut or are penetrated by building structure.
 2. Isolate partition framing and wall furring where it abuts structure, except at floor. Install slip-type joints at head of assemblies that avoid axial loading of assembly and laterally support assembly.
 - a. Use deep-leg deflection track where indicated.

- b. Use proprietary firestop track where indicated.

3.3 INSTALLING STEEL SUSPENDED CEILING FRAMING

- A. Suspend ceiling hangers from building structure as follows:
- B. Suspended Ceiling Framing:
 - 1. Suspend ceiling hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
 - 3. Attach hangers to structural members. Do not support ceilings from or attach hangers to permanent metal forms, steel deck tabs, steel roof decks, ducts, pipes, or conduit.
 - 4. Secure wire hangers by looping and wire-tying, to eye-screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail.
 - 5. Secure rod and flat hangers to structure, including intermediate framing members, by attaching to devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or otherwise fail.
- C. Installation Tolerances: Install steel framing components for suspended ceilings so members for panel attachment are level to within 1/8 inch in 12 feet (3 mm in 3.6 m) measured lengthwise on each member and transversely between parallel members.
- D. Wire-tie or clip furring channels to supports, as required to comply with requirements for assemblies indicated.
- E. Install suspended steel framing components in sizes and spacings indicated, but not less than that required by the referenced steel framing and installation standards unless more stringent spacings are recommended by the gypsum board manufacturer.
- F. Grid Suspension System: Attach perimeter wall track or angle where grid suspension system meets vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

3.4 INSTALLING STEEL PARTITION AND SOFFIT FRAMING

- A. Install continuous runners (tracks) sized to match studs at floors, ceilings, and structural walls and columns where gypsum board stud assemblies abut other construction. Secure runners to substrates with fasteners spaced a maximum of 24 inches o.c. unless closer spacing is

recommended by the framing manufacturer for the floor and ceiling construction involved.
Provide fasteners at all corners and ends of runner tracks.

1. Where studs are installed directly against exterior walls, install foam gasket isolation strip between studs and wall.
- B. Installation Tolerance: Install each steel framing and furring member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by the faces of adjacent framing.
- C. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings and at partial height partitions. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
 1. Cut studs 1/2 inch (13 mm) short of full height to provide perimeter relief.
 2. For fire-resistance-rated and STC-rated partitions that extend to the underside of floor/roof slabs and decks or other continuous solid-structure surfaces to obtain ratings, install framing around structural and other members extending below floor/roof slabs and decks, as needed to support gypsum board closures and to make partitions continuous from floor to underside of solid structure.
 3. Terminate partition framing at suspended ceilings where indicated.
 4. Terminate partial height partition framing as indicated.
- D. Install steel studs and furring in sizes and at spacings indicated but not less than that required by the referenced steel framing installation standard to comply with maximum deflection and minimum loading requirements specified, unless more stringent requirements are recommended by the gypsum board manufacturer:
 1. Space studs 16 inches o.c., unless otherwise indicated.
- E. Install steel studs so flanges point in the same direction and leading edge or end of each panel can be attached to open (unsupported) edges of stud flanges first.
- F. Install backerplates for support of wall mounted items.
- G. Curved Partitions:
 1. Cut top and bottom track (runners) through leg and web at 2 inch (50 mm) intervals for arc length. In cutting lengths of track, allow for uncut straight lengths of not less than 12 inches (300 mm) at ends of arcs.
 2. Bend track to uniform curve and locate straight lengths so they are tangent to arcs.
 3. Support outside (cut) leg of track by clinching steel sheet strip, 1 inch (25 mm) high-by-thickness of track metal, to inside of cut legs using metal lock fasteners.
 4. Begin and end each arc with a stud, and space intermediate studs equally along arcs at stud spacing recommended in writing by gypsum board manufacturer for radii indicated. On straight lengths of not less than 2 studs at ends of arcs, place studs 6 inches (150 mm) o.c.
- H. Frame door openings to comply with GA-600 and with gypsum board manufacturer's applicable written recommendations, unless otherwise indicated. Screw vertical studs at jambs to jamb

anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.

1. Install two studs at each jamb, unless otherwise indicated. Install one additional stud no more than 6 inches from jamb studs at single doors greater than 4'-0" and at all pairs of doors.
 2. Install cripple studs at head adjacent to each jamb stud. Provide runner track and typical studs above door openings with studs spaced not more than 24 inches o.c.
 3. At all welded frames with fixed anchor clips secure stud reinforcing to jamb anchor clips with not less than two self tapping screws per clip.
- I. Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
- J. Isolation Strip Attachment: Where partitions abut exterior wall window mullions, and partition filler panels are not indicated, adhesively attach isolation strips to window mullions. Center isolation strips on mullion to form a continuous, sound resistant and lightproof, recessed joint seal for the entire length of the interface between the partition studs and trim members and the vertical window mullions.

3.5 APPLYING AND FINISHING PANELS

- A. Gypsum Board Application and Finishing Standards: Install and finish gypsum panels to comply with ASTM C 840, GA-216, and the gypsum wallboard manufacturer's recommendations, where standards conflict, the more stringent shall apply.
- B. Install sound attenuation blankets before installing gypsum panels, unless blankets are readily installed after panels have been installed on one side.
- C. Single-Layer Application:
1. On ceilings, apply gypsum panels before wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated. Install ceiling board panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
 2. On partitions/walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints or avoid them entirely.
 - a. Stagger abutting end joints not less than one framing member in alternate courses of board.
 - b. At high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.
- D. Multilayer Application:

1. On Partitions/Walls: Apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
 2. On Ceilings: Apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply base layers in same sequence. Apply base layers at right angles to framing members and offset face layer joints 1 framing member, 16 inches minimum, from parallel base joints, unless otherwise indicated or required by fire-resistance-rated assembly.
- E. Single-Layer Fastening Methods: Apply gypsum panels to supports with steel drill screws.
- F. Multilayer Fastening Methods: Fasten base layers and face layers separately to supports with screws.
- G. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written recommendations and temporarily brace or fasten gypsum panels until fastening adhesive has set.
- H. Curved Partitions:
1. Install panels horizontally and unbroken, to the extent possible, across curved surface plus 12 inch long straight sections at ends of curves and tangent to them.
 2. Wet gypsum panels on surfaces that will become compressed where curve radius prevents using dry panels. Comply with gypsum board manufacturer's written recommendations for curve radii, wetting methods, stacking panels after wetting, and other preparations that precede installing wetted gypsum panels.
 3. On convex sides of partitions, begin installation at one end of curved surface and fasten gypsum panels to studs as they are wrapped around curve. On concave side, start fastening panels to stud at center of curve and work outward to panel ends. Fasten panels to framing with screws spaced 12 inches o.c.
 4. For double-layer construction, fasten base layer to studs with screws 16 inches o.c. Center gypsum board face layer over joints in base layer, and fasten to studs with screws spaced 12 inches o.c.
 5. Allow wetted gypsum panels to dry before applying joint treatment.
- I. Tile Backing Panels:
1. Glass-Mat Water-Resistant Backer Board: For substrates indicated to receive thin-set tile, install glass-mat water-resistant backer board panels, unless otherwise indicated. Where tile backing panels abut other types of panels in the same plane, shim surfaces to produce a uniform plane across panel surfaces.
 2. Cementitious Backer Unit Application: ANSI A108.11 at showers and where otherwise indicated.
- J. Install gypsum panels with face side out. Do not install imperfect, damaged, or damp panels. Butt panels together for a light contact at edges and ends with not more than 1/16 inch (1.5 mm) of open space between panels. Do not force into place.

- K. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions.
- L. Attach gypsum panels to steel studs so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- M. Attach gypsum panels to framing provided at openings and cutouts.
- N. Cover both faces of steel stud partition framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
 - 1. Fit gypsum panels around ducts, pipes, and conduits.
 - 2. Where partitions intersect open concrete coffers, concrete joists, exterior and interior wall kickers, and other structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by coffers, joists, and other structural members; allow 1/4 to 3/8 inch wide joints to install sealant.
 - 3. Where chase walls are shown, provide bracing between parallel rows of studs. Unless otherwise shown, provide gypsum wallboard braces no less than 1/2" thick x 12" wide and cut to width of chase. Locate at quarter points in wall height between each pair of parallel studs. Fasten with not less than 3 screws at each stud.
- O. Isolate perimeter of non-load-bearing gypsum board partitions at structural abutments, except floors. Provide 1/4 to 1/2 inch (6.4 to 12.7 mm) wide spaces at these locations, and trim edges with U-bead edge trim where edges of gypsum panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- P. Seal construction at perimeters, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through gypsum board assemblies, including sealing partitions above acoustical ceilings.
- Q. Cut openings in wallboard for electrical outlets, piping and other penetrations. Maintain close tolerances so that edges will be covered by plates and escutcheons. Cut both face and back paper. Do not install electrical outlets back to back on opposing sides of partitions.
- R. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's written recommendations.
 - 1. Space screws a maximum of 12 inches (304.8 mm) o.c. for vertical applications.
 - 2. Space fasteners in panels that are tile substrates a maximum of 8 inches (203.2 mm) o.c.
 - 3. Install fasteners not less than 3/8" from ends or edges of wallboard sheets, spacing fasteners opposite each other on adjacent ends or edges.
 - 4. Begin fastening from center of wallboard and proceed toward edges and corners.
 - 5. Apply pressure on surface of wallboard adjacent to fasteners being driven to ensure that wallboard will be secured tightly to supporting members.
 - a. Drive fastener with shank perpendicular to face of board.

- b. Drive screws with a power screwdriver as recommended by wallboard manufacturer. Set heads of screws slightly below surface of paper without cutting paper.

3.6 INSTALLING TRIM ACCESSORIES

- A. General: Fasten trim accessories according to manufacturer's written instructions for type, length, and spacing of fasteners.
- B. Install corner beads at external corners.
- C. Install interior trim accessories where edge of gypsum panels would otherwise be exposed or semi-exposed. Provide interior trim accessories with face flange formed to receive joint compound.
- D. Install aluminum trim accessories where indicated.

3.7 FINISHING GYPSUM BOARD ASSEMBLIES

- A. General: Apply joint treatment at gypsum board joints, flanges of interior trim and aluminum trim accessories, interior angles, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration and levels of gypsum board finish indicated. Produce surfaces free of tool marks and ridges ready for decoration of type indicated. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
- D. Cementitious Backer Units: Finish according to manufacturer's written instructions.
- E. Gypsum Board Finish Levels: Finish panels to levels indicated below, according to ASTM C 840, for locations indicated:
 - 1. Level 1: Embed tape at joints in ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistance-rated assemblies and sound-rated assemblies.
 - 2. Level 2: Embed tape and apply separate first coat of joint compound to tape, fasteners, and trim flanges where panels are substrate for tile and where indicated.
 - 3. Level 4: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges at panel surfaces that will be exposed to view, unless otherwise indicated.

3.8 CLEANING AND PROTECTION

- A. Clean floors of all wallboard debris and leave broom clean. Excess material, scaffolding, tools and other equipment are to be removed upon completion of the work.
- B. Provide final protection and maintain conditions that ensure gypsum board assemblies remain without damage or deterioration at time of Substantial Completion.

END OF SECTION 09 29 00

SECTION 09 30 00 - TILING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes ceramic, porcelain, quarry, and glass tile and accessories required for indicated installation.

1.2 ACTION SUBMITTALS

- A. Product Data: Submit product data for each product indicated.
- B. Samples: Submit samples showing full range of color and texture variations expected.
 - 1. Full size units of each type, composition, color, and finish of tile.
 - 2. Assembled samples with grouted joints for each color grout and for each type, composition, color, and finish of tile.
 - 3. Thresholds in 6 inch (150 mm) lengths, each type.

1.3 INFORMATIONAL SUBMITTALS

- A. Test Reports: Submit test reports from qualified independent testing laboratory indicating and interpreting test results relative to compliance of tile products with requirements specified for slip resistance.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Instructions: Submit maintenance instructions for each type of product specified.

1.5 QUALITY ASSURANCE

- A. Installer: Engage an installer, with a minimum of 5 years of successful commercial tile installations similar in material, design, and scope to that indicated.
- B. Source Limitations for Tile: Obtain tile from one source or producer, and from same production run and of consistent quality in appearance and physical properties for each contiguous area.
- C. Field-Constructed Mock-Up:
 - 1. Locate sample installations on site of tiling at back bar, as directed by Architect but not less than 6 square feet.
 - 2. Retain and maintain sample installations during construction in undisturbed condition as a standard for judging completed unit of Work.

- D. Field-Constructed Sample Installations: Before installing tile, erect sample installations including waterproofing/crack isolation membrane if used, and grout, for each form of construction and finish required to verify selections made under sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution. Build sample installations to comply with the following requirements, using materials indicated for final unit of Work.
1. Locate sample installations on site, in locations and size indicated or, if not shown or indicated, as directed by Architect but not less than 100 square foot area for floors, and not less than 100 square foot area for walls.
 2. Retain and maintain sample installations during construction in undisturbed condition as a standard for judging completed unit of Work.
 3. Approved sample installations may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement in ANSI A137.1 for labeling sealed tile packages.
- B. Prevent damage or contamination to materials by water, freezing, foreign matter, and other causes.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.
- B. Maintain temperatures at 50 deg F or more in tiled areas during installation and for 7 days after completion, unless higher temperatures are required by referenced installation standard or manufacturer's instructions.

1.8 EXTRA MATERIALS

- A. Provide attic stock equal to the following for each type, color, pattern, and size (or fraction thereof) of tile provided for the project. Supply in manufacturer's unopened containers, identified with name, brand type, grade, class and all other qualifying information, to a location where directed by the Owner.
 1. Two (2) percent of amount installed but not less than one box.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Static Coefficient of Friction: For tile installed on walkway surfaces, provide products with the following values as determined by testing identical products per ASTM C 1028:
1. Level Surfaces: Minimum 0.6.
 2. Step Treads: Minimum 0.6.
 3. Ramp Surfaces: Minimum 0.8.

2.2 TILE PRODUCTS, GENERAL (CT-1, CT-2, CT-3, CT-4, and BS-01)

- A. ANSI Ceramic Tile Standard: Provide Standard grade tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.
1. Products and Manufacturers: Provide tile matching the Architect's samples that have been selected from the product lines and manufacturers indicated in the Finish Schedules on the Drawings.
- B. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer, unless otherwise indicated.
- C. Tile Trim Units: Matching characteristics of adjoining flat tile and coordinated with sizes and coursing where applicable.

2.3 SETTING AND GROUTING MATERIALS

- A. Manufacturers:
1. Custom Building Products.
 2. LATICRETE International Inc.
 3. MAPEI Corporation.
 4. No Substitutions.
- B. Source Limitations: For each tile installation, obtain compatible formulations of setting and grouting materials containing latex from a single manufacturer.
- C. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4 consisting of the following:
1. Prepackaged dry-mortar mix containing polymer additive to which only water must be added at Project site.
 2. For wall applications, provide nonsagging mortar.
 3. For glass tile applications use mortar that will not show through glass tile bodies.
- D. Medium-Bed, Latex-Portland Cement Mortar: ANSI A118.4:

1. Prepackaged dry-mortar mix containing polymer additive to which only water must be added at Project site.
- E. Polymer-Modified Tile Grout: ANSI A118.7.
 1. Polymer Type: Dry, redispersible form, prepackaged with other dry ingredients.
 2. Colors: As selected by Architect from manufacturer's standards to match tile being grouted.
- F. Chemical-Resistant, Water-Cleanable, Tile-Setting and -Grouting Epoxy: ANSI A118.3.
 1. Provide product capable of withstanding continuous and intermittent exposure to temperatures of up to 140 deg F (60 deg C) and 212 deg F (100 deg C), respectively, and certified by manufacturer for intended use.
 2. Colors: As selected from manufacturer's full range.
- G. Spectra-LOCK Pro-Grout; Laticrete: ANSI A118.3.

2.4 MISCELLANEOUS MATERIALS

- A. Sealants: Silicone sanitary sealant," as specified in Division 07 Section "Joint Sealants."
- B. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.

2.5 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions. Add materials in accurate proportions. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.1 PREINSTALLATION MEETING

- A. Prior to the installation of tile, and at the Contractor's direction, meet at the project site to review the material selections, substrate preparations, installation procedures, coordination with other trades, special details and conditions, standard of workmanship, and other pertinent topics related to the Work. The meeting shall include the Owner, Architect, the Contractor, tile installer, tile and setting material manufacturer's representatives, and representatives of other trades or subcontractors affected by the installation.

3.2 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present.
 - 1. Verify that substrates for setting tile are level, firm; dry; clean; free of oil, waxy films, and curing compounds. Grind concrete substrates to remove existing floor adhesive and mortar residues, films, sealing and curing compounds if they are determined to be present on the substrate.
 - 2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile have been completed before installing tile.
 - 3. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 PREPARATION

- A. Remove paint, coatings, including curing compounds and other substances that are incompatible with tile-setting materials.
- B. Blending: Color blend tiles at Project site before installing.
 - 1. Furnish the same lots, batches, etc. within the same contiguous areas of the site (i.e., corridors on the same floors, common rooms which adjoin each other, etc.).

3.4 INSTALLATION, GENERAL

- A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.
- B. TCNA Installation Guidelines: TCNA's "Handbook for Ceramic Tile Installation." Comply with TCNA installation methods indicated in ceramic tile installation schedules.
- C. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions, unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
 - 1. Glass Tile Cutting: Use a blade suitable for cutting glass that must be constantly kept wet with water. Cut tiles with the colored surface turned upwards. Cutting shall not be carried out near the edges of the individual tiles. Smooth off any sharp edges with

sandpaper. Holes can be made with a drill bit specifically recommended for drilling glass with a diameter up to 5/16 inch. Apply water continually while drilling.

- E. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area beginning at thresholds. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise indicated.
 - 1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.
- F. Movement (Expansion) Joints: Locate sealant filled expansion joints where recommended by the manufacturers of mortar and tile materials but not less than the requirements of TCNA EJ171, and as accepted by the Architect. Form movement joints and other sealant-filled joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
 - 1. Locate joints in tile surfaces directly above joints in concrete substrates unless indicated otherwise on the Drawings and crack suppression membrane is utilized to move joint to acceptable location.
 - 2. Locate soft joints at all horizontal and vertical intersections as recommended by TCNA.
 - 3. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."

3.5 FLOOR TILE INSTALLATION

- A. Thinset Tile over Concrete Slabs (Typical): Install in accordance with the mortar manufacturer's recommendations and requirements indicated below for ANSI setting bed methods, TCNA installation methods related to types of subfloor construction, and grout ANSI installation methods and grout types. Where recommendations and methods conflict, the manufacturer's recommendations shall apply.
 - 1. Mortar: Latex-Portland Cement Mortar: ANSI A108.5.
 - 2. Concrete Subfloors, Interior: TCNA F113.
 - a. With a trowel, having notches sized as recommended by the mortar manufacturer, comb the surface of the mortar with the notched side of the trowel removing excess mortar. Spread only as much mortar as can be covered in the time limits established by the mortar manufacturers recommendations.
 - b. Wipe the back of each tile, with a damp sponge, to remove all dust or dirt immediately before applying mortar to tiles.
 - c. Immediately after wiping tile backs, but prior to placing tile, the mortar shall be troweled to back of tile for 100% coverage to thickness of not less than 1/16".
 - d. Place tiles onto mortar bed, maintaining 1/8" wide joints, and true accurate pattern as shown. Exercise care to quickly remove spillage from faces of tile using water. Rake out joints to depth required to receive grout as tile units are set.
 - e. Prohibit foot and wheel traffic on tiled floors for period of time as recommended by the mortar manufacturer.

3. Grout Installation, Latex-portland cement: ANSI A108.10.

B. Mediumset Tile (only where indicated): Install in accordance with the mortar manufacturer's recommendations and requirements indicated below for ANSI setting bed methods, TCNA installation methods related to types of subfloor construction, and grout ANSI installation methods and grout types. Where recommendations and methods conflict, the manufacturer's recommendations shall apply.

1. Mortar: Latex-Portland Cement Mortar: ANSI A108.5.
2. Concrete Subfloors, Interior: TCNA F113 except apply mediumset bed thickness.
 - a. With a trowel, having notches sized as recommended by the mortar manufacturer, comb the surface of the mortar with the notched side of the trowel removing excess mortar. Spread only as much mortar as can be covered in the time limits established by the mortar manufacturers recommendations.
 - b. Wipe the back of each tile, with a damp sponge, to remove all dust or dirt immediately before applying mortar to tiles.
 - c. Immediately after wiping tile backs, but prior to placing tile, the mortar shall be troweled to back of tile for 100% coverage to thickness of not less than 1/16 inch.
 - d. Place tiles onto mortar bed, maintaining 1/8" wide joints, and true accurate pattern as shown. Exercise care to quickly remove spillage from faces of tile using water. Rake out joints to depth required to receive grout as tile units are set.
 - e. Prohibit foot and wheel traffic on tiled floors for period of time as recommended by the mortar manufacturer.
3. Grout Installation: Latex-portland cement: ANSI A108.10, unless noted otherwise.

3.6 WALL TILE INSTALLATION

A. Install in accordance with the mortar manufacturer's recommendations and requirements indicated below for ANSI setting bed methods, TCNA installation methods related to types of construction, and grout ANSI installation methods and grout types. Where recommendations and methods conflict, the manufacturer's recommendations shall apply.

1. Latex Portland Cement Mortar Installation (using specified latex portland cement mortar material): ANSI A108.5.
2. Gypsum Wallboard, Interior (Latex Portland Cement Mortar) Method: TCNA W243, place tiles maintaining 1/8 inch wide joints, and true accurate pattern as shown.
3. Cementitious Backerboard (Latex Portland Cement Mortar) Method: TCNA W244, place tiles maintaining 1/8 inch wide joints, and true accurate pattern as shown.
4. Grout Installation: Latex-portland cement: ANSI A108.10.

3.7 CLEANING AND PROTECTING

A. Cleaning: On completion of placement and grouting, clean all tile surfaces so they are free of foreign matter.

1. Remove grout residue from tile as soon as possible.

2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions, but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.
- B. Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, and otherwise defective tile work.
- C. When recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.
- D. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.

END OF SECTION 09 30 00

SECTION 09 51 13 – ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes acoustical panels and exposed suspension systems for ceilings.

1.2 ACTION SUBMITTALS

- A. Product Data: Submit product data for each type of product indicated.
- B. Shop Drawings: Submit shop drawings of reflected ceiling plans drawn accurately to large scale and coordinating penetrations and ceiling-mounted items. Show the following:
 - 1. Patterns of ceiling suspension assembly members with setting out/work points.
 - 2. Method of attaching hangers to building structure.
 - 3. Ceiling-mounted items including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings at walls, column penetrations, and other junctures of acoustical ceilings with adjoining construction.
- C. Samples: Submit samples for each acoustical panel, for each exposed suspension system member, for each exposed molding and trim, and for each color and texture required, prepared on Samples of size indicated below. Samples shall show the full range of color and texture variations to be expected in the final installation.
 - 1. Acoustical Panel: Set of 6 inch square Samples of each type, color, pattern, and texture.
 - 2. Exposed Suspension System Members, Moldings, and Trim: Set of 12 inch long Samples of each type, finish, and color.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an Installer, with not less than 5 years experience in the installation of materials specified, and who has completed acoustical panel ceilings similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance.
- B. Source Limitations: Obtain each type of acoustical ceiling panel and supporting suspension system through one source from a single manufacturer.
- C. Performance Requirements: In areas where gypsum wallboard partitions are dependent on the ceiling suspension system for lateral support, design and install suspension system components to sustain the imposed load from the completed partition system including a minimum inward and outward pressure of 5 psf normal to the plane of the wall.

D. Sample Installations: Before installing acoustical panel ceilings, install sample installations, for each type of acoustical panel ceiling installation required to demonstrate aesthetic effects and qualities of materials and execution. The sample installation shall be complete in every way and include all attachments to structure, hangers, grids, ceiling panels, moldings and column trims, light fixtures, air outlets and inlets; speakers, sprinklers heads, heat and smoke detectors. Install sample installations to comply with the following requirements, using materials indicated for the completed Work:

1. Size and Location: Provide 250 square foot sample installations in locations as directed by Architect.
2. Demonstrate the proposed range of aesthetic effects and workmanship.
3. Obtain Architect's approval of sample installations before starting work.
4. Maintain sample installations during construction in an undisturbed condition as a standard for judging the completed Work.
5. Approved sample installations may become part of the completed Work if undamaged at time of Substantial Completion.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical panels, suspension system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical panels carefully to avoid chipping edges or damaging units in any way.

1.5 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install acoustical panel ceilings until wet work (painting, drywall, interior tilework, and concrete leveling) in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1.6 COORDINATION

- A. Coordinate layout and installation of acoustical panels and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

1.7 EXTRA MATERIALS

- A. Furnish and store at the site where directed, 2% of each type of acoustic panel installed in the Project, packaged in manufacturer's unopened cartons and identified as to contents.

PART 2 - PRODUCTS

2.1 METAL SUSPENSION SYSTEMS

- A. Metal Suspension System Standard: Provide manufacturer's standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635.
- B. Overhead Deck Hanger Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated.
 - 1. Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with eyepins, clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling assembly.
- C. Hangers: As follows:
 - 1. Wire Hangers, Braces, and Ties: Zinc-coated carbon-steel wire; ASTM A 641/A 641M, Class 1 zinc coating, soft temper. Select wire diameter so its stress at three times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 12 ga. (0.106 inch) (2.69 mm) diameter wire.
 - 2. Rod Hangers: ASTM A 510 (ASTM A 510M), mild carbon steel.
 - a. Diameter: 1/4 inch (6.34 mm).
 - b. Protective Coating: ASTM A 153/A 153M, hot-dip galvanized.
 - 3. Flat Hangers: Commercial-sheet steel, ASTM A653/A653M, G60, hot dip galvanized. 1 inch by 3/16 inch by length indicated.
- D. Carrying Channels: ASTM C754, cold rolled steel channels, 1-1/2 inch, 475 lbs. per 1000 linear ft.
- E. Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit acoustical panel edge details and suspension systems indicated; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension system runners; provide in longest standard single piece lengths.
 - 1. Shadow (Stepped Moldings): Stepped edge molding that forms reveal of same depth and width as that formed between edge of panel and flange at exposed suspension member. Form from sheet metal of same material and finish as that used for exposed flanges of suspension system runners.
 - 2. F Moldings: Provide F moldings at ceiling breaks, soffits, bulkheads, and changes in elevation other than vertical walls and columns to the extent indicated. Form from sheet metal of same material and finish as that used for exposed flanges of suspension system runners.
 - 3. Metal Perimeter Channel Trim: Shapes and profiles to suit conditions indicated; fabricated from extruded aluminum; finished to match exposed flanges of suspension

- system runners. Provide manufacturers recommended tee-bar connection clips, and hanging clips, which lock into specially designed bosses on the channel trim and are screw attached to the web of the intersecting suspension system members. Join sections of trim together with manufacturers standard splice plates and alignment clips.
4. Perimeter Wing Trim: Shapes and profiles to suit conditions indicated; fabricated from and finished to match exposed panel. Provide manufacturers recommended connect wing cantilevers, connect splines, connect hooks, connect multi-connection, and installation screws suitable for installation indicated.
- F. Clips: Provide support clips, clamps, fasteners, splines, and other attachment devices as required to align components and to connect components and transfer imposed loads of suspension system.
1. Provide partition attachment clips, and fasteners for areas where ceiling runners are secured to the ceiling suspension system.
 2. Provide attachment clips for runner to angle molding to avoid use of pop rivets.
 3. Provide grid converter accessories as required to change main tee direction 90 degrees from adjacent main tee.
 4. Provide light fixture clips.
 5. Provide hold down clips at entryways to reduce flutter as required.
 6. Provide miter closure clips.
- G. Manufacturers and Products: Refer to drawings and schedules for extent and types of each metal suspension system required.

2.2 ACOUSTICAL PANELS (ACT-01)

- A. Manufacturers and Products: Refer to Drawings and schedules for extent and types of each acoustical panel required.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation, anchorage, with requirements for installation tolerances, and other conditions affecting performance of acoustical panel ceilings.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Layout the work to center board pattern both directions around work points shown in each major space or room as shown on the drawings or directed and, where possible, adjust pattern so that edge pieces will be not less than 1/2 unit in width.

3.3 INSTALLATION

- A. General: Install acoustical panel ceilings to comply with ASTM C 636 and seismic requirements indicated, per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook," and as required to match the accepted sample installation.
- B. Suspend ceiling hangers as follows:
 - 1. Fasten hangers to anchors that extend into decks. Space hangers not more than 48" o.c. along each member supported directly from hangers; and provide hangers not more than 6" from ends of each member. Provide additional hangers for support of fixtures and other items including but not limited to light fixtures and diffusers, as required to prevent overloading of deck attachment, eccentric deflection or rotation of supporting runners.
 - 2. Hangers:
 - a. Secure wire hangers to ceiling suspension members and to supports above with a minimum of 3 tight turns. Connect hangers directly to drilled in anchors (eye screws), or other devices that are secure, and are appropriate for substrate.
 - b. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to drilled in anchors, or other devices that are secure and appropriate for both the structure to which hangers are attached and the type of hanger involved.
 - 3. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 4. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of the supporting structure or of the ceiling suspension system.
 - 5. Where width of ducts and other construction within ceiling plenum produce hanger spacings that interfere with location of hangers spacing required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.
- C. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels. Align moldings accurately and screw attach securely to substrate with concealed fasteners at intervals not more than 16 inches (400 mm) o.c. and not more than 3 inches (75 mm) from ends, leveling with ceiling suspension system. Miter corners accurately and connect securely. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- D. Install suspension system runners so they are square and securely interlocked with one another. Clip runners to angle moldings do not use exposed fasteners. Finish to lines and levels shown, with maximum deflection not to exceed 1/360 of the span between supports. Laser level accurately in all directions, leveling to a tolerance of 1/8 inch non-cumulative. Remove and replace dented, bent, or kinked members.
- E. Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Run grain of units in one direction as accepted on shop drawings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.

- F. For reveal-edged panels on suspension system members with box-shaped flanges, install panels with reveal surfaces in firm contact with suspension system surfaces and panel faces flush with bottom face of runners.

3.4 CLEANING

- A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09 51 13

SECTION 09 77 00 – SPECIAL WALL SURFACES (Fiberglass Reinforced Plastic Panels)

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes special wall surfaces, including fiberglass reinforced plastic panels.

1.2 REFERENCES

- A. ASTM International:
 - 1. ASTM D2583 Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor.
 - 2. ASTM D5420 Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of a Striker Impacted by a Falling Weight (Gardner Impact).
 - 3. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.

1.3 SYSTEM DESCRIPTION

- A. Performance Requirements: Provide fiberglass reinforced plastic (FRP) panels that have been manufactured and installed to maintain performance criteria stated by manufacturer without defects, damage or failure.

1.4 ACTION SUBMITTALS

- A. Product Data: Submit product data for specified products.
- B. Shop Drawings: Submit shop drawings showing layout, profiles and product components, including anchorage, accessories, finish colors, patterns and textures. Indicate location and dimension of joints and fastener attachment, locations and profiles of trim and moldings.
- C. Samples: Submit selection and verification samples for finishes, colors and textures.
 - 1. Submit 2 samples of each type of panel, trim and fastener.
 - a. Panel: 6" x 6".
 - b. Molding: 6" length.

1.5 INFORMATIONAL SUBMITTALS

- A. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.

- B. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics, criteria and physical requirements.
- C. Manufacturer's Instructions: Manufacturer's installation instructions.
- D. Manufacturer's Field Reports: Manufacturer's field reports specified herein.
- E. Warranty: Warranty documents specified herein.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: Operation and maintenance data for installed products. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.

1.7 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Installer Qualifications: Installer should be experienced in performing work of this section and should have specialized in installation of work similar to that required for this project.
 - 2. Manufacturer Qualifications: Manufacturer should be capable of providing field service representation during construction and should be capable of approving application method.
- B. Fire-Retardant Panels: Comply with ASTM E 84; flame spread of 15 or less, smoke generated of 295 or less.

1.8 QUALITY CONTROL

- A. Source Quality: Obtain fiberglass reinforced plastic (FRP) panels from a single manufacturer. Provide panels and molding only from manufacturer specified to ensure warranty and color harmonization of accessories.

1.9 DELIVERY, STORAGE & HANDLING

- A. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact. Package sheets on skids or pallets for shipment to project site.
- B. Storage and Protection: Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer. Store panels indoors in a dry place at the project site.
- C. Handling: Remove foreign matter from face of panel by using a soft bristle brush, avoiding abrasive action.

1.10 PROJECT CONDITIONS

A. Environmental Requirements:

1. Installation shall not begin until building is enclosed, permanent heating and cooling equipment is in operation, and residual moisture from concrete work has dissipated.
2. During installation, and for not less than 48 hours before, maintain an ambient temperature and relative humidity within limits required by type of adhesive used and recommendation of adhesive manufacturer.
3. Provide ventilation to disperse fumes during application of adhesive as recommended by adhesive manufacturer.

B. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings.

1.11 WARRANTY

A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.

B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

1. Warranty Period: Two years commencing on Date of Substantial Completion.

1.12 MAINTENANCE

A. Extra Materials: Deliver to Owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels.

1. Quantity: Furnish quantity of two units.
2. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra materials.

PART 2 - PRODUCTS

2.1 FIBERGLASS REINFORCED PLASTIC (FRP) PANELS

A. Manufacturers:

1. Basis of Design: Crane Composites, Inc.
2. Marlite.

B. Product:

1. Glasboard.

- a. Color: White.
- b. 0.090 nominal thickness.
- c. Pebbled finish.
- d. Size: 4 feet by 8 feet.

C. Moldings: Provide harmonizing PVC (polyvinyl chloride) moldings.

1. Surface Protection: Provide manufacturer's proprietary surface protection for fiberglass reinforced plastic (FRP) panels.
2. Division Bars, Corner Trim: Panel manufacturer's standard length extruded vinyl pieces; longest length possible to eliminate end joints.
3. Fasteners: Noncorrosive drive rivets.

2.2 ACCESSORIES

- A. Adhesive: Provide panel adhesive as recommended by panel manufacturer for high humidity conditions over a gypsum substrate.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions and product carton instructions for installation.

3.2 EXAMINATION

- A. Site Verification of Conditions: Verify that substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.
1. Examine backup surfaces to determine that corners are plumb and straight, surfaces are smooth, uniform, clean and free from foreign matter, nails are countersunk and joints and cracks are filled flush and smooth with the adjoining surface.
 2. Do not begin installation until backup surfaces are in satisfactory condition.

3.3 PREPARATION

- A. Surface Preparation: Provide clean, flat substrate for installers.

3.4 INSTALLATION

- A. Fiberglass Reinforced Panel (FRP) Installation:
1. Cut and drill panels with carbide tipped saw blades or drill bits, or cut with snips.

2. Install panels with manufacturer's recommended gap for panel field and corner joints.
3. Cover all panel edges with trim. Panels shall be at least 6-inches wide.
4. Predrill fastener holes in panels with 1/8 inch (3.2 mm) oversize.
5. For trowel type and application of adhesive, follow adhesive manufacturer's recommendations.
6. Use products acceptable to panel manufacturer and install FRP system in accordance with panel manufacturer's printed instructions. Comply with panel manufacturer's Installation Guide.

3.5 CLEANING

- A. Cleaning: Remove temporary coverings and protection of adjacent work areas. Repair or replace products that have been installed and are damaged. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance. Remove construction debris from project site and legally dispose of debris.
 1. Remove any adhesive or excessive sealant from panel face using solvent or cleaner recommended by panel manufacturer.

3.6 PROTECTION

- A. Protection: Protect installed product and finish surfaces from damage during construction.

END OF SECTION 09 77 00

SECTION 09 81 00 – ACOUSTIC INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Exposed black fiberglass acoustic insulation boards installed in the following location:
 - a. Ceilings.
above plank ceilings.
 - b. Between wood plank ceiling units.
2. Accessories required to apply and maintain insulation in place.

B. Related Sections:

1. Division 06 Section "Miscellaneous Rough Carpentry."
2. Division 07 Section "Firestopping."
3. Division 07 Section "Joint Sealants."
4. Division 09 Section "Gypsum Board."
5. Division 09 Section "Non-Structural Metal Framing."

1.2 ACTION SUBMITTALS

- A. Product data for each type of insulation or acoustical wall covering product specified.
- B. Samples for verification purposes in 12 inch by 12 inch units of each type of exposed insulation or acoustical wall covering indicated for each color specified.

1.3 INFORMATIONAL SUBMITTALS

- A. Product test reports from and based on tests performed by qualified independent testing laboratory evidencing compliance of insulation products with requirements including acoustical absorption criteria, fire performance characteristics, water absorption ratings, and other properties, based on comprehensive testing of current products.

1.4 QUALITY ASSURANCE

- A. Fire Performance Characteristics: Provide insulation materials identical to those whose indicated fire performance characteristics have been determined per the ASTM test method indicated below, by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing and inspecting organization.

1. Surface Burning Characteristic: ASTM E 84.
 2. Fire Resistance Ratings: ASTM E 119.
 3. Combustion Characteristics: ASTM E 136.
- B. Single-Source Responsibility for Insulation Products: Obtain each type of building insulation from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- C. Delivery, Storage, and Handling:
1. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's recommendations for handling, storage, and protection during installation.

1.5 SITE ENVIRONMENTAL REQUIREMENTS

- A. Apply acoustic insulation only when ambient climatic conditions (high humidity levels) and temperature of surfaces to be insulated are within acceptable limits to prevent risk of condensation.
- B. Safety: Comply with requirements of MSDS regarding use, handling, storage, and disposal of acoustic insulation materials.
- C. Protection:
1. Ensure applicator's personnel wears protection equipment such as breathing masks (dustproof type masks prescribed in Product Data Sheet), face and eye protection (safety goggles or eye glasses) and skin protection (gloves, long-sleeved shirts and pants).
 2. Provide temporary enclosures to prevent dust from contaminating air beyond application area.
 3. Protect adjacent surfaces and equipment from damage by fall-out and dust.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials and units in unopened bundles and store in a temperature-controlled dry place with adequate air circulation.

PART 2 - PRODUCTS

2.1 ACOUSTIC BOARD INSULATION (AT-01)

- A. General: Thermal insulation produced by combining glass fibers with thermosetting resin binders and as follows: Locate as indicated on Drawings.
- B. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:

1. CertainTeed Corp.; Acousta Board Black Insulation.
2. Johns Manville; Insul-Shield.
3. Owens/Corning Fiberglass Corp.; Select Sound Black Acoustic Board.

C. Acoustic Fiberglass Board:

1. Pre-formed semi-rigid mineral fiberglass board acoustic insulation, black color, faced with a black glass fiber mat.
2. Nominal compressive strength to ASTM C 165:
 - a. at 10% deformation: 1197 Pa (25 lbs./sq. ft.).
 - b. at 25% deformation: 4309 Pa (90 lbs./sq. ft.).

3. Noise Reduction Coefficients to ASTM C 423 (Type A apparatus, on solid backing):

| <u>Thickness</u> | <u>Density</u> | <u>Noise Reduction Coefficient (NRC)</u> |
|------------------|-------------------------------------------------|------------------------------------------|
| 1 inch (25 mm) | 3.0 lbs./m ³ (48 kg/m ³) | 0.70 |
| 2 inches (51 mm) | 3.0 lbs./m ³ (48 kg/m ³) | 1.00 |

4. Surface burning characteristics to CAN/ULC-S102 and UL 723:
 - a. Flame Spread: 25.
 - b. Smoke Developed: 50.

2.2 ACCESSORIES FOR BLACK ACOUSTIC BOARD AND BLANKET INSULATION

A. Fasteners:

1. Stick Clips: Impaling type, supplied with self-adhesive or screw fastened perforated 50 mm by 50 mm by 0.8 mm sheet steel base as recommended by manufacturer; with integral 2.5 mm diameter sharpened pin of appropriate length and minimum 25 mm diameter self-locking retainers.

B. Adhesive: As recommended by manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions with Installer present, for compliance with requirements of the Sections in which substrates and related work are specified and to determine if other conditions affecting performance of insulation are satisfactory. Do not proceed with installation of acoustical wall coverings until unsatisfactory conditions have been corrected

3.2 PREPARATION

- A. Clean substrates of substances harmful to insulations, adhesives or vapor retarders, including removal of projections that might puncture vapor retarders.
- B. Examine installation conditions and ensure ceiling is clean, dry, and ready to receive acoustic insulation.
- C. Do not commence installation until base work has been corrected and inspections completed.

3.3 INSTALLATION

- A. General:
 - 1. Comply with insulation manufacturer's instructions applicable to products and application indicated. If printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding with installation of insulation.

3.4 ACOUSTIC BOARD INSULATION INSTALLATION

- A. Apply insulation units to substrate by method indicated on Drawings, complying with manufacturer's recommendations. If no specific method is indicated, use mechanical anchorage to provide permanent placement and support of units.
- B. The black-faced side of the board should be installed toward the interior of the structure.

3.5 BLACK BOARD ACOUSTIC INSULATION INSTALLATION ON CEILINGS

- A. Carefully adjust acoustic boards horizontally and vertically.
 - 1. Butt joints tightly between each board, and around penetrating electrical service boxes, piping, air ducts, and framing.

3.6 PROTECTION

- A. General:
 - 1. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation will be subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 09 81 00

SECTION 09 91 13 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes surface preparation and the application of paint systems on the following exterior substrates:
 - 1. Structural Steel and Metal Fabrications.
 - 2. Galvanized Metal.
- B. Related Sections:
 - 1. Division 09 Section "Interior Painting" for surface preparation and the application of paint systems on interior substrates.

1.2 DEFINITIONS

- A. Light Absorption Value: Percentage of light absorbed by a finish.
- B. Light Reflectance Value (LRV): Percentage of light reflected by a finish.
- C. Gloss Sheen Ratings of applied dry paint at 60 degrees and at 85 degrees:
 - 1. Flat or Matte finish: 0 – 5; 10 max.
 - 2. Velvet finish: 0 – 10; 10 – 35.
 - 3. Eggshell finish: 10 – 25; 10 – 35.
 - 4. Satin finish: 20 – 35; 35 min.
 - 5. Semi-Gloss finish: 35 – 70.
 - 6. Gloss finish: 70 – 85.
 - 7. High-Gloss finish: 85 min.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of topcoat product indicated.
- C. Samples for Verification: For each type of paint system and each color and gloss of topcoat indicated.
 - 1. Submit Samples on rigid backing, 8 inches (200 mm) square.
 - 2. Step coats on Samples to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.

- D. Product List: For each product indicated, include the following:
1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.

1.4 QUALITY ASSURANCE

- A. Mockups: Apply benchmark samples 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 specified in Part 3.
 - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
 - b. Other Items: Architect will designate items or areas required.
 2. Final approval of color selections will be based on benchmark samples.
 - a. If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Architect at no added cost to Owner.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
1. Maintain containers in clean condition, free of foreign materials and residue.
 2. Remove rags and waste from storage areas daily.

1.6 PROJECT CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Benjamin Moore and Co.
 2. Glidden Professional.
 3. PPG Architectural Finishes, Inc.
 4. Sherwin-Williams Company (The).

2.2 PAINT, GENERAL

- A. Material Compatibility:
1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- B. Colors: As indicated in a color schedule.

2.3 PRIMERS

- A. Metal Primers:
1. General Use:
 - a. Benjamin Moore and Co.:
 - 1) One Coat 363 IronClad[®] Latex Low Lustre Metal and Wood Enamel (380 g/L VOC).
 - 2) One Coat C163 IronClad[®] Alkyd Low Lustre Metal and Wood Enamel (380 g/L VOC).
 - 3) One Coat P04 Super Spec[®] HP Acrylic Metal Primer (54 g/L VOC).
 - 4) One Coat P06 Super Spec[®] HP Alkyd Metal Primer (323 g/L VOC).
 - 5) One Coat P07 Super Spec[®] HP Universal Alkyd Metal Primer (340 g/L VOC).
 - 6) One Coat P33 Super Spec[®] HP Polyamide Epoxy Metal Primer (339 g/L VOC).
 - 7) One Coat Z06 Super Spec[®] Alkyd Metal Primer (325 g/L VOC).
 - 8) One Coat Z07 Super Spec[®] Universal Alkyd Metal Primer (339 g/L VOC).
 - b. PPG Architectural Finishes, Inc.:

- 1) 6-208 (Red) SPEEDHIDE[®] Exterior Rust Inhibitive Steel Primer (330 g/L VOC).
 - 2) 6-212 (White) SPEEDHIDE[®] Exterior Rust Inhibitive Steel Primer (330 g/L VOC).
 - 3) 94-258 Series MULTIPRIME[®] Fast Dry 2.8 VOC Universal Primer (331 g/L VOC).
2. Aluminum, Galvanized Steel:
- a. Glidden Professional:
 - 1) One Coat 4020 DEVFLEX 4020PF Direct to Metal Primer and Flat Finish (5-8 mils wet, 2.2-3.5 mils dry); (solids: 44% +/- 2% volume, 91 g/L VOC).
 - 2) One Coat 4160 DEVGUARD 4160 Multi-Purpose Tank and Structural Primer (solids: 51% +/- 2% volume, 419 g/L VOC).
 - b. PPG Architectural Finishes, Inc.: One Coat Pitt-Tech Interior/Exterior DTM Primer/Finish 90-712 Series (2.0-3.0 mils DFT).
 - c. Sherwin-Williams Company (The):
 - 1) Two Coats S-W A-100 Exterior Latex Gloss, A8W10051 Series (4 mils wet, 1.3 mils dry per coat).
 - 2) Two Coats S-W Metalatex Acrylic Semi-Gloss, B42 Series (4 mils wet, 1.5 mils dry per coat).
 - 3) Two Coats S-W A-100 Exterior Latex Satin, B82 Series (4 mils wet, 1.4 mils dry per coat).
 - 4) Two Coats S-W A-100 Exterior Latex Flat, A6 Series (4 mils wet, 1.4 mils dry per coat).
3. Metal - Structural Iron and Ferrous Steel:
- a. Glidden Professional: One Coat Acrylic High Performance (Low UV/Abrasion): One Coat 4020 DEVFLEX 4020PF Direct to Metal Primer and Flat Finish (5-8 mils wet, 2.2-3.5 mils dry); (solids: 44% +/- 2% volume, 91 g/L VOC).
 - b. PPG Architectural Finishes, Inc.:
 - 1) One Coat Pitt-Tech Interior/Exterior DTM Primer/Finish 90-712 Series (2.0-3.0 mils DFT).
 - 2) One Coat Speedhide Interior/Exterior Alkyd Rust Inhibitive Steel Primers 6-208, 6-212 (1.5-2.0 mils DFT).
 - c. Sherwin-Williams Company (The): One Coat B66W1 DTM Primer Finish and Flat Finish (5-10 mils wet); (2-5 mils dry); (solids: 46% <150 g/L VOC).
4. Metal - Miscellaneous Ferrous Steel (Including Railings, Catwalks, Fire Escapes):
- a. Glidden Professional: Semi-Gloss / Gloss Paint Finish:

- 1) One Coat Acrylic High Performance (Low UV/Abrasion): One Coat 4020 DEVFLEX 4020PF Direct to Metal Primer and Flat Finish (5-8 mils wet, 2.2-3.5 mils dry); (solids: 44% +/- 2% volume, 91 g/L VOC).
 - 2) One Coat Solvent-Based Alkyd High Performance (Low UV/Abrasion): One Coat 4160 DEVGUARD 4160 Multi-Purpose Tank and Structural Primer (solids: 51% +/- 2% volume, 419 g/L VOC).
- b. PPG Architectural Finishes, Inc.:
- 1) One Coat Pitt-Tech Interior/Exterior DTM Primer/Finish 90-712 Series (2.0-3.0 mils DFT).
 - 2) One Coat Speedhide Interior/Exterior Alkyd Rust Inhibitive Steel Primers 6-208, 6-212 (1.5-2.0 mils DFT).
- c. Sherwin-Williams Company (The): One Coat B66W1 DTM Primer Finish and Flat Finish (5-10 mils wet); (2-5 mils dry); (solids: 46% <150 g/L VOC).
5. Alkyd, Anticorrosive Metal Primer:
- a. Glidden Professional: One Coat 4160 DEVGUARD 4160 Multi-Purpose Tank and Structural Primer (solids: 51% +/- 2% volume, 419 g/L VOC).
 - b. PPG Architectural Finishes, Inc.: One Coat Speedhide Interior/Exterior Alkyd Rust Inhibitive Steel Primers 6-208, 6-212 (1.5-2.0 mils DFT).
 - c. Sherwin-Williams Company (The): One Coat S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series (5-10 mils wet, 2-4 mils dry).
6. Quick-Drying Alkyd Metal Primer:
- a. Glidden Professional:
 - 1) Two Coats 4160 DEVGUARD 4160 Multi-Purpose Tank and Structural Primer (solids: 51% +/- 2% volume, 419 g/L VOC).
 - 2) Two Coats 4180 DEVGUARD Quick Dry Universal Primer (solids: 54% +/- 2% volume, 336 g/L VOC).
 - b. PPG Architectural Finishes, Inc.: One Coat Multi-Prime Fast Dry 2.8 VOC Primer 94-258 Series (1.5-2.0 mils DFT).
 - c. Sherwin-Williams Company (The): One Coat S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series (5-10 mils wet, 2-4 mils dry).

2.4 FINISH COAT

A. Exterior Latex Paints:

B. Exterior Alkyd Paints:

1. Exterior Alkyd Enamel (Semi-Gloss):

- a. Benjamin Moore and Co.: Z24 Super Spec[®] D.T.M. Alkyd Semi-Gloss Enamel (397 g/L VOC).
- b. Glidden Professional: Two Coats 2516 ULTRA HIDE DURUS Alkyd Semi-Gloss Exterior (solids: 51% +/- 1% volume and 71% +/- 1% weight, 372 g/L VOC).
- c. Sherwin-Williams Company (The): DTM Alkyd Enamel B55 Series (>450 g/L VOC).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
- B. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- C. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations applicable to substrates and paint systems indicated.
- B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
 2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.
 1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.
- D. Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.

- E. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions.
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 FIELD QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when paints are being applied:
 - 1. Owner will engage the services of a qualified testing agency to sample paint materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
 - 2. Testing agency will perform tests for compliance of paint materials with product requirements.
 - 3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying-paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 EXTERIOR PAINTING SCHEDULE

A. Steel Substrates:

1. Quick-Drying Enamel System:

- a. Prime Coat: Quick-drying alkyd metal primer.
- b. Intermediate Coat: Quick-drying enamel matching topcoat.
- c. Topcoat: Quick-drying enamel (semigloss).

2. Alkyd System:

- a. Prime Coat: Alkyd anticorrosive metal primer.
- b. Intermediate Coat: Exterior alkyd enamel matching topcoat.
- c. Topcoat: Exterior alkyd enamel (semigloss).

B. Galvanized-Metal Substrates:

1. Alkyd System:

- a. Prime Coat: Cementitious galvanized-metal primer.
- b. Intermediate Coat: Exterior alkyd enamel matching topcoat.
- c. Topcoat: Exterior alkyd enamel (semigloss).

END OF SECTION 09 91 13

SECTION 09 91 23 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes surface preparation and the application of paint systems on the following interior substrates:
 - 1. Steel.
 - 2. Ferrous metal.
 - 3. Wood.
 - 4. Gypsum board.
 - 5. Cotton or canvas insulation covering.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples: For each finish and for each color and texture required.

1.3 QUALITY ASSURANCE

- A. Mockups: Apply benchmark samples 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 specified in Part 3.
 - a. Wall and Ceiling Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
 - b. Other Items: Architect will designate items or areas required.
 - 2. Apply benchmark samples after permanent lighting and other environmental services have been activated.
 - 3. Final approval of color selections will be based on benchmark samples.
 - a. If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Architect at no added cost to Owner.
 - 4. Benchmark samples may be incorporated into the Work if undisturbed at time of Substantial Completion.

1.4 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

PART 2 - PRODUCTS

2.1 PAINT, GENERAL

- A. Material Compatibility:
1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- B. Chemical Components of Field-Applied Interior Paints and Coatings: Provide topcoat paints and anti-corrosive and anti-rust paints applied to ferrous metals that comply with the following chemical restrictions; these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop:
1. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
 2. Restricted Components: Paints and coatings shall not contain any of the following:
 - a. Acrolein.
 - b. Acrylonitrile.
 - c. Antimony.
 - d. Asbestos.
 - e. Benzene.
 - f. Butyl benzyl phthalate.
 - g. Cadmium.
 - h. Di (2-ethylhexyl) phthalate.
 - i. Di-n-butyl phthalate.
 - j. Di-n-octyl phthalate.
 - k. 1,2-dichlorobenzene.
 - l. Diethyl phthalate.
 - m. Dimethyl phthalate.
 - n. Ethylbenzene.
 - o. Formaldehyde.
 - p. Hexavalent chromium.
 - q. Isophorone.

- r. Lead.
- s. Mercury.
- t. Methyl ethyl ketone.
- u. Methyl isobutyl ketone.
- v. Methylene chloride.
- w. Naphthalene.
- x. Toluene (methylbenzene).
- y. 1,1,1-trichloroethane.
- z. Vinyl chloride.

C. Colors: As indicated in a color schedule.

2.2 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 Articles.

B. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 Articles:

- 1. Benjamin Moore & Co. (Benjamin Moore).
- 2. Glidden Professional.
- 3. PPG Industries, Inc. (Pittsburgh Paints).
- 4. Sherwin-Williams Co. (Sherwin-Williams).

2.3 INTERIOR PRIMERS

A. Interior Gypsum Board Primer: Factory-formulated latex-based primer for interior application.

- 1. Benjamin Moore; Aura Interior/Exterior Color Foundation, 521 (47.9 g/L VOC): Applied at a dry film thickness of not less than 2.0 mils.
- 2. Glidden Professional: 3210 Prep & Prime Gripper Multi-Purpose Primer (<100 g/L VOC).
- 3. Pittsburgh Paints; 6-2 Speed Hide Interior Latex Sealer Quick Drying (98 g/L VOC): Applied at a dry film thickness of not less than 1.0 mils.
- 4. Sherwin-Williams; ProGreen 200 Latex Wall Primer B28W600 Series (<50 g/L VOC): Applied at a dry film thickness of not less than 1.5 mils.

B. Interior Wood Primer for Acrylic-Enamel and Semigloss Finishes: Factory-formulated acrylic-latex-based interior wood primer.

- 1. Benjamin Moore: Aura Interior/Exterior Color Foundation #521.
- 2. Glidden Professional: 1020 Prep & Prime Wall & Woodwork Acrylic Primer (<140 g/L VOC).
- 3. Sherwin-Williams; PrepRite ProBlock Primer B28W101 Series (<100 g/L VOC): Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).

C. Interior Ferrous-Metal Primer: Factory-formulated quick-drying rust-inhibitive metal primer.

1. Benjamin Moore: DTM Acrylic Metal Primer #M04 (51 g/L VOC): Applied at a dry film thickness of not less than 1.5 mils.
2. Glidden Professional: 4020 Devflex 4020PF Direct to Metal Primer & Flat Finish (<85 g/L VOC); applied at a dry film thickness of not less than 2.0 mils.
3. Pittsburgh Paints: 90-912 Pitt-Tech Plus Interior/Exterior Primer Finish DTM Industrial Enamel (<99 g/L VOC corrosion protection): Applied at a dry film thickness of not less than 2.0 mils.
4. Sherwin-Williams; ProGreen 200 Latex Wall Primer B28W600 Series (<50 g/L VOC): Applied at a dry film thickness of not less than 1.5 mils.

D. Interior Zinc Coated Metal Primer: Factory formulated galvanized metal primer.

1. Benjamin Moore: DTM Acrylic Metal Primer #P04 (51 g/L); applied at a dry film thickness of not less than 1.5 mils.
2. Glidden Professional: Devflex 4020PF DTM Flat,/Interior/Exterior Direct to Metal Water Borne Primer (<91 g/L VOC); applied at a dry film thickness of 2.2 to 3.5 mils.
3. Pittsburgh Paints: 90-912 Pitt-TechPlus Interior/Exterior Primer/Finish DTM Enamel (<99 g/L VOC); applied at a dry film thickness of not less than 2.0 mils.
4. Sherwin-Williams; ProGreen 200 Latex Wall Primer B28W600 Series (<50 g/L VOC): Applied at a dry film thickness of not less than 1.5 mils.

E. Interior Metal – Galvanized Metal Primer:

1. Benjamin Moore: Benjamin Moore; DTM Acrylic Metal Primer #P04 (51 g/L); applied at a dry film thickness of not less than 1.5 mils.
2. Glidden Professional: 4020 Devflex 4020PF Direct to Metal Primer & Flat Finish (<91 g/L VOC); applied at a dry film thickness of not less than 2.0 mils.
3. Pittsburgh Paints: Pittsburgh Paints; 90-912 Pitt-Tech Plus Interior/Exterior Primer/Finish DTM Enamel (<99 g/L VOC); applied at a dry film thickness of not less than 2.0 mils.
4. Sherwin Williams: DTM Acrylic Primer Finish B66W1 (<150 g/L VOC); applied at a dry film thickness of not less than 2.5 mils.

F. Ferrous Metal – Handrails and Risers:

1. Benjamin Moore: Iron Clad Latex Low Lustre Metal & Wood Enamel #363.
2. Glidden Professional; 4020 Devflex 4020PF Direct to Metal Primer & Flat Finish (<91 g/L VOC); applied at a dry film thickness of not less than 2.0 mils.

2.4 INTERIOR FINISH COATS

A. Interior Flat Acrylic Paint: Factory-formulated flat acrylic-emulsion latex paint for interior application.

1. Benjamin Moore: Aura Waterborne Interior Matte Finish, 522 (<100 g/L VOC); applied at a dry film thickness of not less than 1.9 mils.
2. Glidden Professional: 1200 Dulux Pro Premium Velvet Matte Flat Interior Wall & Ceiling Paint (<80 g/L VOC).
3. Pittsburgh Paints: 6-70 Line SpeedHide Wall Flat Latex Paint (17.0 g/L VOC); applied at a dry film thickness of not less than 1.1 mils (0.030 mm).

4. Sherwin Williams: ProGreen 200 Interior Latex Flat, B30-600 Series (<50 g/L VOC); applied at a wet film thickness of 4 mils wet and a dry film thickness of not less than 1.8 mils.
- B. Interior Flat Latex-Emulsion Size: Factory-formulated flat latex-based interior paint.
1. Benjamin Moore: Eco Spec WB Flat Finish 373; applied at a dry film thickness of not less than 1.3 mils (0.33 mm).
 2. Glidden Professional: 9100 Dulux Lifemaster Flat Interior Enamel (0 g/L VOC); applied at a dry film thickness of not less than 1.0 mils (0.025 mm).
 3. Pittsburgh Paints: 9-100 Series Pure Performance Interior Flat Latex Paint (0 g/L VOC); applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
 4. Sherwin-Williams; ProGreen 200 Latex Wall Primer B28W600 Series (<50 g/L VOC): Applied at a dry film thickness of not less than 1.5 mils.
- C. Interior Low-Luster Acrylic Enamel: Factory-formulated eggshell acrylic-latex interior enamel.
1. Benjamin Moore: Aura Waterborne Interior Eggshell Finish, 524; applied at a dry film thickness of not less than 2.0 mils.
 2. Glidden Professional: 1402 Dulux Pro Premium Eggshell Interior Wall & Trim Enamel (<60 g/L VOC).
 3. Pittsburgh Paints: 6-411 Series SpeedHide Eggshell Acrylic Latex Enamel (67 g/L VOC); applied at a dry film thickness of not less than 1.5 mils.
 4. Sherwin Williams: S-W ProGreen 200 Interior Latex Eg-Shel B20-650 Series (41 g/L VOC); applied at a wet film thickness of 4 mils, and a dry film thickness of not less than 1.7 mils per coat.
- D. Interior Semigloss Acrylic Enamel: Factory-formulated semigloss acrylic-latex enamel for interior application.
1. Benjamin Moore: Aura Waterborne Interior Satin Finish 528 (<50 g/L VOC); applied at a dry film thickness of not less than 1.6 mils.
 2. Glidden Professional: 1406 Dulux Pro Premium Semi-Gloss Interior Wall & Trim Enamel (<50 g/L VOC).
 3. Pittsburgh Paints: 6-500 SpeedHide Interior Semi-Gloss Latex (90 g/L VOC); applied at a dry film thickness of not less than 1.5 mils.
 4. Sherwin Williams: S-W ProGreen 200 Semi-Gloss, B31-600 Series (47 g/L VOC); applied at a wet film thickness of 4 mils, and a dry film thickness of not less than 1.6 mils per coat.
- E. Interior Full-Gloss Acrylic Enamel: Factory-formulated full-gloss acrylic-latex interior enamel.
1. Glidden Professional; 3038 Ultra-Hide Durus Int/Ext Acrylic Gloss Enamel (<50 g/L VOC).
 2. Pittsburgh Paints: Manor Hall 52-110 Series Interior/Exterior Gloss Acrylic Latex; applied at a dry film thickness of not less than 1.3 mils (0.033 mm).
 3. Sherwin Williams: Pro Classic Interior Latex Gloss Enamel B21; applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
 4. Sherwin-Williams; Pro Industrial Zero VOC Acrylic (0 g/L VOC), B66-600 Series: Applied at a dry film thickness of not less than 2.5- 4 mils.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Concrete: 12 percent.
 - 2. Wood: 15 percent.
 - 3. Gypsum Board: 12 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
 - 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION AND APPLICATION

- A. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.
- B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- C. Painting Mechanical and Electrical Work: Paint items exposed in equipment rooms and occupied spaces including, but not limited to, the following:
 - 1. Mechanical Work:
 - a. Uninsulated metal piping.
 - b. Uninsulated plastic piping.
 - c. Pipe hangers and supports.
 - d. Tanks that do not have factory-applied final finishes.
 - e. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
 - f. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.

- g. Mechanical equipment that is indicated to have a factory-primed finish for field painting.
- 2. Electrical Work:
 - a. Switchgear.
 - b. Panelboards.
 - c. Electrical equipment that is indicated to have a factory-primed finish for field painting.
- 3. Conduit: To be primed and field painted.
- D. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- E. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.3 INTERIOR PAINTING SCHEDULE

- A. Steel Substrates:
 - 1. Institutional Low-Odor/VOC Latex System:
 - a. Prime Coat: Rust-inhibitive primer (water based).
 - b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat.
 - c. Topcoat: Institutional low-odor/VOC interior latex (semigloss).
- B. Ferrous Metals: Provide the following finish systems over ferrous metal:
 - 1. Semigloss Acrylic Enamel Finish: Two coats over a primer.
- C. Galvanized-Metal Substrates:
 - 1. Institutional Low-Odor/VOC Latex System:
 - a. Prime Coat: Waterborne galvanized-metal primer.
 - b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat.
 - c. Topcoat: Institutional low-odor/VOC interior latex (semigloss).
- D. Wood and Hardboard: Provide the following paint finish systems over new interior wood surfaces:
 - 1. Semigloss Acrylic Enamel Finish: Two finish coats over a wood undercoater.
 - a. Primer: Interior wood primer for acrylic enamel finishes.
 - b. Finish Coats: Interior semigloss acrylic enamel.
 - 2. Full-Gloss Acrylic Enamel Finish: Two finish coats over a wood primer.

- a. Primer: Interior wood primer for acrylic enamel finishes.
 - b. Finish Coats: Interior full-gloss acrylic enamel.
- E. Gypsum Board Substrates:
- 1. Latex System:
 - a. Prime Coat: Interior latex primer/sealer.
 - b. Intermediate Coat: Interior latex matching topcoat.
 - c. Topcoat: Interior latex.
 - 1) Flat.
 - 2) Satin
 - 3) Semigloss
 - 4) Gloss.
 - 2. Institutional Low-Odor/VOC Latex System:
 - a. Prime Coat: Interior latex primer/sealer.
 - b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat.
 - c. Topcoat: Institutional low-odor/VOC interior latex.
 - 1) Flat.
 - 2) Low-sheen.
 - 3) Semigloss.
- F. Zinc-Coated Metal: Provide the following finish systems over interior zinc-coated metal surfaces:
- 1. Flat Acrylic Finish: Two coats over a primer.
 - a. Primer: Interior zinc-coated metal primer.
 - b. Finish Coats: Interior flat acrylic paint.
 - 2. Low-Luster Acrylic Enamel Finish: Two finish coats over a primer.
 - a. Primer: Interior zinc-coated metal primer.
 - b. Finish Coats: Interior low-luster acrylic enamel.
 - 3. Semigloss Acrylic Enamel Finish: Two finish coats over a primer.
 - a. Primer: Interior zinc-coated metal primer.
 - b. Finish Coats: Interior semigloss acrylic enamel.
 - 4. Full-Gloss Acrylic Enamel Finish: Two finish coats over a primer.
 - a. Primer: Interior zinc-coated metal primer.
 - b. Finish Coats: Interior full-gloss acrylic enamel.
- G. Cotton or Canvas Insulation-Covering Substrates: Including pipe and duct coverings.

1. Latex System:
 - a. Two coats. Add fungicidal agent to render fabric mildew-proof.
2. Institutional Low-Odor/VOC Latex System:
 - a. Two coats. Add fungicidal agent to render fabric mildew-proof.

H. Conduit:

1. Latex System:
 - a. Prime Coat: Interior latex primer/sealer.
 - b. Intermediate Coat: Interior latex matching topcoat.
 - c. Topcoat: Interior latex.
 - 1) Flat to match ceiling.

END OF SECTION 09 91 23

SECTION 10 14 00 - SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Plaques.
2. Dimensional[**illuminated**] characters.
3. Panel signs.
4. Illuminated panel signs.
5. Photoluminescent signs.

B. Related Sections:

1. Division 01 Section "Temporary Facilities and Controls" for temporary Project identification signs and for temporary information and directional signs.
2. Division 10 Section "Directories" for building directories.
3. Division 10 Section "Post and Panel/Pylon Signage" for freestanding signs.
4. Division 14 Section "[**Electric Traction Elevators**] [**Hydraulic Elevators**] [**Escalators**] [**Moving Walks**] [**Wheelchair Lifts**]" for code-required elevator signage.
5. Division 22 Section "Identification for Plumbing Piping and Equipment for labels, tags, and nameplates for plumbing systems and equipment.
6. Division 23 Identification for HVAC Piping and Equipment" for labels, tags, and nameplates for HVAC systems and equipment.
7. Division 26 Sections for electrical service and connections for illuminated signs.
8. Division 26 Section "Identification for Electrical Systems" for labels, tags, and nameplates for electrical equipment.
9. Division 26 Section "Interior Lighting" for illuminated Exit signs.

1.2 DEFINITIONS

- A. ADA-ABA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines."

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show fabrication and installation details for signs.
1. Show sign mounting heights, locations of supplementary supports to be provided by others, and accessories.

2. Provide message list, typestyles, graphic elements[, **including tactile characters and Braille,**] and layout for each sign.
 3. Wiring Diagrams: Power, signal, and control wiring.
- C. Samples for Initial Selection: Manufacturer's color charts consisting of actual units or sections of units showing the full range of colors available for the following:
1. Aluminum.
 2. Acrylic sheet.
 3. Polycarbonate sheet.
 4. Fiberglass sheet.
 5. Die-cut vinyl characters and graphic symbols.[**Include representative samples of available typestyles and graphic symbols.**]
- D. Samples for Verification: For each of the following products and for the full range of color, texture, and sign material indicated, of sizes indicated:
1. Plaque[**Casting**]: **6 inches (150 mm)** square[**including border**].
 2. Dimensional Characters: Full-size Samples of each type of dimensional character (letter, number, and graphic element).
 3. Aluminum: For each form, finish, and color, on **6-inch- (150-mm-)** long sections of extrusions and squares of sheet at least **4 by 4 inches (100 by 100 mm)**.
 4. Acrylic Sheet: **8 by 10 inches (200 by 250 mm)** for each color required.
 5. Polycarbonate Sheet: **8 by 10 inches (200 by 250 mm)** for each color required.
 6. Fiberglass Sheet: **8 by 10 inches (200 by 250 mm)** for each color required.
 7. Panel Signs: Not less than **12 inches (305 mm)** square[**including border**].
 8. Photoluminescent Signs: Full-size sign.
 9. [**Trim**] [**Frame**]: **6-inch- (152-mm-)** long sections of each profile.
 10. Accessories: Manufacturer's full-size unit.
 11. **<Insert Sample and size.>**
- E. Sign Schedule: Use same designations indicated on Drawings.
- 1.4 INFORMATIONAL SUBMITTALS
- A. Qualification Data: For [**Installer**] [**and**] [**fabricator**].
 - B. Warranty: Special warranty specified in this Section.
- 1.5 CLOSEOUT SUBMITTALS
- A. Maintenance Data: For signs to include in maintenance manuals.
- 1.6 QUALITY ASSURANCE
- A. Installer Qualifications: [**Fabricator of products**] [**An employer of workers trained and approved by manufacturer**] **<Insert requirements>**.

- B. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.
- C. Source Limitations for Signs: Obtain each sign type indicated from one source from a single manufacturer.
- D. Regulatory Requirements: Comply with applicable provisions in [**ADA-ABA Accessibility Guidelines**] [**and**] [**ICC/ANSI A117.1**].
- E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.7 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when[**existing and forecasted**] weather conditions permit installation of signs in exterior locations to be performed according to manufacturers' written instructions and warranty requirements.
- B. Field Measurements: Verify recess openings by field measurements before fabrication and indicate measurements on Shop Drawings.

1.8 COORDINATION

- A. Coordinate placement of anchorage devices with templates for installing signs.

1.9 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Deterioration of [**metal**] [**and**] [**polymer**] finishes beyond normal weathering.
 - b. Deterioration of embedded graphic image [**colors**] [**and**] [**sign lamination**] **<Insert description>**.
 - 2. Warranty Period: [**Five**] **<Insert number>** years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aluminum Castings: ASTM B 26/B 26M, of alloy and temper recommended by sign manufacturer for casting process used and for use and finish indicated.
- B. Aluminum Sheet and Plate: **ASTM B 209 (ASTM B 209M)**, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with at least the strength and durability properties of Alloy 5005-H32.
- C. Aluminum Extrusions: **ASTM B 221 (ASTM B 221M)**, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with at least the strength and durability properties of Alloy 6063-T5.
- D. Brass Castings: ASTM B 584, Alloy UNS No. C85200 (high-copper yellow brass).
- E. Brass, Yellow, Sheet: ASTM B 36/B 36M, Alloy UNS No. C26000.
- F. Bronze Castings: ASTM B 584, Alloy UNS No. C86500 (No. 1 manganese bronze).
- G. Bronze Plate: ASTM B 36/B 36M.
- H. Copper Sheet: ASTM B 152/B 152M.
- I. Steel:
 - 1. Galvanized Steel Sheet: ASTM A 653/A 653M, **G90 (Z275)** coating, either commercial or forming steel.
 - 2. Steel Sheet: **[Uncoated, cold-rolled, ASTM A 1008/A 1008M, commercial steel, Type B, exposed] [or] [electrolytic zinc-coated, ASTM A 591/A 591M, with steel sheet substrate complying with ASTM A 1008/A 1008M, commercial steel, exposed].**
 - 3. Stainless-Steel Sheet: ASTM A 240/A 240M or ASTM A 666, Type **[304] [316]**, stretcher-leveled standard of flatness.
 - 4. Steel Members Fabricated from Plate or Bar Stock: ASTM A 529/A 529M or ASTM A 572/A 572M, **42,000-psi (290-MPa)** minimum yield strength.
 - 5. For steel exposed to view on completion, provide materials having flat, smooth surfaces without blemishes. Do not use materials whose surfaces exhibit pitting, seam marks, roller marks, rolled trade names, or roughness.
- J. Fiberglass Sheet: Molded, seamless, thermosetting, glass-fiber-reinforced polyester panels with a minimum tensile strength of **15,000 psi (103 MPa)** when tested according to ASTM D 638 and with a minimum flexural strength of **30,000 psi (207 MPa)** when tested according to ASTM D 790.
- K. Acrylic Sheet: ASTM D 4802, Category A-1 (cell-cast sheet), Type UVA (UV absorbing).
- L. Polycarbonate Sheet: Of thickness indicated, manufactured by extrusion process, coated on both surfaces with abrasion-resistant coating:

1. Impact Resistance: **16 ft-lbf/in. (854 J/m)** per ASTM D 256, Method A.
2. Tensile Strength: **9000 lbf/sq. in. (62 MPa)** per ASTM D 638.
3. Flexural Modulus of Elasticity: **340,000 lbf/sq. in. (2345 MPa)** per ASTM D 790.
4. Heat Deflection: **265 deg F (129 deg C)** at **264 lbf/sq. in. (1.82 MPa)** per ASTM D 648.
5. Abrasion Resistance: 1.5 percent maximum haze increase for 100 revolutions of a Taber abraser with a load of 500 g per ASTM D 1044.

- M. Applied Vinyl: Die-cut characters from vinyl film of nominal thickness of **3 mils (0.076 mm)** with pressure-sensitive adhesive backing, suitable for exterior applications.

2.2 PLAQUES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- C. Basis-of-Design Product: Subject to compliance with requirements, provide [**the product indicated on Drawings**] **<Insert manufacturer's name; product name or designation>** or a comparable product by one of the following:
1. Advance Corporation; Braille-Tac Division.
 2. A. R. K. Ramos.
 3. Gemini Incorporated.
 4. Matthews International Corporation; Bronze Division.
 5. Metal Arts; Div. of L&H Mfg. Co.
 6. Mills Manufacturing Company.
 7. Nelson-Harkins Industries.
 8. Southwell Company (The).
 9. **<Insert manufacturer's name.>**
- D. Cast Plaques: Provide castings free of pits, scale, sand holes, and other defects, as follows:
1. Plaque Material: [**Aluminum**] [**Bronze**].
 2. Background Texture: Manufacturer's standard [**pebble**] [**leatherette**] [**matte**] [**stipple**] **<Insert description>** texture.
 3. Border Style: [**Square, polished**] [**Plain bevel**] [**Projected bevel**] [**Raised flat band**] [**Double-raised line border**] **<Insert description>**.
 4. Mounting: [**Rosettes and fasteners matching plaque finish**] [**Concealed studs**], [**noncorroding**] for substrates encountered.
- E. Etched Plaques: Provide metal sheet or plate for etching, as follows:
1. Plaque Material: [**Aluminum**] [**Brass**] [**Bronze**] **<Insert material>**.
 2. Custom Paint Colors: Match [**Pantone**] **<Insert system>** color matching system.
 3. Color(s): [**As indicated**] [**As selected by Architect from manufacturer's full range**] **<Insert color(s)>**.
 4. Edge Style: [**Square, polished**] [**Plain bevel**].

5. Mounting: [**Concealed studs**] [**Exposed fasteners**][, **noncorroding**] for substrates encountered.
6. Thickness: [**0.125 inch (3.18 mm)**] [**0.250 inch (6.35 mm)**] <Insert dimension> thick.

F. Plaque Schedule:

1. Plaque Type <Insert designation>:
 - a. Plaque Size: [**As indicated**] <Insert dimensions>.
 - b. Character Size: [**As indicated**] <Insert size>.
 - c. Character Finish/Color: <Insert finish/color.>
 - d. Text/Message: [**As indicated**] <Insert text/message>.
 - e. Location: [**As indicated**] <Insert designation>.
 - f. Room: <Insert designation.>
 - g. Quantity: <Insert number.>

2.3 DIMENSIONAL CHARACTERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- C. Basis-of-Design Product: Subject to compliance with requirements, provide [**the product indicated on Drawings**] <Insert manufacturer's name; product name or designation> or a comparable product by one of the following:
 1. ACE Sign Systems, Inc.
 2. Advance Corporation; Braille-Tac Division.
 3. A. R. K. Ramos.
 4. ASI-Modulex, Inc.
 5. Bunting Graphics, Inc.
 6. Charleston Industries, Inc.
 7. Gemini Incorporated.
 8. Grimco, Inc.
 9. Innerface Sign Systems, Inc.
 10. Metal Arts; Div. of L&H Mfg. Co.
 11. Mills Manufacturing Company.
 12. Mohawk Sign Systems.
 13. Nelson-Harkins Industries.
 14. Signature Signs, Incorporated.
 15. Southwell Company (The).
 16. <Insert manufacturer's name.>
- D. Cast Characters: Produce characters with smooth flat faces, sharp corners, and precisely formed lines and profiles, free of pits, scale, sand holes, and other defects. Cast lugs into back of characters and tap to receive threaded mounting studs. Alloy and temper recommended by sign

manufacturer for casting process used and for use and finish indicated. Comply with the following requirements.

1. Character Material: [**Aluminum**] [**Brass**] [**Bronze**] <Insert material>.
 2. Thickness: [**As indicated**] <Insert dimension>.
 3. Color(s): [**As indicated**] [**As selected by Architect from manufacturer's full range**] <Insert color(s)>.
 4. Mounting: [**Rosettes and fasteners matching character finish**] [**Concealed studs**][, **noncorroding**] for substrates encountered.
- E. Aluminum Extrusions: Comply with the following requirements:
1. Finish: [**Anodized**] [**Painted**] <Insert description>.
 2. Thickness: [**As indicated**] <Insert dimension>.
 3. Custom Paint Colors: Match [**Pantone**] <Insert system> color matching system.
 4. Color(s): [**As indicated**] [**As selected by Architect from manufacturer's full range**] <Insert color(s)>.
 5. Mounting: Concealed studs[, **noncorroding**] for substrates encountered.
- F. Fabricated Channel Characters: Form exposed faces and sides of characters to produce surfaces free from warp and distortion. Include internal bracing for stability and attachment of mounting accessories. Comply with the following requirements:
1. Illuminated [**Backlighted**] [**Frontlighted**] Channel Characters: Manufacturer's standard [**fluorescent tube**] [**fiber-optic**] [**LED**] [**neon tube**] lighting including transformers, insulators, and other components. Make provisions for servicing and concealing connections to building electrical system.
 2. Aluminum Sheet: Not less than **0.090 inch (2.29 mm)** thick.
 - a. Finish: [**Anodized**] [**Painted**] <Insert description>.
 - b. Custom Paint Colors: Match [**Pantone**] <Insert system> color matching system.
 - c. Color: [**As indicated**] [**As selected by Architect from manufacturer's full range**] <Insert color>.
 3. Bronze Sheet: Not less than [**0.032 inch (0.81 mm)**] <Insert dimension> thick.
 4. Brass Sheet: Not less than [**0.032 inch (0.81 mm)**] <Insert dimension> thick.
 5. Copper Sheet: Not less than [**0.032 inch (0.81 mm)**] [**0.048 inch (1.22 mm)**] <Insert dimension> thick.
 6. Steel Sheet: Painted, not less than **0.050 inch (1.27 mm)** thick for face and **0.031 inch (0.78 mm)** thick for returns.
 - a. Color: [**As indicated**] [**As selected by Architect from manufacturer's full range**] <Insert color>.
 7. Stainless-Steel Sheet: Not less than **0.050 inch (1.27 mm)** thick for face and **0.031 inch (0.78 mm)** thick for returns.
 - a. Finish: [**No. 4**] [**No. 8**] <Insert description>.
 8. <Insert material and thickness.>

9. Provide manufacturer's hardware for projection mounting of **[backlighted]** channel characters at **<Insert dimension>** distance from wall surface **[indicated]**.
 10. Provide translucent acrylic face sheet of thickness indicated. Attach characters to sheet metal back channels. Provide required to illuminate sign faces evenly.
 - a. Color: **[As indicated]** **[As selected by Architect from manufacturer's full range]** **<Insert color>**.
 11. Provide open-front, sheet metal channel characters.
- G. Molded Plastic Characters: **[Thermoformed]** **[Injection molded]** and as follows:
1. Illuminated Characters: Manufacturer's standard **[fluorescent tube]** **[fiber-optic]** **[LED]** **[neon tube]** lighting including transformers, insulators, and other components. Make provisions for servicing and concealing connections to building electrical system.
 2. **[Integral Color]** **[Painted Finish]**: **[As indicated]** **[As selected by Architect from manufacturer's full range]** **<Insert color or finish>**.
- H. Cutout Characters: Provide characters with square-cut, smooth[, **eased**] edges. Comply with the following requirements:
1. Acrylic: **[0.25 inch (6.35 mm)]** **[0.50 inch (12.7 mm)]** **<Insert dimension>** thick.
 - a. Metal face laminated to acrylic base **[with painted edges]**.
 - 1) Brass Face: **[Satin]** **[Polished]** **<Insert description>** finish.
 - 2) Stainless-Steel Face: **[No. 4]** **[No. 8]** **<Insert description>** finish.
 - 3) Metal Thickness: **[0.030 inch (0.76 mm)]** **<Insert dimension>**.
 - b. Custom Paint Colors: Match **[Pantone]** **<Insert system>** color matching system.
 - c. Color: **[As indicated]** **[As selected by Architect from manufacturer's full range]** **<Insert color>**.
 2. Aluminum Sheet: **[0.125 inch (3.18 mm)]** **[0.25 inch (6.35 mm)]** **<Insert dimension>** thick.
 - a. Finish: **[Anodized]** **[Painted]** **<Insert description>**.
 - b. Custom Paint Colors: Match **[Pantone]** **<Insert system>** color matching system.
 - c. Color: **[As indicated]** **[As selected by Architect from manufacturer's full range]** **<Insert color>**.
 3. Brass Sheet, Yellow: **[0.125 inch (3.18 mm)]** **[0.25 inch (6.35 mm)]** **<Insert dimension>** thick.
 4. Bronze Sheet: **[0.125 inch (3.18 mm)]** **[0.25 inch (6.35 mm)]** **<Insert dimension>** thick.
 5. Vinyl: Pressure sensitive, **[3.5 mils (0.09 mm)]** **<Insert dimension>** thick.
 - a. Custom Paint Colors: Match **[Pantone]** **<Insert system>** color matching system.
 - b. Color: **[As indicated]** **[As selected by Architect from manufacturer's full range]** **<Insert color>**.

6. <Insert material.>
7. Mounting: [Adhesive] [Flush] [Projected] [Back bar] [Bracket] <Insert description>[with concealed noncorroding studs] for substrates encountered.

I. Dimensional Character Sign Schedule:

1. Sign Type <Insert designation>:
 - a. Sign Size: [As indicated] <Insert dimensions>.
 - b. Character Size: [As indicated] <Insert size>.
 - c. Text/Message: [As indicated] <Insert text/message>.
 - d. Location: [As indicated] <Insert designation>.
 - e. Room: <Insert designation.>

2.4 PANEL SIGNS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- C. Basis-of-Design Product: Subject to compliance with requirements, provide [the product indicated on Drawings] <Insert manufacturer's name; product name or designation> or a comparable product by one of the following:
 1. ACE Sign Systems, Inc.
 2. Advance Corporation; Braille-Tac Division.
 3. Allen Industries Architectural Signage
 4. Allenite Signs; Allen Marking Products, Inc.
 5. APCO Graphics, Inc.
 6. ASI-Modulex, Inc.
 7. Best Sign Systems Inc.
 8. Bunting Graphics, Inc.
 9. Fossil Industries, Inc.
 10. Gemini Incorporated.
 11. Grimco, Inc.
 12. Innerface Sign Systems, Inc.
 13. InPro Corporation
 14. Matthews International Corporation; Bronze Division.
 15. Mills Manufacturing Company.
 16. Mohawk Sign Systems.
 17. Nelson-Harkins Industries.
 18. Seton Identification Products.
 19. Signature Signs, Incorporated.
 20. Supersine Company (The)
 21. <Insert manufacturer's name.>

- D. Interior Panel Signs: Provide smooth sign panel surfaces constructed to remain flat under installed conditions within a tolerance of plus or minus **1/16 inch (1.5 mm)** measured diagonally from corner to corner, complying with the following requirements:
1. Aluminum Sheet: **[0.050 inch (1.27 mm)] [0.080 inch (2.03 mm)]** <Insert dimension> thick.
 2. Laminated, Aluminum-Faced Sheet: **[0.020-inch- (0.51-mm-)]** <Insert dimension> thick aluminum sheet laminated to each side of **[0.197-inch- (5.0-mm-)] [0.394-inch- (10.0-mm-)]** <Insert dimension> thick, **[corrugated] [phenolic] [acrylic]** backing **[with painted edges]**.
 3. Laminated, Polycarbonate-Faced Sheet: **[0.060-inch- (1.52-mm-)]** <Insert dimension> thick, polycarbonate face sheet laminated to each side of **[0.197-inch- (5.0-mm)] [0.394-inch- (10.0-mm-)]** <Insert dimension> thick phenolic backing.
 4. Acrylic Sheet: **[0.060 inch (1.52 mm)] [0.080 inch (2.03 mm)]** <Insert dimension> thick.
 5. PVC Sheet: **[0.060-inch- (1.52-mm-)] [0.080-inch- (2.03-mm-)]** <Insert dimension> thick, extruded, high-impact PVC plastic **[in color to match face color] [with painted finish]**.
 6. High-Pressure Decorative Laminate: **0.048 inch (1.21 mm)** thick.
 7. Phenolic-Backed Photopolymer Sheet: Provide light-sensitive, water-wash photopolymer face layer bonded to a phenolic base layer to produce a composite sheet with overall, face layer, and base-layer thicknesses, respectively, of **[0.120, 0.040, and 0.080 inch (3.0, 1.0, and 2.03 mm)] [0.160, 0.040, and 0.120 inch (4.06, 1.0, and 3.04 mm)]**.
 8. Laminated Sheet: High-pressure engraved stock with **[contrasting color]** face laminated to acrylic core **[in finishes and color combinations indicated] [as selected by Architect from manufacturer's full range]**.
 9. Laminated, Etched Photopolymer: Raised graphics **[with Braille] 1/32 inch (0.8 mm)** above surface with contrasting colors **[in finishes and color combinations indicated] [as selected by Architect from manufacturer's full range]** and laminated to acrylic back.
 10. Laminated, Sandblasted Polymer: Raised graphics **[with Braille] 1/32 inch (0.8 mm)** above surface with contrasting colors **[in finishes and color combinations indicated] [as selected by Architect from manufacturer's full range]** and laminated to acrylic back.
 11. Edge Condition: **[Square cut] [Beveled] [Bullnose]**.
 12. Corner Condition: **[Square] [Rounded to radius indicated]**.
 13. Mounting: **[Framed] [Unframed] [As indicated]**.
 - a. **[Wall] [Ceiling] [Projection]** mounted with **[concealed anchors] [magnetic tape] [two-face tape]**.
 - b. Manufacturer's standard anchors for substrates encountered.
 14. Custom Paint Colors: Match **[Pantone]** <Insert system> color matching system.
 15. Color: **[As indicated] [As selected by Architect from manufacturer's full range]** <Insert color>.
 16. Tactile Characters: Characters and Grade 2 Braille raised **1/32 inch (0.8 mm)** above surface with contrasting colors.

- E. Exterior Panel Signs: Provide smooth sign panel surfaces constructed to remain flat under installed conditions within a tolerance of plus or minus **1/16 inch (1.5 mm)** measured diagonally from corner to corner, complying with the following requirements:
1. Aluminum Sheet: [**0.050 inch (1.27 mm)**] [**0.080 inch (2.03 mm)**] <Insert dimension> thick.
 2. Laminated, Aluminum-Faced Sheet: [**0.020-inch- (0.51-mm-)**] <Insert dimension> thick aluminum sheet laminated to each side of [**0.197-inch- (5.0-mm-)**] [**0.394-inch- (10.0-mm-)**] <Insert dimension> thick, [corrugated] [phenolic] [acrylic] backing[with painted edges].
 3. Acrylic Sheet: [**0.060 inch (1.52 mm)**] [**0.080 inch (2.03 mm)**] <Insert dimension> thick.
 4. Fiberglass Sheet: [**0.090-inch- (2.29-mm-)**] [**0.125-inch- (3.18-mm-)**] <Insert dimension> thick sheet.
 5. Edge Condition: [Square cut] [Beveled] [Bullnose].
 6. Corner Condition: [Square] [Rounded to radius indicated].
 7. Mounting: [Framed] [Unframed] [As indicated].
 - a. [Wall] [Soffit] [Projection] mounted.
 - b. Manufacturer's standard[noncorroding] anchors for substrates encountered.
 8. Custom Paint Colors: Match [Pantone] <Insert system> color matching system.
 9. Color: [As indicated] [As selected by Architect from manufacturer's full range] <Insert color>.
- F. Laminated [Interior] [Exterior] Signs: Solid phenolic panel core with graphic image covered with thermosetting resin face layer.
1. Surface Finish: [Mat] [Beaded] [Gloss] [UV resistant, outdoor].
 2. Edge Condition: [Square cut] [Beveled] [Bullnose].
 3. Corner Condition: [Square] [Rounded to radius indicated].
 4. Thickness: [**1/8 inch (3 mm)**] [**1/4 inch (6 mm)**] <Insert dimension>.
- G. Brackets: Fabricate brackets and fittings for bracket-mounted signs from extruded aluminum to suit panel sign construction and mounting conditions indicated. Factory paint brackets in color [matching background color of panel sign] [matching Architect's sample] <Insert color>.
- H. Panel Sign Frames:
1. PVC Frames: Extruded, high-impact PVC plastic.
 - a. Color: [As indicated] [As selected by Architect from manufacturer's full range] [Match face color] <Insert color>.
 - b. Depth: [As indicated] <Insert dimension>.
 - c. Profile: [Square] [Beveled] [Rounded].
 - d. Corner Condition: [Square] [Rounded to radius indicated].
 - e. Mounting: As indicated.
 - 1) [Wall] [Ceiling] [Projection] mounted with [concealed anchors] [magnetic tape] [two-face tape].

- 2) Manufacturer's standard[**noncorroding**] anchors for substrates encountered.
2. Extruded-Aluminum Frames: Mitered [**with concealed anchors**] [**and welded**].
 - a. Color: [**As indicated**] [**As selected by Architect from manufacturer's full range**] <Insert color>.
 - b. Depth: [**As indicated**] <Insert dimension>.
 - c. Profile: [**Square**] [**Beveled**] [**Rounded**].
 - d. Corner Condition: [**Square**] [**Rounded to radius indicated**].
 - e. Mounting: As indicated.
 - 1) [**Wall**] [**Ceiling**] [**Projection**] mounted with [**concealed anchors**] [**magnetic tape**] [**two-face tape**].
 - 2) Manufacturer's standard[**noncorroding**] anchors for substrates encountered.
3. Metal Frames:
 - a. Bronze Plate: Not less than **0.032 inch (0.81 mm)** thick.
 - b. Brass Plate: Not less than **0.032 inch (0.81 mm)** thick.
 - c. Steel Sheet: Painted, not less than **0.050 inch (1.27 mm)** thick for face and **0.031 inch (0.78 mm)** thick for returns.
 - 1) Color: [**As indicated**] [**As selected by Architect from manufacturer's full range**] <Insert color>.
 - d. Stainless-Steel Sheet: Not less than **0.050 inch (1.27 mm)** thick for face and **0.031 inch (0.78 mm)** thick for returns.
 - e. <Insert material and thickness>.
 - f. Depth: [**As indicated**] <Insert dimension>.
 - g. Corner Condition: [**Square**] [**Rounded to radius indicated**].
 - h. Mounting: As indicated.
 - 1) [**Wall**] [**Ceiling**] [**Projection**] mounted with [**concealed anchors**] [**magnetic tape**] [**two-face tape**].
 - 2) Manufacturer's standard[**noncorroding**] anchors for substrates encountered.
- I. Changeable Message Inserts: Fabricate signs to allow insertion of changeable messages in the form of [**slide-in inserts**] [**transparent covers with paper inserts printed by Owner**] [**changeable panel inserts for use in fixed frames**] <Insert description>.
 1. Furnish insert material and software for creating text and symbols for [**PC-Windows**] [**Macintosh**] computers for Owner production of paper inserts.
 2. Furnish insert material cut-to-size for changeable message insert.
- J. Tactile and Braille Sign: Manufacturer's standard process for producing text and symbols complying with ADA-ABA Accessibility Guidelines and with ICC/ANSI A117.1. Text shall be accompanied by Grade 2 Braille. Produce precisely formed characters with square-cut edges free from burrs and cut marks; Braille dots with domed or rounded shape.

1. Panel Material: [**Opaque acrylic sheet**] [**Photopolymer**] [**Clear acrylic sheet with opaque color coating, subsurface applied**].
 2. Raised-Copy Thickness: Not less than **1/32 inch (0.8 mm)**.
- K. Engraved Copy: Machine engrave letters, numbers, symbols, and other graphic devices into panel sign on face indicated to produce precisely formed copy, incised to uniform depth.
1. Engraved Plastic Laminate: Engrave through exposed face ply of plastic-laminate sheet to expose contrasting core ply.
 2. Engraved Metal: Fill engraved copy with enamel.
 3. Engraved Opaque Acrylic Sheet: Fill engraved copy with enamel.
 4. Face-Engraved Clear Acrylic Sheet: Fill engraved copy with enamel. Apply opaque background color coating to back face of acrylic sheet.
- L. Subsurface Copy: Apply minimum **4-mil- (0.10-mm-)** thick vinyl copy to back face of clear acrylic sheet forming panel face to produce precisely formed opaque image. Image shall be free of rough edges.
- M. Subsurface Engraved Acrylic Sheet: Reverse-engrave back face of clear acrylic sheet. Fill resulting copy with enamel. Apply opaque background color coating over enamel-filled copy.
- N. Applied Vinyl: Die-cut characters from vinyl film of nominal thickness of **3 mils (0.076 mm)** with pressure-sensitive adhesive backing. Apply copy to [**exposed face of panel sign**] [**glass**] [**doors**] [**wall surfaces**] <Insert substrate>.
1. Panel Material: [**Opaque acrylic sheet**] [**Clear acrylic sheet with opaque color coating, subsurface applied**].
- O. Colored Coatings for Acrylic Sheet: For copy [**and**] [**background**] [**and frame**] colors, provide colored coatings, including inks, dyes, and paints, that are recommended by acrylic manufacturers for optimum adherence to acrylic surface and are UV and water resistant for [**three**] [**five**] years for application intended.
1. Custom Paint Colors: Match [**Pantone**] <Insert system> color matching system.
 2. Color: [**As indicated**] [**As selected by Architect from manufacturer's full range**] <Insert color>.
- P. Panel Sign Schedule:
1. Sign Type <Insert designation>:
 - a. Sign Size: [**As indicated**] <Insert dimensions>.
 - b. Message Panel Material: [**As indicated**] <Insert material>.
 - c. Message Panel Finish/Color: <Insert finish/color.>
 - d. Background Finish/Color: <Insert finish/color.>
 - e. Character Size: [**As indicated**] <Insert size>.
 - f. Character Finish/Color: <Insert finish/color.>
 - g. Panel Sign Frame Finish/Color: <Insert finish/color.>
 - h. Text/Message: [**As indicated**] <Insert text/message>.
 - i. Location: [**As indicated**] <Insert designation>.

- j. Room: <Insert designation.>
- k. Quantity: <Insert number.>

2.5 PHOTOLUMINESCENT SIGNS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- C. Basis-of-Design Product: Subject to compliance with requirements, provide [**the product indicated on Drawings**] <Insert manufacturer's name; product name or designation> or a comparable product by one of the following:
 - 1. Evenlite Inc.
 - 2. Holophane Corporation.
 - 3. Isolite Corporation.
 - 4. Johnsonite; Division of Duramax, Inc.
 - 5. <Insert manufacturer's name.>
- D. Photoluminescent Signs: Self-contained, [**single**] [**double**] face, as follows:
 - 1. Manufacturer's standard [**aluminum**] [**plastic**] frame with translucent lettering and transparent polycarbonate face.
 - 2. Exit sign, UL 924.
 - 3. Mounting: As indicated.
 - a. [**Wall**] [**Ceiling**] [**Projection**] mounted with concealed anchors.
 - 4. Face Color: [**Red**] [**Green**] [**Black**].
 - 5. Frame Color: [**As indicated**] [**As selected by Architect from manufacturer's full range**] <Insert color>.
 - 6. Service Life: [**10**] [**15**] [**20**] years.
- E. Photoluminescent Sign Schedule:
 - 1. Sign Type <Insert designation>:
 - a. Location: [**As indicated**] <Insert designation>.
 - b. Room: <Insert designation>.
 - c. Quantity: <Insert quantity>.

2.6 ACCESSORIES

- A. Anchors and Inserts: Provide nonferrous-metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or

lead expansion-bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into concrete or masonry work.

2.7 FABRICATION

- A. General: Provide manufacturer's standard signs of configurations indicated.
1. Welded Connections: Comply with AWS standards for recommended practices in shop welding. Provide welds behind finished surfaces without distortion or discoloration of exposed side. Clean exposed welded surfaces of welding flux and dress exposed and contact surfaces.
 2. Mill joints to tight, hairline fit. Form joints exposed to weather to exclude water penetration.
 3. Preassemble signs in the shop to greatest extent possible. Disassemble signs only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation, in location not exposed to view after final assembly.
 4. Conceal fasteners if possible; otherwise, locate fasteners where they will be inconspicuous.

2.8 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.9 ALUMINUM FINISHES

- A. Clear Anodic Finish: Manufacturer's standard Class 1 clear anodic coating, 0.018 mm or thicker, over a [**satin (directionally textured)**] [**polished (buffed)**] [**nonspecular as fabricated**] mechanical finish, complying with AAMA 611.
- B. Color Anodic Finish: Manufacturer's standard Class 1 integrally colored or electrolytically deposited color anodic coating, 0.018 mm or thicker, in [**light bronze**] [**medium bronze**] [**dark bronze**] [**gold**] [**black**] applied over a [**satin (directionally textured)**] [**polished (buffed)**] [**nonspecular as fabricated**] mechanical finish, complying with AAMA 611.
- C. Baked-Enamel Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating: as

specified below). Apply baked enamel complying with paint manufacturer's written instructions for cleaning, conversion coating, and painting.

1. Organic Coating: Thermosetting, modified-acrylic enamel primer/topcoat system complying with AAMA 2603 except with a minimum dry film thickness of **1.5 mils (0.04 mm)**, medium gloss.

2.10 STEEL FINISHES

- A. Surface Preparation: Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning," or SSPC-SP 8, "Pickling."
- B. Factory Priming for Painted Finish: Apply shop primer specified below immediately after surface preparation and pretreatment.
 1. Shop Primer: Manufacturer's or fabricator's standard, fast-curing, lead- and chromate-free, universal primer, selected for resistance to normal atmospheric corrosion, for compatibility with substrate and field-applied finish paint system indicated, and for capability to provide a sound foundation for field-applied topcoats despite prolonged exposure.
- C. Baked-Enamel Finish: Immediately after cleaning and pretreating, apply manufacturer's standard two-coat, baked-enamel finish consisting of prime coat and thermosetting topcoat. Comply with paint manufacturer's written instructions for applying and baking to achieve a minimum dry film thickness of **2 mils (0.05 mm)**.

2.11 STAINLESS-STEEL FINISHES

- A. Remove tool and die marks and stretch lines or blend into finish. Grind and polish surfaces to produce uniform, directionally textured, polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.
- B. Directional Satin Finish: No. 4 finish.
- C. Mirrorlike Reflective, Nondirectional Polish: No. 8 finish.
- D. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

2.12 COPPER-ALLOY FINISHES

- A. Sheet or Plate Finish: [**Medium satin (directionally textured)**] [**Smooth specular (mirrorlike), buffed**] finish.
 1. Raised Finish: [**Satin**] [**Polished**] [**Painted**] **<Insert description>**.
 2. Recessed Finish: Etched[, **Painted**] **<Insert description>**.

- B. Cast-[**Bronze**] [**Brass**] Character Finishes: Manufacturer's [**standard satin finish**] <Insert **description**> with exposed surfaces free from porosity, burrs, and rough spots; with returns finished with fine-grain air blast.
- C. Cast-Bronze Plaque Finishes: Exposed surfaces free of porosity, burrs, and rough spots; with returns finished with fine-grain air blast.
 - 1. Raised Areas: Hand-tool and buff borders and raised copy to produce manufacturer's standard [**satin**] [**polished**] finish.
 - 2. Background Finish: [**Painted**] [**Dark oxidized**] [**Green patina**] <Insert description>.
- D. Clear Protective Coating: Coat exposed surfaces of copper alloys with manufacturer's standard, clear organic coating specially designed for coating copper-alloy products.

2.13 ACRYLIC SHEET FINISHES

- A. Colored Coatings for Acrylic Sheet: For copy [**and**] [**background**] [**and frame**] colors, provide colored coatings, including inks, dyes, and paints, that are recommended by acrylic manufacturers for optimum adherence to acrylic surface and that are UV and water resistant for [**three**] [**five**] years for application intended.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
- B. Verify that items[, **including anchor inserts,**] [**and electrical power**] are sized and located to accommodate signs.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Locate signs and accessories where indicated, using mounting methods of types described and complying with manufacturer's written instructions.
 - 1. Install signs level, plumb, and at heights indicated, with sign surfaces free of distortion and other defects in appearance.
 - 2. Interior Wall Signs: Install signs on walls adjacent to latch side of door where applicable. Where not indicated or possible, such as double doors, install signs on nearest adjacent walls. Locate to allow approach within **3 inches (75 mm)** of sign without encountering protruding objects or standing within swing of door.

- B. Wall-Mounted Signs: Comply with sign manufacturer's written instructions except where more stringent requirements apply.
1. Two-Face Tape: Mount signs to smooth, nonporous surfaces. Do not use this method for vinyl-covered or rough surfaces.
 2. Hook-and-Loop Tapes: Mount signs to smooth, nonporous surfaces.
 3. Magnetic Tape: Mount signs to smooth, nonporous surfaces.
 4. Silicone-Adhesive Mounting: Attach signs to irregular, porous, or vinyl-covered surfaces.
 5. Shim Plate Mounting: Provide **1/8-inch- (3-mm-)** thick, concealed aluminum shim plates with predrilled and countersunk holes, at locations indicated, and where other mounting methods are not practicable. Attach plate with fasteners and anchors suitable for secure attachment to substrate. Attach panel signs to plate using method specified above.
 6. Mechanical Fasteners: Use nonremovable mechanical fasteners placed through predrilled holes. Attach signs with fasteners and anchors suitable for secure attachment to substrate as recommended in writing by sign manufacturer.
 7. Signs Mounted on Glass: Provide matching opaque plate on opposite side of glass to conceal mounting materials.
- C. Bracket-Mounted Signs: Provide manufacturer's standard brackets, fittings, and hardware for mounting signs that project at right angles from walls and ceilings. Attach brackets and fittings securely to walls and ceilings with concealed fasteners and anchoring devices to comply with manufacturer's written instructions.
- D. Dimensional Characters: Mount characters using standard fastening methods to comply with manufacturer's written instructions for character form, type of mounting, wall construction, and condition of exposure indicated. Provide heavy paper template to establish character spacing and to locate holes for fasteners.
1. Flush Mounting: Mount characters with backs in contact with wall surface.
 2. Projected Mounting: Mount characters at projection distance from wall surface indicated.
- E. Cast-Metal Plaques: Mount plaques using standard fastening methods to comply with manufacturer's written instructions for type of wall surface indicated.
1. Concealed Mounting: Mount plaques by inserting threaded studs into tapped lugs on back of plaque. Set in predrilled holes filled with quick-setting cement.
 2. Face Mounting: Mount plaques using exposed fasteners with rosettes attached through face of plaque into wall surface.

3.3 CLEANING AND PROTECTION

- A. After installation, clean soiled sign surfaces according to manufacturer's written instructions. Protect signs from damage until acceptance by Owner.

END OF SECTION 10 14 00

SECTION 10 21 13 – TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes toilet compartments and screens as follows:

1. Type: Plastic laminate.
2. Compartment Style: Floor anchored.
3. Screen Style: Wall hung.

1.2 ACTION SUBMITTALS

- A. Product Data: For each product indicated.
- B. Shop Drawings: Include plans, elevations, sections, details of installation, and attachments to other Work.
- C. Samples: For each exposed finish and for each color and pattern required.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Accurate Partitions Corporation.
 2. Bobrick Washroom Equipment, Inc.
 3. Commercial and Architectural Products, Inc.; Marlite.
 4. Crane Plumbing; Sanymetal.
 5. General Partitions Mfg. Corp.
 6. Global Steel Products Corp.
 7. Metpar Corp.

2.2 MATERIALS

- A. Panel, Pilaster, and Door Material:
1. Stainless-Steel Sheet: ASTM A 666, Type 302 or 304, stretcher-leveled flatness, No. 3 or No. 4 directional polish.
 2. Plastic Laminate: NEMA LD 3, Grade HGS.

- a. Color: PL-03 as indicated on the Finish Schedule.
- B. Core Material for Plastic Laminate: ANSI A208.1, Type M-2 particleboard with 45 lb (20.4 kg) density in thicknesses required to provide nominal thicknesses of 1 inch (25 mm) minimum for doors, panels, and screens and 1-1/4 inches (32 mm) minimum for pilasters.
- C. Pilaster Shoes and Sleeves (Caps): Stainless steel, not less than 3 inches (75 mm) high.
- D. Stirrup Brackets: Stainless steel.

2.3 FABRICATION

- A. Toilet Compartments: Floor anchored.
- B. Urinal Screens: Wall hung.
- C. Metal Units: Internally reinforce metal panels for hardware, accessories, and grab bars.
- D. Doors: Unless otherwise indicated, 24 inch (610 mm) wide in-swinging doors for standard toilet compartments and 36 inch (914 mm) wide out-swinging doors with a minimum 32 inch (813 mm) wide clear opening for compartments indicated to be accessible to people with disabilities.
- E. Door Hardware: Stainless steel. Provide units that comply with accessibility requirements of authorities having jurisdiction at compartments indicated to be accessible to people with disabilities.
 - 1. Hinges: Self-closing type, adjustable to hold door open at any angle up to 90 degrees.
 - 2. Latches and Keepers: Recessed unit designed for emergency access and with combination rubber-faced door strike and keeper. Provide units that comply with accessibility requirements of authorities having jurisdiction at compartments indicated to be handicapped accessible.
 - 3. Coat Hook: Combination hook and rubber-tipped bumper, sized to prevent door from hitting compartment-mounted accessories.
 - 4. Door Bumper: Rubber-tipped bumpers at out-swinging doors or entrance screen doors.
 - 5. Door Pull: Provide at out-swinging doors. Provide units on both sides of doors at compartments indicated to be accessible to people with disabilities.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install units rigid, straight, level, and plumb, with not more than 1/2 inch (13 mm) between pilasters and panels and not more than 1 inch (25 mm) between panels and walls. Provide brackets, pilaster shoes, bracing, and other components required for a complete installation. Use theft-resistant exposed fasteners finished to match hardware. Use sex-type bolts for through-bolt applications.

1. Brackets: Align brackets at pilasters with brackets at walls. Locate wall brackets so holes for wall anchors occur in masonry or tile joints.
2. Set hinges on in-swinging doors to hold open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors and swing doors in entrance screens to return to fully closed position.

END OF SECTION 10 21 13

SECTION 10 28 00 – TOILET ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Public-use washroom accessories.
2. Underlavatory guards.

B. Related Sections:

1. Division 08 Section "Mirrors" for frameless mirrors.
2. Division 09 Section "Tiling" for ceramic toilet and bath accessories.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include the following:

1. Construction details and dimensions.
2. Anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
3. Material and finish descriptions.
4. Features that will be included for Project.
5. Manufacturer's warranty.

B. Samples: Full size, for each accessory item to verify design, operation, and finish requirements.

1. Approved full-size Samples will be returned and may be used in the Work.

C. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.

1. Identify locations using room designations indicated.
2. Identify products using designations indicated.

1.3 INFORMATIONAL SUBMITTALS

A. Warranty: Sample of special warranty.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance Data: For toilet and bath accessories to include in maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Source Limitations: For products listed together in the same Part 2 articles, obtain products from single source from single manufacturer.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.6 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

1.7 WARRANTY

- A. Special Mirror Warranty: Manufacturer's standard form in which manufacturer agrees to replace mirrors that develop visible silver spoilage defects and that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: 15 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Stainless Steel: ASTM A 666, Type 304, 0.031-inch (0.8-mm) minimum nominal thickness unless otherwise indicated.
- B. Steel Sheet: ASTM A 1008/A 1008M, Designation CS (cold rolled, commercial steel), 0.036 inch (0.9 mm) minimum nominal thickness.
- C. Galvanized-Steel Sheet: ASTM A 653/A 653M, with G60 (Z180) hot-dip zinc coating.
- D. Galvanized-Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.
- E. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper-and-theft resistant where exposed, and of galvanized steel where concealed.
- F. Chrome Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).
- G. Mirrors: ASTM C 1503, Mirror Glazing Quality, clear-glass mirrors, nominal 6.0 mm thick.

- H. ABS Plastic: Acrylonitrile-butadiene-styrene resin formulation.

2.2 PUBLIC-USE WASHROOM ACCESSORIES

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Bobrick product indicated on the Drawings, or a comparable product by one of the following:
 1. A & J Washroom Accessories, Inc.
 2. American Specialties, Inc.
 3. Bradley Corporation.
 4. GAMCO Specialty Accessories; a division of Bobrick Washroom Equipment, Inc.
 5. Tubular Specialties Manufacturing, Inc.

2.3 FABRICATION

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
- B. Grab Bars: Install to withstand a downward load of at least 250 lbf (1112 N), when tested according to ASTM F 446.

3.2 ADJUSTING AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.
- B. Remove temporary labels and protective coatings.
- C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

END OF SECTION 10 28 00

SECTION 12 36 61 - SIMULATED STONE COUNTERTOPS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes installation of Owner-provided resin bar top.

1.2 PROJECT CONDITIONS

- A. Field Measurements: Verify dimensions of countertops by field measurements after base cabinets are installed but before countertop fabrication is complete.

1.3 COORDINATION

- A. Coordinate locations of utilities that will penetrate countertops or backsplashes.

PART 2 - PRODUCTS

2.1 COUNTERTOP MATERIALS

- A. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.
- B. Plywood: Exterior softwood plywood complying with DOC PS 1, Grade C-C Plugged, touch sanded.
- C. Adhesives: Adhesives shall not contain urea formaldehyde.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install countertops level to a tolerance of 1/8 inch in 8 feet (3 mm in 2.4 m).
- B. Fasten countertops by screwing through corner blocks of base units into underside of countertop. Pre-drill holes for screws as recommended by manufacturer. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
 - 1. Install to comply with manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.

2. Seal edges of cutouts in particleboard subtops by saturating with varnish.

END OF SECTION 12 36 61