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### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. New 120-bed skilled nursing facility located in Town of Lady Lake, Florida.

#### 1.2 DATE

- A. October 2010

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END OF SECTION 00 01 00

# SECTION 00 01 01 - PROJECT TITLE PAGE

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## **PROJECT**

### **VILLAGES REHABILITATION CENTER**

LADY LAKE, FLORIDA 32159

## **DESCRIPTION**

A new 120-bed Skilled Nursing Facility

## **SCOPE**

Complete construction, including sitework, as defined in the contract documents.

## **LOCATION**

One-fourth of a mile west of rolling acres road on CR 466 in Lady Lake, Florida.

## **PROTOCOL**

- Bid due date
- Owner Selection
- Notice of Award
- Contract Execution
- Post-Bid Submittal
- Notice to Proceed

## **DIRECTORY**

OWNER	LADY LAKE SNF LLC 2076 Flatbush Avenue Brooklyn, NY 11234 Office: 917-370-9063 Fax: 917-591-6843 Point of Contact: Zevi Kohn
DEVELOPMENT MANAGER	CONTINENTAL WINGATE DEVELOPMENT COMPANY One Charles River Place 63 Kendrick Street Needham, MA 02494 Office: 781-707-9200 Fax: 781-707-9299 Point of Contact: Steve Levin

ARCHITECT	<p>O'KEEFE-PAINTER ARCHITECTS, LLC  2424 Curlew Road  Palm Harbor, FL 34683  p. (727) 781-5885  f. (727) 781-0255  Point of Contact: Aaron Coy</p>
INTERIOR DESIGNER	<p>StudioSIX5  336 South Congress #165  Austin, TX 78704  p. (512) 476-6501  f. (512) 476-6502  Point of Contact: Karla Jackson</p>
STRUCTURAL	<p>MOHAN ENGINEERING, INC.  13630 58<sup>TH</sup> Street North, Suite 107  Clearwater, FL 33760  p. (727) 535-9771  f. (727) 535-9773  Point of Contact: Van Wagner</p>
CIVIL	<p>RIDDLE-NEWMAN ENGINEERING, INC.  115 North Canal Street  Leesburg, FL 34748  p: 352-787-7482  f: 352-787-7412  Point of Contact: Keith Riddle</p>
LANDSCAPE ARCHITECT	<p>COTLEUR &amp; HEARING  1934 Commerce Lane, Suite 1  Jupiter, FL 33458  p: 561-747-6336  f: 561-747-1377  Point of Contact: James Hackett</p>
MECHANICAL PLUMBING FIRE PROTECTION	<p>ADVANCED SYSTEM ENGINEERING, INC.  13555 Automobile Boulevard  Clearwater, FL 33762  p. (727) 540-9396 Extension 01  f. (727) 493-4415  Point of Contact: David Bess</p>
ELECTRICAL	<p>M.P. SPYCHALA AND ASSOCIATES, INC.  240 Pine Avenue  Oldsmar, FL 34677  p. (813) 855-2721  f. (813) 855-2741  Point of Contact: David Balent</p>



FOOD SERVICE	BELTRAM FOODSERVICE GROUP 805 Live Oak Tarpon Springs, FL 34689 p: 727-937-4231 f: 727-938-1261 Point of Contact: Jim Wright
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END OF SECTION 00 01 01

## SECTION 00 11 00 - INVITATION TO BID

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### PART 1 - GENERAL

#### 1.1 DESCRIPTION

##### A. VILLAGES REHABILITATION CENTER

Lady Lake, Florida is a new 120-Bed Skilled Nursing Facility.

1. Owner: Lady Lake SNF LLC  
2076 Flatbush Avenue Brooklyn, NY 11234  
P: 917-370-9063 f: 917-591-6843
  
2. Architect: O'Keefe-Painter Architects  
2424 Curlew Road Palm Harbor, FL 34683  
P. 727 781-5885 F. 727 781-0255

#### 1.2 BID DATE

- A. Bids shall be delivered to the architect no later than 2:00 PM, Wednesday, January 12, 2011.
  1. Bids shall be submitted on forms provided with the Contract Documents.

#### 1.3 BID RECEIPT

- A. Sealed Bids for the furnishing of all labor and materials and performing all work necessary and incidental to the construction of the project described above shall be received by the Architect and shall be opened privately.

#### 1.4 DOCUMENT DISTRIBUTION

- A. Bid Documents are available through the bidding General Contractors at their discretion and conditions. O'Keefe-Painter Architects, LLC will provide one complete set of drawings and specifications in digital format in accordance with the Supplementary Condition Section 2.2.4 to each bidding General Contractor, without a security deposit or fee.

#### 1.5 BID REJECTION

- A. The Owner reserves the right to waive any irregularities and/or to reject any and all Bids received without showing cause.

#### 1.6 BIDDER'S OBLIGATIONS

- A. No bidder may withdraw this/her bid for at least sixty (60) days after the scheduled time for receipt of bids, except as noted in the Instructions to Bidders.

#### 1.7 PRE-BID CONFERENCE

- A. A Pre-Bid conference date, time and location is to be determined and shall be defined via addenda.

<b>END OF SECTION 00 11 00</b>
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## SECTION 00 21 00 - INSTRUCTIONS TO BIDDERS

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### PART 1 - GENERAL

- A. For ease of language and purposes of clarity, no gender discrimination is intended or implied by the intentional usage of English Language pronouns throughout this Project Manual.

#### 1.2 DEFINITIONS

- A. Bidding Documents include the Invitation to Bid, Instructions to Bidders, the proposal form, other sample bidding and contract forms and the proposed Contract Documents including any Addenda issued prior to receipt of Bids.
- B. All definitions set forth in the General Conditions of the Contract for Construction, AIA Document A201, or in other Contract Documents are applicable to the Bidding Documents.
- C. Addenda are written or graphic instruments issued by the Architect prior to the execution of the Contract which modify or interpret the Bidding Documents by addition, deletions, clarifications or corrections.
- D. A Bid is a complete and properly signed proposal to do work or designated portion thereof for the sums stipulated therein, supported by data called for by the Bidding Documents.
- E. Base Bid is the sum stated in the Bid for which the Bidder offers to perform the work described as the base, to which work may be added or deducted for sums stated in Alternate Bids.
- F. An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in project scope or materials or methods of construction described in the Bidding Documents is accepted.
- G. A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials for services as described in the Contract Documents.
- H. A Bidder is one who submits a Bid for a prime contract with the Owner for the work described in the proposed Contract Documents.
- I. A Sub-bidder is one who submits a Bid to a Bidder for materials or for labor or for both, for a portion of the work.

#### 1.3 BIDDER'S REPRESENTATION

- A. Each Bidder, by making his/her bid represents that:
  - 1. He/she has read and understands the Bidding Documents and the Bid is made in accordance therewith.
  - 2. He/she has visited the site and has familiarized himself with the local conditions under which the work is to be performed. No plea of ignorance of conditions and requirements resulting from failure to make such investigations and examinations will relieve the successful bidder from his obligation to comply, in every detail, with all provisions and requirements of the Contract Documents, or will be accepted as a basis of any claim whatsoever for extra compensation for performance of the contract.
  - 3. His/her Bid is based upon the materials, systems and equipment described in the Bidding Documents without exceptions.

#### 1.4 BIDDING DOCUMENTS

- A. Complete sets of Bidding Documents shall be used in preparing Bids; neither the

Owner nor the Architect assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

- B. Complete sets of bidding documents shall include the following.
  - a. 30" x 42" plan drawings (digital) including: Civil, Landscape, Architectural, Food Service, Structural, Mechanical, Plumbing, Electrical and Fire Protection.
  - b. Project Manual (digital).
- C. The Owner or Architect, in making copies of the Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids on the work and do not confer a license or grant for any other use.

#### 1.5 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

- A. Bidders shall promptly notify the Architect of any ambiguity, inconsistency or error which they may discover upon examination of the Bidding Documents or of the site and local conditions.
- B. Submit all questions about the Drawing and Specifications in writing to the Architect a minimum of ten (10) days prior to the bid date. Replies will be issued to bidders of record as Addenda to the Drawings and Specifications and will become part of the Contract.
- C. Any interpretation, correction or change of the Bidding Documents will be made by Addendum. Interpretations, corrections or changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon such interpretations, corrections, and changes.

#### 1.6 SUBSTITUTIONS

- A. It is intended that the systems, materials, or products specified by name of manufacturer, brand, trade name, model number or by catalog reference shall establish the amount of performance and quality to be included in the base bid. Bidders and suppliers are encouraged to submit proposals on materials they consider qualified to serve the intended purpose or to be equal to that specified, called substitutions, for approval prior to bidding in accordance with requirements.
- B. No substitutions will be considered unless written request for approval has been submitted by the Bidder, received by the Architect at least ten (10) days prior to the bid date. Each such request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitute including drawings, manufacturer's data sheets, performance and test data and any other supporting documentation necessary for evaluation. A statement setting forth any changes in other materials, equipment or work that incorporation of the substitutions would require shall be included. The burden of proof of the proposed substitute's merit is upon the proposer. The Architect's decision of approval/disapproval of a proposed substitute shall be final.
- C. Substitutions which are approved by the Architect shall be incorporated into the Contract Documents by form of Addendum.

#### 1.7 ADDENDA

- A. Addenda will be delivered electronically, in the identical fashion that original Bid documents were communicated to all primary Bidders who have received a complete, registered set of Bidding Documents from the Architect.
- B. Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.
- C. Each Bidder shall ascertain prior to submitting his Bid that he has received all Addenda issued, and shall acknowledge their receipt in his Bid. Bids failing to acknowledge

Addenda will not be considered.

#### 1.8 PRE-BID CONFERENCE

- A. When so designated in the Invitation to Bid, a Pre-Bid Conference shall be held by the Architect at the Architect's office prior to receipt of Bids. All General Contractors of record are invited to attend for the purpose of submitting questions and/or clarification, which shall be henceforth incorporated into the Contract Documents in form of Addendum issued subsequent to this conference and prior to bid date.

#### 1.9 BASIS OF BIDS

- A. The Bidder must include all cost items and all alternates shown on the Bid Forms; failure to comply may be cause for rejection. No segregated proposals or assignments will be considered.
- B. Bidders shall provide separate unit pricing for the following items to be used as the basis of compensation for adding or subtracting from the scope of each.
  1. Bomanite Architectural Stamped Concrete Finish: cost per square foot.
  2. Vinyl Wall Covering: cost per square yard.

#### 1.10 BID PROPOSALS

- A. Form and Style of Bids:
  1. Bids shall be submitted in duplicate, exactly according to the proposal form submitted herewith which the Bidder shall copy and fill in his own business letterhead stationery.
  2. All blanks on the Bid form shall be filled in by typewriter or manually, legibly, in ink.
  3. Bidder must state the prices in words and in figures for each item of work contemplated as indicated. All bid proposals must be totaled and in cases of errors or discrepancies, the prices written in words shall govern.
  4. Any interlineation, lanteration or erasure must be initialed by the signer of the document.
  5. All alternates shall be bid.
  6. Bidder shall make no stipulations on the bid form to qualify his bid in any manner.
  7. Each copy of bid shall include the legal name of bidder and indicate the legal nature of their enterprise (i.e. sole proprietor, partnership, corporation, etc). Each copy shall be signed by the person or persons legally authorized to bind the entity to contract. A bid by a corporation shall further indicate the State of Incorporation and have the corporate seal affixed. A bid submitted by an agent shall have a current Power of Attorney attached certifying agent's authority to bind bidder. The person's name signing the bid shall be typed below the signature.
  8. Any information written in areas outside the blank spaces will not be considered and may cause the entire bid to be rejected.
  9. **Bidder must submit a list naming subcontractors and suppliers or other persons or organizations (including those furnishing materials or equipment fabricated to a special design) proposed for principle portions of the work.**

#### 1.11 SUBMISSION OF BIDS

- A. Proposal shall be presented in an opaque, sealed envelope with the Project Name, Name of Bidder, and the word "Proposal" clearly and boldly indicated on the outside.
- B. Bids shall be received at the designated location prior to the date and time required by the Invitation to Bid, or any extension thereof made by Addendum. Bids received after the required date and time for receipt of bids may at the sole discretion of the Owner, be returned unopened.
- C. Bidder shall assume full responsibility for timely delivery at location designated for

receipt of Bids.

#### 1.12 MODIFICATION AND WITHDRAWAL OF BIDS

- A. A bid may not be modified, withdrawn or canceled by the bidder following the date and time designated for the receipt of bids, in accordance with Section 00 11 00.
- B. Bidder may modify his bid by facsimile (fax) communication at any time prior to the scheduled closing time for receipt of bids, provided such communication is received by the Architect prior to the bid date and time.
- C. Bids submitted early may be modified or withdrawn prior to the date and time designated for the receipt of bids, only by written notice, signed by the bidder, to the party receiving bids.
- D. Withdrawn bids may be resubmitted up to the date and time designated for the receipt of bids provided they are then fully in conformance with all bidding requirements.

#### 1.13 QUALIFICATIONS

- A. The Owner may make such investigations as they deem necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein. Conditional bids will not be accepted.

#### 1.14 DISQUALIFICATION

- A. The Owner reserves the right to disqualify Proposals, before or after opening, upon evidence of collusion with intent to defraud or other practices upon the part of the Bidder.

#### 1.15 AWARD OR REJECTION OF BIDS

- A. The contract will be awarded to the lowest responsible bidder, including full consideration of any alternates and provided the bid has been submitted in accordance with the requirements of the Contract Documents. The Owner reserves the right to reject any and all bids and to waive any informality or irregularity in any bid received.
- B. Bidder agrees if, within twenty-four hours after the bids are opened, any Bidder files a duly signed, written notice with the Owner and promptly thereafter demonstrates to the reasonable satisfaction of the Owner, that a material and substantial mistake in the preparation of the bid was made, the Owner may allow the Bidder to withdraw its bid. Thereafter that Bidder will be disqualified from further bidding on the work provided hereunder. Failure to claim a mistake as set forth herein shall constitute a waiver to assert the mistake at a later time.

#### 1.16 POST-BID SUBMITTAL

- A. The selected Bidder shall within ten (10) days of Notice of Award submit, in the required form to the Architect for approval by the Owner, the following items:
  - 1. Certificate of Insurance (3 copies).
  - 2. Schedule of Values (3 copies).
    - a. Schedule of Values shall reflect a breakdown of labor and material costs for each portion of the work.
    - b. Schedule of Values shall be submitted in form required by Section 00 40 00 and General Conditions.
  - 3. A designation of the work to be performed by Bidder with his own forces (3 copies).
  - 4. The proprietary names and the suppliers of principal items or systems of material and equipment proposed for the work (3 copies).
  - 5. Construction Progress Schedule including all critical path activities (3 copies).

- B. Contractor shall not commence construction without Owner's approval of the required Post-Bid Submittal items.
- C. The Bidder may be required to establish to the satisfaction of the Architect and the Owner the reliability and responsibility of any proposed subcontractor to perform the work described in the Contract Documents.
- D. Prior to construction commencement and execution of the Owner-Contractor Agreement, the Architect may notify the Bidder, in writing if either the Owner or the Architect, after due investigation has reasonable and substantial objection to any personnel or organization on subcontractor list, and refuse in writing to accept such personnel or organization. The Bidder may, at his option: 1) withdraw his bid, or 2) submit an acceptable substitute subcontractor with no increase in his Bid price by such substitution. The Owner may, at his discretion, disqualify the Bidder.
- E. Subcontractors and other persons and organizations proposed by the Bidder and accepted by the Owner and the Architect must be used on the work for which they were proposed and accepted and shall not be changed except with written approval of the Owner and the Architect.

#### 1.17 AGREEMENT FORM

- A. An Owner-Contractor Agreement shall be executed in the form contained in Section 00 40 00. All bidders should carefully review this document with their legal counsel prior to submission of Bids. This Agreement is a part of the Contract Documents and no plea of misunderstanding or ignorance of the terms and condition contained therein will be accepted.

#### 1.18 TIME OF COMPLETION

- A. Notwithstanding any delay in the preparation and execution of the formal contract agreement, each Bidder shall be prepared, upon issuance of a Notice to Proceed to commence work within ten (10) days or on date stipulated in such Notice.
- B. Work shall be completed within the time stated in the Owner-Contractor Agreement.

#### 1.19 LAWS AND REGULATIONS

- A. The bidder's attention is directed to the fact that all applicable federal and state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over the project shall apply to the contract throughout and will be deemed to be included in this contract the same as though herein written in full.

<b>END OF SECTION 00 21 00</b>
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END OF SECTION 00 42 00



# SECTION 00 70 00 - CONDITIONS OF THE CONTRACT

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## **00 72 00 GENERAL CONDITIONS**

### PART 1 - GENERAL

#### 1.1 REFERENCE

- A. The American Institute of Architects (AIA), Document A201 "General Conditions of the Contract for Construction," 1997 Edition, containing 40 pages is hereby made a part of these Contract Documents except as specifically modified by the Supplementary Conditions contained herein.
  1. It shall be the responsibility of the Contractor to be familiar with this document and its effects on the work required for this project.

#### 1.2 AVAILABILITY

- A. American Institute of Architects (AIA) Documents are available for examination in the office of the Architect during normal business hours. Copies may be purchased at the following location:
  1. AIA Tampa Bay  
200 North Tampa Street, Suite 100  
Tampa, FL 33602  
Phone: 813-229-3411  
Fax: 813-229-1762  
www.ariatampabay.com

## **00 73 00 SUPPLEMENTARY CONDITIONS**

### PART 1 - GENERAL

#### 1.1 REFERENCE

- A. This section sets forth modifications and additions to the General Conditions, AIA Document A201 "General Conditions of the Contract for Construction," 1997 Edition, containing 40 pages.
- B. Where any article is hereinafter supplemented, the provisions of such article shall remain in effect and all supplemental provisions shall be considered as added thereto. Where any article is amended, voided, deleted, or superseded thereby, provisions of such article not so specifically amended, voided, or superseded shall remain in effect.
- C. Articles, paragraphs and subparagraphs hereinafter referenced in this section correspond to articles, paragraphs and subparagraphs in the General Conditions.

### **ARTICLE 1 - GENERAL PROVISIONS**

#### 1.1 BASIC DEFINITIONS

##### **1.1.3 The Work**

Paragraph 1.1.3 shall be supplemented as follows:

The term "**Furnish**" includes purchase and delivery to Project Site.

The term "**Install**" includes receiving at the Project Site, unloading, uncrating, storing, installing in place, and placing in operation or finishing complete for intended use.  
The term "**Provide**" includes furnishing and installing.

## **1.2 Correlation and Intent of the Contract Documents**

Add the following Paragraph:

- 1.2.4 In Cases of discrepancy concerning dimension, quantity and location, graphic drawings will take precedence over the specifications. Explanatory notes on drawings will take precedence over conflicting drawing indications. Large scale details will take precedence over scaled measurements. Where figures are not shown, scale measurements will be followed but will in all cases be verified by measuring actual conditions of work already in place and confirmed by the Architect. In case of discrepancy concerning quality and /or quantity with the Documents, the Contractor shall include better quality and./or a greater quantity unless otherwise directed in writing by the Architect.

## **ARTICLE 2 - OWNER**

### **2.2 Information and Services Required of the Owner**

Delete Subparagraph 2.2.5 and substitute the following:

- 2.2.4 The Contractor will be furnished the Drawings and Project Manual in a reproducible electronic (digital) format. It is the Contractor's responsibility to have these instruments printed in quantity sufficient to execute the Work in a prudent manner and in accordance with the Contract. Signed and sealed prints as required by code and authorities having jurisdiction, and for governing authority's review and approval will be supplied at no cost.

## **ARTICLE 3 - CONTRACTOR**

### **3.3 Supervision and Construction Procedures**

Add the following:

- 3.3.4 The Contractor shall make no substitution to the Project Manager assigned to the project if the Owner and the Architect makes reasonable objection to such substitution. Project Manager assigned shall have previous experience with nursing home projects.

### **3.5 Warranty**

Add the following Paragraph:

- 3.5.2 Unless otherwise stipulated in the specifications, the Contractor shall guarantee all materials, workmanship, and equipment for a period of one (1) year from the date of Substantial Completion of the entire project.

### **3.6 Taxes**

Add the following Paragraph:

- 3.6.2 Upon completion of the Work, Contractor shall furnish the Owner with a Certified Statement to the effect that all sales and use taxes due the Federal Government, State, County and/or Municipality Government have been paid in full.

**3.7 Permits, Fees and Notices**

- 3.7.4 Delete "knowing it to be" from Paragraph 3.7.4

**3.9 Superintendent**

Add the following Paragraph:

- 3.9.2 The Contractor shall make no substitution to the Superintendent assigned to the project if the Owner and the Architect makes reasonable objection to such substitution. Superintendent assigned shall have previous experience with nursing home projects.

**ARTICLE 4 - ADMINISTRATION OF THE CONTRACT**

**4.2 Architect's Administration of the Contract**

Add the following:

- 4.2.14 Should conflict occur between the Contract Documents, the Contractor is deemed to have based his/her bid on the more costly method unless a specific written interpretation has been made by the Architect prior to the Contract execution.

**ARTICLE 9 - PAYMENTS AND COMPLETION**

**9.2 Schedule of Values**

Amend 9.2.1 to read as follows:

- 9.2.1 Before the first application to Owner for payment, the Contractor shall submit to the Architect a Schedule of Values of the various portions of the work, including quantities and unit labor costs, aggregating the total Contract Sum, prepared in a form as outlined in Specification Section 01 29 00, to facilitate payments to Subcontractors in accordance with AIA 201 Article 5, and supported by such data to substantiate its correctness as the Architect may require. Each item in the Schedule of Values shall include its proper share of overhead and profit. This schedule, when approved by the Architect, shall be used only as a basis of the Contractor's Application for Payment.

END OF SECTION 00 70 00

## SECTION 01 11 00 - SUMMARY OF WORK

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### **01 11 13 WORK COVERED BY CONTRACT DOCUMENTS**

#### 1.1 RELATED DOCUMENTS

This specification comprises one of four parts that, when combined, constitute the Construction Documents. The four parts are as follows:

1. Drawings
2. Specifications
3. Addenda
4. Contract

#### 1.2 PROJECT DESCRIPTION

- A. The Project consists of a 120-bed Skilled Nursing Facility identified as VILLAGES REHABILITATION CENTER, located in Lady Lake, Florida, as shown on Contract Documents prepared by O'Keefe-Painter Architects LLC, et al.

#### 1.3 WORK SEQUENCE

- A. The Work sequence shall be determined by Contractor subject to criteria contained here-in; communicated to Owner, reviewed and agreed to by Owner prior to start of construction. The contractor is to provide the least possible interference to the activities of the Owner's personnel and to permit an orderly transfer of personnel and equipment to the new facilities.

### **01 11 16 WORK BY OWNER**

- A. Owner to pay IMPACT FEES and GENERAL BUILDING PERMIT FEE.
- B. OWNER FURNISHED ITEMS
  1. The Owner is supplying the material and equipment listed below. The Contractor shall submit a schedule to the Owner and Architect of anticipated required delivery dates for each item. The Contractor shall notify the Owner and Architect of any changes to the delivery schedule a minimum of Forty-Five (45) days prior to the anticipated delivery date. Once material and/or equipment is delivered to the Site, the General Contractor shall assume full responsibility for said material and equipment.
    - a. Hand Sanitizer Dispensers.
      - 1) As indicated on Drawings.
    - b. Paper Towel and Soap Dispensers.
      - 1) As indicated on Drawings.
- C. RECEIPT OF OWNER ITEMS
  1. Document receiving/delivery information on a report to the Owner. Forms to be supplied by the Owner. Retain one (1) copy at Site. The General Contractor is responsible for receiving, unloading and checking for obvious and concealed damage to goods. The Contractor shall notify the Owner immediately of any and all damage incurred during shipping to facilitate Owner's file for claim with freight company. If such notification by Contractor to Owner is not made within 2 days of incident, Contractor assumes full responsibility for replacement of all damage goods received. The Contractor additionally shall be responsible for

assembly and installation of all listed furnishings as directed by Owner. Any items not listed, that the Owner directs Contractor to assemble and/or install shall be a reimbursable expense to the Contractor at a rate in accordance with the General Conditions of the Contract. Contractor will maintain detailed records on a time and material basis of work.

D. ON SITE STORAGE OF OWNER FURNISHED ITEMS

1. The General Contractor is to furnish secure on site storage of Owner Furnished materials and equipment. Maintain said materials in a clean and orderly fashion, protected from construction activity, accidental damage, weather damage, vandalism, theft, etc. throughout the process of construction.

E. OWNER PROVIDED ITEMS

1. The Owner will furnish and install the following items. The General Contractor is responsible for coordination and scheduling the installation of these items. The General Contractor is also responsible for providing appropriate and correctly placed support systems and blocking for all items.
  - a. All Flooring; Carpet, VCT, Sheet Vinyl, Porcelain Tile, Quarry Tile.
  - b. Telephone System, except as described for conduit, boxes, wiring, and accessories.
  - c. Television System, except as described for conduit, boxes, wiring, and accessories.
  - d. Project Monumental Signage; contractor to provide power and data to sign locations per drawings.
  - e. Drapes, Drapery Hardware, Blinds, Shower Curtains, Cubicle Curtains
  - f. Medical Carts
  - g. Charting System
  - h. Furnishings (Furniture, Lamps, Wall Hangings, Interior Plants, Computers, Office Equip).
  - i. "Start-up Package" [Linens, China, Silver, Misc. Kitchen Hardware (pots, pans, utensils), Medical Supplies, Physical Therapy Equipment].
  - j. Interior Landscaping/Plants (Maintenance Contract).
  - k. Copy Machine.
  - l. Furniture, Computers, and Office Equipment.
  - m. Physical therapy Equipment including whirlpool tubs in resident spas
  - n. Aquarium.
  - o. Artwork.

END OF SECTION 01 11 00

## SECTION 01 14 00 - WORK RESTRICTIONS

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### **01 14 13 ACCESS TO SITE**

- A. The Project site for Villages Rehabilitation Center is located on CR 466; capable of facilitating the delivery of construction materials. There are no known accessibility concerns at this time.

### **01 14 16 COODINATION WITH OCCUPANTS**

- A. Villages Rehabilitation Center will be constructed on a currently unimproved site.
1. There are no site occupants at this time.
  2. If any conflicts arise during construction, contractor is to notify Architect immediately and work to resolve dispute(s) in good faith.
  3. Contractor is responsible for coordinating shared access drive to CR 466 with adjacent assisted living facility

### **01 14 19 USE OF SITE**

- A. Contractor will have unbridled use of the site without time-of-day or day-of-week access limitations in order to execute construction activites in the most efficient manner possible.

END OF SECTION 01 14 00
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## SECTION 01 22 00 - UNIT PRICES

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This section includes administrative and procedural requirements governing unit prices.

#### 1.3 SUBMITTALS

- A. On the Bid Proposal Form provided, indicate unit pricing as required in spaces provided.

#### 1.4 SCOPE

- A. The General Contractor hereby agrees that Unit Prices represent full compensation for additions to or deletions from the work covered by the Contract Documents in their form at the time of bidding including drawings, specifications, and addenda.
- B. Any quantity less than the quantity required in the Contract Documents shall be applied as a credit to the Owner, and any quantity greater than required in the Contract Documents shall be applied as additional work to the General Contractor.

#### 1.5 PROTOCOL

- A. Any changes in scope will be made through the stipulated Change Order process in accordance with Specification Section 01 26 00 and subject to amounts defined above.

<b>END OF SECTION 01 22 00</b>
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## SECTION 01 23 00 - ALTERNATES

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### 1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements for Alternates.
- B. Definition: An Alternate is an amount proposed by Bidders and stated on the Bid Form for certain construction components and activities defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems or installation methods described in Contract Documents.
- C. Notification: Immediately following the award of the Contract, prepare and distribute to each party involved, notification of the status of each Alternate. Indicate whether Alternates have been accepted, rejected or deferred for consideration at a later date. Include a complete description of any negotiated modifications as Alternates.
- D. Schedule: A "Schedule of Alternates" is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials and methods necessary to achieve the Work described under each 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 mentioned as part of the Alternate.

### 1.2 SCHEDULE OF ALTERNATES:

- A. Alternate Bid No. 1: At all exterior heavy-timber trusses, exposed beams, and exposed wood decking, substitute fire-treated, rough-sawn Cedar for the scheduled fire-treated, pressure-treated, rough-sawn Douglas Fir.
- B. Alternate Bid No. 2: Excluding base boards, wood hand rails, Cabinetry, substitute Paint-Grade Soft-Wood trim and molding for the scheduled Stain-Grade Hardwood trim molding.
- C. Alternate Bid No. 3: Substitute Solid Surface (Corian) countertops and backsplashes for the scheduled Plastic Laminate over Plywood countertops and backsplashes (scheduled at staff only areas).

END OF SECTION 01 23 00
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## SECTION 01 25 00 - SUBSTITUTION PROCEDURES

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling requests for substitutions made after award of the Contract.

#### 1.3 DEFINITIONS

- A. Definitions used in this Article are not intended to change or modify the meaning of other terms used in the Contract Documents.
- B. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor after award of the Contract are considered requests for "substitutions." The following are not considered substitutions:
  - 1. Substitutions requested by Bidders during the bidding period, and accepted prior to award of Contract, are considered as included in the Contract Documents and are not subject to requirements specified in this Section for substitutions.
  - 2. Revisions to Contract Documents requested by the Owner or Architect.
  - 3. Specified options of products and construction methods included in Contract Documents.
  - 4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

#### 1.4 SUBMITTALS

- A. Substitution Request Submittal: Requests for substitution will be considered if received within 60 days after commencement of the Work. Requests received more than 60 days after commencement of the Work may be considered or rejected at the discretion of the Architect.
  - 1. Submit 3 copies of each request for substitution for consideration. Submit requests in the form and in accordance with procedures required for Change Order proposals.
  - 2. Identify the product, or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:
    - a. Product Data, including Drawings and descriptions of products, fabrication and installation procedures.
    - b. Samples, where applicable or requested.
    - c. A detailed comparison of significant qualities of the proposed substitution with those of the Work specified. Significant qualities may include elements such as size, weight, durability, performance and visual effect.
    - d. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the

- Owner and separate Contractors, that will become necessary to accommodate the proposed substitution.
- e. Cost information, including a proposal of the net change, if any in the Contract Sum.
  - f. Certification by the Contractor that the substitution proposed is equal-to or better in every significant respect to that required by the Contract Documents, and that it will perform adequately in the application indicated. Include the Contractor's waiver of rights to additional payment or time, that may subsequently become necessary because of the failure of the substitution to perform adequately.
3. Architect's Action: Within one week of receipt of the request for substitution, the Architect will request additional information or documentation necessary for evaluation of the request. Within 2 weeks of receipt of the request, or one week of receipt of the additional information or documentation, whichever is later, the Architect will notify the Contractor of acceptance or rejection of the proposed substitution. If a decision on use of a proposed substitute cannot be made or obtained within the time allocated, use the product specified by name. Acceptance will be in the form of a Change Order.

## PART 2 - PRODUCTS

### 2.1 SUBSTITUTIONS

- A. Conditions: The Contractor's substitution request will be received and considered by the Architect when one or more of the following conditions are satisfied, as determined by the Architect; otherwise requests will be returned without action except to record noncompliance with these requirements.
1. Extensive revisions to Contract Documents are not required.
  2. Proposed changes are in keeping with the general intent of Contract Documents.
  3. The request is timely, fully documented and properly submitted.
  4. The request is directly related to an "or equal" clause or similar language in the Contract Documents.
  5. The specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
  6. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
  7. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. Additional responsibilities for the Owner may include additional compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner or separate Contractors, and similar considerations.
  8. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.
  9. The specified product or method of construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution

can be coordinated.

10. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution can provide the required warranty.
- B. The Contractor's submittal and Architect's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

END OF SECTION 01 25 00
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## SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

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### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification sections, apply to this section.

### 1.2 SUMMARY

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

### 1.3 RELATED SECTIONS

- A. The following sections contain requirements that relate to this section:
  - 1. Division 1 Section "Submittals" for requirements for the Contractor's Construction Schedule.
  - 2. Division 1 Section "Application for Payment" for administrative procedures governing applications for payment.
  - 3. Division 1 Section "Substitutions Procedures" for administrative procedures for handling requests for substitutions made after award of the Contract.

## **01 26 13 REQUEST FOR INTERPRETATION**

- A. Also known as Request For Information (RFI); is to be submitted to the Architect in writing on a standardized form consistent throughout the duration of the project.
- B. Architect will respond within ten (10) business days.

## **01 26 33 MINOR CHANGES IN THE WORK**

- A. Minor changes in the work throughout the duration of the project can be authorized by the Architect in person or by phone, fax, or email. If authorized by other than written manner, change is to be documented in writing in the form of a memo or similar instrument and forwarded to Architect within 10 days.

## **01 26 36 SUPPLEMENTAL INSTRUCTIONS**

- A. Supplemental instructions authorizing minor changes in the Work, not involving an adjustment to the Contract Sum or Contract Time, will be issued by the Architect on AIA form G710, Architect's Supplemental Instructions.

## **01 26 39 BULLETIN**

- A. Bulletins are unique to O'Keefe-Painter Architects.
- B. A Bulletin is an addendum issued after contract execution whose purpose is to document changes to the contract documents. It precludes the Request for Proposal and Request for Information formal processes.
  - 1. If Bulletins have an associated cost ramification, they will be incorporated into a subsequent Change Order.

**01 26 46 CONSTRUCTION CHANGE DIRECTIVES**

- A. Construction Change Directive: When the Owner and Contractor are not in total agreement on the terms of a Change Order Proposal Request, the Architect may issue a Construction Change Directive on AIA Form G714, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
  - 1. The Construction Change Directive will contain a complete description of the change in the Work and designate the method to be followed to determine change in the Contract Sum or Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
  - 1. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

**01 26 53 PROPOSAL REQUESTS**

- A. Also known as Request For Proposal (RFP); will be submitted to the Contractor in writing on a standardized form consistent throughout the duration of the project.
- B. Contractor is to respond within ten (10) business days with completely tabulated cost as well as schedule impacts for requested work along with any necessary supporting documentation. Clearly indicate whether the cost or schedule modifications will affect the Contract Sum and/or Contract Time.

**01 26 54 PROPOSAL WORKSHEET SUMMARIES**

- A. Provide any supporting data used to determine the costing, scope, and scheduling of a Proposal Request described in 01 26 53.

**01 26 57 CHANGE ORDER REQUESTS**

- A. Owner Initiated Proposal Requests: Proposed changes in the Work that will require adjustment to the Contract Sum or Contract Time will be issued by the Architect, with a detailed description of the proposed change and supplemental or revised Drawings and Specifications, if necessary.
  - 1. Proposal requests issued by the Architect are for information only. Do not consider them instruction either to stop work in progress, or to execute the proposed change.
  - 2. Unless otherwise indicated in the proposal request, within 10 days of receipt of the proposal request, submit to the Architect for the Owner's review an estimate of cost necessary to execute the proposed change.
    - a. Include a list of quantities of products to be purchased and unit costs, along with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
    - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    - c. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.
- B. Contractor Initiated Change Order Proposal Requests: When latent or other

unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a request for a change to the Architect.

1. Include a statement outlining the 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 Contract Time.
  2. Include a list of quantities of products to be purchased and unit costs along with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
  3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
  4. Comply with requirements in Section "Product Substitutions" if the proposed change in the Work requires the substitution of one product or system for a product or system specified.
- C. Proposal Request Form: Use AIA Document G709 for Change Order Proposal Requests.

### **01 26 63 CHANGE ORDERS**

- A. Upon the Owner's approval of a Change Order Proposal Request, the Architect will issue a Change Order for signatures of the Owner and Contractor on AIA Form G701, as provided in the Conditions of the Contract.

END OF SECTION 01 26 00
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## SECTION 01 29 00 - PAYMENT PROCEDURES

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### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements governing the Contractor's Progress Payments.

## **01 29 13 SCHEDULE OF VALUES**

### A. General

- 1. Submit a Schedule of Values to Owner and Architect at least 20 days prior to submitting first Application for Payment.
- 2. Upon request of Owner or Architect, furnish additional data to support values given that will substantiate their correctness.
- 3. Reviewed Schedule of Values will be used as basis for reviewing Contractor's Progress Payments.

### B. Form and Content

- 1. Format: Typewritten on AIA Document G702 Application and Certification for Payment and if necessary, AIA Document G703 Continuation Sheet of Application and Certification for Payment, or electronic media printout.
  - a. Use the Cost Breakdown Form as the basis of format for listing the costs of work, utilizing the same numerical listing.
  - b. Round amounts off to the nearest whole dollar; the total shall equal the Contract Sum.

### C. Review and Resubmittal

- 1. After initial review by Owner and Architect, revise and resubmit if required.
- 2. Revise and resubmit along with next Application for Payment when a Change Order is issued. List each Change Order as a new line item.
- 3. Submit the Schedule of Values to the Architect at the earliest feasible date, but in no case later than 20 days before the date scheduled for submittal of the initial Application for Payment.

## **01 29 16 PROGRESS PAYMENT PROCEDURES**

### A. Preparation

- 1. Format: Typewritten on AIA Document G702 Application and Certification for Payment, supported by AIA Document G703 Continuation Sheet or an electronic media printout.
- 2. Use data from reviewed Schedule of Values utilizing the same numerical system. Provide dollar value in each column for each line item representing portion of work performed.
- 3. List each authorized Change Order as a separate line item, listing Change Order number and dollar value.

### B. Stored Materials

- 1. Material suitably stored in a bonded local warehouse is eligible to be included in



progress payment applications providing:

- a. It can be demonstrated that received materials will be used on this project.
  - b. Owner has option to inspect.
- C. Substantiating Data
1. When Architect requires substantiating information, submit data justifying dollar amounts in question.
  2. Provide one copy of data with cover letter showing application number and date, and line item number and description.
- D. Waiver of Liens
1. With each application, submit waivers of lien from every entity who have submitted a Notification to Owner per F.S. Chapter 713.
    - a. Submit **Conditional Waiver and Release upon Progress Payment Form** on each item for amount requested.
    - b. When an application shows completion of an item, submit **Unconditional Waiver and Release upon Final Payment Form** for that item.
- E. Retainage
- Owner shall withhold 5% of the amount due to Contractor for each (Architect approved AIA form G702/G703) Payment Application as retainage for the duration of the project. Retainage to be managed as follows:**
1. Upon project Substantial Completion, the Balance of the Contract amount, **minus retainage** shall be paid to Contractor in accordance with this Specification Section.
  2. Upon project **Final Acceptance** by the Architect, following the proper submission of a final Payment Application, **4.5% of the retainage** will be released to the contractor.
  3. **0.5% of the Contract Amount will be held during the One Year Warranty period** at the close of which, the Contractor will submit a request for payment of Final Retainage.
- F. Submittal
1. Submit three (3) copies of each Payment Application.
  2. Payment Period: Progress payment requests received by the Architect for approval in satisfactory form (with a complete typed list of all subcontractors and direct suppliers to receive payment during that period and their appropriate lien waver and release forms) no later than the **10th day** of each month will be paid by the Owner to the Contractor no later than the **10th day** of the following month.
- G. Final Payment Application: Administrative actions and submittals which must precede or coincide with submittal of the final Payment Application include the following:
1. Completion of Project Closeout procedures in accordance with Specification Section 00 77 00.
  2. Completion of Project Closeout submittals in accordance with Specification Section 00 78 00.
  3. Completion of items specified for completion after Substantial Completion.
  4. Transmittal of required Project construction records to Owner.
  5. Certified property survey.
  6. Proof that taxes, fees and similar obligations have been paid.
  7. Removal of temporary facilities and services.
  8. Removal of surplus materials, rubbish and similar elements.
  9. Change of door locks to Owner's access.
- H. Final Payment: Before receiving final payment, Contractor shall furnish Owner and Architect with completed **Unconditional Waiver and Release upon Final Payment**



**Forms - that all labor and materials in connection with the agreement have been paid in full by the contractor or the respective subcontractor.**

1. Neither the final payment nor the remaining retainage shall become due until Contractor submits to Owner (1) an affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the work for which the Owner or the Owner's interests might in any way be responsible, have been paid or otherwise satisfied, (2) consent of surety, if any, to final payment, and (3) if required by Owner, other date establishing payment or satisfaction of all such obligations, such as receipts, releases and waivers of liens arising out of the Contract, to the extent and in each form as may be designated by Owner. Contractor may furnish a bond satisfactory to Owner to indemnify Architect and Owner against any such lien, including all monies that either may be compelled to pay in discharging such lien, included all costs and reasonable attorney's fees
2. The acceptance of final payment shall, after the Date of Substantial Completion constitute a waiver of all claims by Contractor except those previously made in writing and identified by Contractor as unsettled at the time of the final Application for Payment.

END OF SECTION 01 29 00
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## SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

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### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

- A. This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:
  - 1. Coordination.
  - 2. Administrative and supervisory personnel.
  - 3. General installation provisions.
  - 4. Cleaning and protection.
- B. Requirements for the Contractor's Construction Schedule are included in:
  - 1. Section 01 32 00 "Construction Progress Documentation."

## **01 31 13 PROJECT COORDINATION**

- A. Coordination: Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.
  - 1. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
  - 2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
  - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.
  - 1. Prepare similar memoranda for the Owner and separate Contractors where coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
  - 1. Preparation of schedules.
  - 2. Installation and removal of temporary facilities.
  - 3. Delivery and processing of submittals.
  - 4. Progress meetings.
  - 5. Project Close-out activities.

## 1.3 GENERAL INSTALLATION PROVISIONS

- A. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
- B. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, even to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.
- C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.
- D. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.
- E. Visual Effects: Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.
- F. Recheck measurements and dimensions, before starting each installation.
- G. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.
- H. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.
- I. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

## 1.4 CLEANING AND PROTECTION

- A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- B. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- C. Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:
  - 1. Excessively high or low temperatures.
  - 2. Thermal shock.
  - 3. Excessively high or low humidity.
  - 4. Air contamination or pollution.
  - 5. Water or ice.
  - 6. Solvents.
  - 7. Chemicals.
  - 8. Light.
  - 9. Puncture.
  - 10. Abrasion.
  - 11. Heavy traffic.
  - 12. Soiling, staining and corrosion.
  - 13. Rodent and insect infestation.

14. Combustion.
15. Electrical current.
16. Unusual wear or other misuse.
17. Contact between incompatible materials.
18. Misalignment.
19. Unprotected storage.
20. Improper shipping or handling.
21. Theft.
22. Vandalism.

## **01 31 19 PROJECT MEETINGS**

### **01 31 19.13 PRECONSTRUCTION MEETINGS**

- A. Contractor is required to schedule a preconstruction meeting with the Owner, Architect, Engineers and all major subcontractors including but not limited to Site Work, Concrete, Masonry, Metal Framing, Mechanical, Electrical, Plumbing etc.
- B. Items to have at the Preconstruction Meeting:
  1. Permits and Contract Documents.
  2. Any other pertinent items or specifications related to the project which may provide clarity or inform discussion to enhance project execution.

### **01 31 19.13a SAMPLE PRECONSTRUCTION MEETING AGENDA**

- A. Introduction of Personnel
- B. Communication – Provide Flow Chart
- C. Contractor shall have competent Superintendent on site at all times when work is taking place.
- D. Use of the Site - Contractor will be in charge of the site inside the project limits.
- E. Staging Area and Job Site Use
  1. Plans & Specifications Requirements
  2. Site Access
  3. Job Signs
  4. Job Trailer and parking (personal and company vehicles)
  5. Security and temporary fencing
  6. Material Storage, both on and off Site
  7. Deliveries & daily access
  8. Disposal in accordance with documents
  9. Salvage materials
  10. Owner-furnished materials - Delivery & Coordination
  11. Hazardous materials
  12. Existing condition of site
    - a. Review with Owner & Architect/Engineer before construction
    - b. Correct and/or restore any damage to original conditions
  13. Use of Owner's property, power, water, telephone & other facilities
    - a. Notify Owner of any outages
- F. Job Site Noise & Dust Control
  1. Respect others, no music or excessively loud foul language and no pets

- G. Utility locations
- H. Scheduling / Coordination
  - 1. Construction Duration
  - 2. Contract dates
    - a. Start date
    - b. Completion date
  - 3. Hours of operation
    - a. Job Site
    - b. Contractor's Office
  - 4. Existing facilities – Phasing / Sequencing of work
  - 5. Scheduling of outages
- I. Design Intent / Contract Documents
  - 1. Brief explanation of design & special features by Architect/Engineer
  - 2. Specifications & Drawings
    - a. Additional sets
  - 3. Addenda
  - 4. Discrepancies
- J. Meetings & Inspections
  - 1. Site Inspections
  - 2. Progress / Coordination Meetings
  - 3. Architect project visits
  - 4. Pre-installation & start-up meetings
- K. Quality Control
  - 1. Contractor's responsibility
  - 2. Owner expects good quality
  - 3. Unacceptable work
- L. Job Site Record Keeping
  - 1. Contract documents
  - 2. Maintaining as-built conditions
  - 3. RFIs, CCDs, Change Orders, Daily Logs, Submittals, Shop Drawings, etc.
- M. Pre-construction Submittals
  - 1. Schedule
    - a. Milestones & critical dates
    - b. Two / three week look ahead
  - 2. Schedule of Values
  - 3. List of Subcontractors & Suppliers
- N. Submittals
  - 1. Submittal Schedule
  - 2. Long lead / special items
  - 3. Distribution
  - 4. Response time
  - 5. Substitutions
  - 6. Format
- O. Request for Payment
  - 1. Number of copies to be submitted.
  - 2. Accompanied by updated schedule.
  - 3. Lien releases
  - 4. Stored materials

- a. Must be suitably stored and per manufacturer's recommendations.
  - b. Off-site - copy of invoice & applicable insurance.
  - c. On-site - copy of invoice
5. Review at monthly progress meeting
- P. Questions & Clarifications
1. RFIs
  2. Response time
  3. RFI log
- Q. Modifications and/or Changes
1. Must have prior approval from Architect/Engineer before proceeding with changes.
  2. Protocol
    - a. RFI
    - b. Contractor submission of cost proposal.
    - c. Construction Change Directive
    - d. Change Order
  3. Meeting to discuss CO's & proposals.
- R. Claims & Delays
1. Process explained in contract documents
  2. Liquidated damages
- S. Construction Methods and Safety Procedures (Comply with OSHA)
1. Means & Methods are the contractor's sole prerogative
  2. Safety is responsibility of the contractor.
  3. Safety & construction signs are contractor's responsibility
- T. Testing & Inspections
1. Responsibilities & Requirements
  2. Types of tests.
  3. Testing consultant
  4. Distribution
  5. Contractor is responsible for retest costs
  6. Quality Assurance by owner is not substitute for quality control by contractor.
- U. Commissioning
- V. Training
1. Follow outline in specifications
  2. Submit agenda and list of attendees
- W. Substantial Completion
1. Contractual obligations fulfilled.
  2. Formally notify Architect or Engineer for Substantial Completion inspection.
    - a. Include list of incomplete items
  3. Pass Final AHCA inspection
  4. O&M manuals – Complete, comprehensive package, partial not acceptable.
  5. As-Built Drawings

### **01 31 19.23      PROGRESS MEETINGS**

- A. Progress Meetings
1. Schedule and administer meetings throughout progress of the Work at maximum

monthly intervals or at the direction of Architect.

2. Preside at meetings, record minutes, and distribute copies within three (3) days to Architect, Owner, attendees and others affected by decisions made.

**01 31 19.33 PREINSTALLATION MEETINGS**

- A. Contractor is responsible for holding pre-installation meetings for the following construction activities; including but not limited to:
  1. Roof installation
  2. Framing
  3. Drywall

**01 31 23 PROJECT WEB SITE**

- A. Not Applicable to this project.

END OF SECTION 01 31 00
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## SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

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### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

- A. General: This Section specifies administrative and procedural requirements for schedules and reports required for proper performance of the Work.

## **01 32 13 SCHEDULING THE WORK**

### 1.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Prepare and maintain a comprehensive, fully developed Critical Path Method (CPM) horizontal bar-chart type Contractor's Construction Schedule based on the Preliminary Construction Schedule and on all available information about the Project including local market and prevailing weather conditions.
  1. Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week.
    - a. If practical, use the same breakdown of units of the Work as indicated in the "Schedule of Values".
  2. Identify Critical Path Activities; provide print out of activities showing early start and early finish, late start and late finish and total float.
  3. Prepare the Schedule for presentation on some order of appropriate media, of sufficient size to show data clearly and legibly for the entire construction period.
  4. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on the schedule with other portions of the Work; include minor elements involved in the overall sequence of the Work. Show each construction activity in proper sequence. Indicate graphically sequences necessary for completion of related portions of the Work.
  5. Coordinate the Contractor's Construction Schedule with the schedule of values, list of subcontracts, Submittal Schedule, progress reports, payment requests and other required schedules and reports.
  6. Indicate completion of the Work in advance of the date established for each Substantial Completion. Indicate Substantial Completion on the Schedule to allow ample time for the Architect's administrative procedures necessary for Certification of Substantial Completion.

## **01 32 16 CONSTRUCTION PROGRESS SCHEDULE**

### 1.1 CONTRACTOR'S CONSTRUCTION SCHEDULE MAINTENANCE

- A. Contractor will update and adjust the original construction schedule specified in Section 01 32 13 on a monthly basis.
- B. Contractor to distribute and discuss construction progress and updated schedule at monthly progress meetings described in Section 00 31 00.



**01 32 26 CONSTRUCTION PROGRESS REPORTING**

## A. Progress Reports

1. The Contractor shall submit monthly progress reports to the Owner and a copy to the Architect, showing each principal item of work whether ahead or behind schedule. Contractor to provide progress photographs with each report. Photographs to represent all work accomplished to date of Payment Application.

**01 32 29 PERIODIC WORK OBSERVATION**

## A. Periodic Site Visits and Work Observation by Architect.

1. The Contractor shall make project site available to the Architect for site and work observations at the discretion of the Architect.
2. The Contractor shall furnish necessary and prudent Personal Protective Equipment as required by OSHA and project conditions to the Architect and appropriate site visitors during such visits.

**01 32 33 PHOTOGRAPHIC DOCUMENTATION**

- A. Contractor is encouraged to document work progress by means of digital photography to develop a record of in-place work that can aid in construction activities after concealment; among other positive benefits.

END OF SECTION 01 32 00
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## SECTION 01 33 00 - SUBMITTAL PROCEDURES

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### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for submittals required for performance of the Work.
- B. Inspection and test reports are included in Section "Quality Control."

### 1.3 SUBMITTAL PROCEDURES

- A. **It is the Contractor's obligation to thoroughly review submittal packages for completeness and accuracy. Specific products, materials, installation methods, etc. shall be clearly selected for proposal. Submittals transmitted containing vague or unspecific information will be returned for resubmittal.**
  - 1. This requirement excludes submittals requesting color, finish etc. selection by the Architect.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
  - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
  - 2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
    - a. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
  - 3. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for re-submittals.
    - a. Allow two weeks for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Architect will promptly advise the Contractor when a submittal being processed must be delayed for coordination.
    - b. If an intermediate submittal is necessary, process the same as the initial submittal.
    - c. Allow two weeks for reprocessing each submittal.
    - d. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.
- C. Submittal Preparation: Place a permanent label on each submittal or title block on each drawing for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
  - 1. Provide a space approximately 4" x 5" on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the

- action taken.
2. Include the following information on the label for processing.
    - a. Project name.
    - b. Date.
    - c. Name and address of supplier.
    - d. Name of manufacturer.
    - e. Specification section, Drawing number and detail references, as appropriate.
- D. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Architect using a transmittal form. **Submittals received from sources other than the Contractor or without a proper transmittal form will be returned without action.**
1. On the transmittal record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including minor variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.

## **01 33 23 SHOP DRAWINGS, PRODUCT DATA, & SAMPLES**

### 1.4 SHOP DRAWINGS

- A. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.
- B. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:
  1. Dimensions.
  2. Identification of products and materials included.
  3. Compliance with specified standards.
  4. Notation of coordination requirements.
  5. Notation of dimensions established by field measurement.
  6. Sheet Size: Except for templates, patterns and similar full- size Drawings, submit Shop Drawings on sheets at least 8-1/2" x 11" but no larger than 30" x 42".
  7. Submittal: Submit between **5 and 8 copies** of each black-line set required depending on parties implicated; Up to 3 sets will be retained; the remainder will be returned.
- C. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.

### 1.5 PRODUCT DATA

- A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, rough-in diagrams and templates, standard wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."

1. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
2. Submittals: Submit between **5 and 8 copies** of each required submittal depending on parties implicated. The Architect will retain one, and will return the others marked with action taken and corrections or modifications required.
3. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities.
  - a. Do not proceed with installation until an applicable copy of Product Data is in the installer's possession.
  - b. Do not permit use of unmarked copies of Product Data in connection with construction.

#### 1.6 SAMPLES

- A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.
  1. Mount, display, or package Samples in the manner specified to facilitate review of qualities indicated. Prepare Samples to match the Architect's Sample. Include the following:
    - a. Generic description of the Sample.
    - b. Sample source.
    - c. Product name or name of manufacturer.
    - d. Compliance with recognized standards.
    - e. Availability and delivery time.
  2. 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 the final submittal and the actual component as delivered and installed.
    - a. Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3), that accurately represent the limits of variation.
  3. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit 2 sets; one will be returned marked with the action taken.
  4. Maintain sets of Samples, as returned, at the Project site, for quality comparisons throughout the course of construction.
    - a. Sample sets may be used to obtain final acceptance of the construction associated with each set.

#### 1.7 ARCHITECT'S ACTION

- A. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Architect will review each submittal and mark to indicate action taken.
  1. Compliance with specified characteristics is the Contractor's responsibility.
- B. Action Stamp: The Architect will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:
  1. Final Unrestricted Release: Where submittals are marked "**No Exception**

- Taken,**" that part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.
2. **Final-But-Restricted Release:** When submittals are marked "**Make Corrections Noted,**" that part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.
  3. **Returned for Resubmittal:** When submittal is marked "**Rejected**" or "**Revise and Resubmit**", do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.
    - a. Do not permit submittals marked "Rejected, Revise and Resubmit" to be used at the Project site, or elsewhere where Work is in progress.

END OF SECTION 01 33 00
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## SECTION 01 35 00 - SPECIAL PROCEDURES

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### **01 35 13 SPECIAL PROJECT PROCEDURES**

Obtain and Coordinate inspections by the State, Agency For Health Care Administration (AHCA) having jurisdiction over the Project during the construction period and final close-out. The Architect shall schedule the inspection day and times with ACHA, coordinating schedule with Contractor.

1. State Health Department Requirements:

This article includes specific requirements for by the State of Florida, Agency for Health Care Administration

A.H.C.A., 2727 Mahan Drive, Tallahassee, Florida 32308  
904-487-0713

**A. 80% INSPECTION**

At the 80% Inspection, all walls, ceiling assemblies and shaft walls should be completed. Door frames, windows, etc. should be installed. All mechanical equipment should be set and all duct work and dampers installed. All electrical equipment and devices should be in place and main power feeds connected. Coordinate the following:

**PERSONNEL IN ATTENDANCE:**

Project Architect  
Project Engineers  
Project Manager  
Superintendent  
Drywall Contractor  
Mechanical Contractor  
Electrical Contractor  
Owner or Owner's Representative  
Laborers to move ladders, equipment, etc.

**AVAILABLE EQUIPMENT:**

Ladders - at least one for each discipline  
Flat head and philips screwdriver, pliers or wrench, drywall saw, etc.  
Flashlights  
Two-way radios for each discipline tuned to the same frequency  
Table and chairs at a pre-selected area for Plan Review, conference and exit interview.

**PAPERWORK:**

Set of construction documents organized into a neat package, approved by AHCA  
Sprinkler working drawings organized into a neat package, approved by AHCA  
\* Life Safety Plan preferably reduced to 8-1/2 x 11

- \* Outstanding AHCA plan review comments
  - \* All AHCA approval letters, organized into a neat package
  - \* All correspondence from AHCA
- All change order and field orders
- \* Previous AHCA construction survey letters

**MANUFACTURER'S DATA AND TECHNICAL INFORMATION:**

(Bound into a neat 8 1/2 x 11 binder)

Proprietary systems used

Independent fire test of all rated assemblies

Damper installation instructions for each type installed (U.L. approved)

Duct smoke detector installation instructions

The following areas will be inspected during the 80% inspection by AHCA personnel:

**Architectural**

Separation between construction and occupied areas

Exits

Fire/smoke walls

Fire rated assemblies

Steel fireproofing

Handrails

Fire stopping/Draft stopping

Access panels

Door frames

Room sizes

Windows

Scuppers or auxiliary drains

Mechanical

Plumbing rough-in

Sleeves for pipes and ducts through rated walls

Sprinkler piping

Mechanical equipment location

Mechanical rooms

Fire Riser Room

Grease duct location

Medical gas piping rough-in

Damper installations

Electrical

Normal main service switchgear

Rough-in of bulk conduits

Panel board locations

Generator, transfer switches, transformer locations

Exit lighting

Receptacle requirement locations

Lightning protection

Wiring

Access panels  
Grounding (main/equipotential/lightning)

### C. FINAL INSPECTION

The Project must be complete prior to applying to AHCA for a Final Inspection. All work must be finished. Schedule and coordinate the following:

#### **PERSONNEL IN ATTENDANCE:**

Project Architect  
Project Engineers  
Project Manager  
Superintendent  
Drywall Contractor  
Mechanical Contractor  
Electrical Contractor  
Owner or Owner's Representative  
Laborers to move ladders, equipment, etc.  
Fire Alarm Contractor  
Nurse Call Contractor  
Hood Suppression Contractor  
Sprinkler Contractor  
Generator or special emergency power contractor

#### **AVAILABLE EQUIPMENT:**

Ladders - at least one for each discipline  
Flat head and philips screwdriver, pliers or wrench, drywall saw, etc.  
Flashlights  
Two-way radios for each discipline tuned to the same frequency  
Table and chairs at a pre-selected area for Plan Review, conference and exit interview.

#### **PAPERWORK: (Bound and organized into a neat package):**

Set of construction documents organized into a neat package, approved by AHCA  
Sprinkler working drawings organized into a neat package, approved by AHCA  
\* Life Safety Plan preferably reduced to 8-1/2 x 11  
\* Outstanding AHCA plan review comments  
\* All AHCA approval letters, organized into a neat package  
\* All correspondence from AHCA  
All change order and field orders  
\* Previous AHCA construction survey letters  
\* Emergency evacuation route posted in prominent locations  
\* Fire exit drill plan  
Date sprinkler system was checked  
Date smoke detectors were tested in place.

#### **MANUFACTURER'S DATA AND TECHNICAL INFORMATION:**

(Bound into a neat 8 1/2 x 11 binder)



Proprietary systems used  
Independent fire test of all rated assemblies  
Damper installation instructions for each type installed (U.L. approved)  
Duct smoke detector installation instructions  
Rated lay-in ceiling information  
Electrical panels, switchboards, transformers, equipment instructions

**SYSTEMS CHECK TO BE COMPLETED PRIOR AND DURING INSPECTION:**

Fire Alarm and third party tie-in  
Fire protection and halon tests  
Nurse call  
Dry or wet chemical suppression tests  
Kitchen equipment start-up  
HVAC system start-up  
Equipotential grounding  
Smoke detector sensitivity (signed by licensed master contractor)

**CERTIFICATIONS:**

(Bound into a 8 1/2 x 11 binder)  
Flame spread ratings for paint  
Flame spread ratings for vinyl flooring, acoustical tile and building insulation  
\* Flame resistant certificate for bedding  
Flame resistant certification for lumber  
\* Flame retardant certification for draperies and cubicle curtains  
Critical radiant flux ratings for carpet  
\* Metal or U.L. approved waste baskets  
Concrete masonry unit certification  
Water purification certificate  
Sprinkler system hydraulic data label  
HVAC test and balance report  
Pressure differential test readings for duct smoke detectors  
Lightning protection with application for certification  
Emergency generator low level fuel/high level fuel certification  
Smoke detector activation/sensitivity test (include listed range)  
List of certifications of the isolated power systems (ISO)  
Main building ground certification  
Equipotential grounding certification

\* All items indicated with an asterisk (\*) will be furnished by the Architect or Owner prior to the required inspection. Contractor responsible for all other items.

**END OF SECTION 01 35 00**

## SECTION 01 41 00 - REGULATORY REQUIREMENTS

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### PART 1 - GENERAL

- A. Comply with applicable regulatory requirements and various codes referenced in these specifications. Where conflicts exist between local, State, and/or Federal regulatory requirements, codes, or these specifications, advise the Architect. The Architect will assist in resolving the conflicts to the satisfaction of the regulatory agencies prior to commencing the work.

### **01 41 13 CODES**

#### 1.2 GOVERNING REGULATIONS/AUTHORITIES

- A. The referenced codes shall be the date of latest revision in effect at the time of receiving bids, unless the date is given.
- B. Architect has contacted authorities having jurisdiction where necessary to obtain information necessary for preparation of Contract Documents; that information may or may not be of significance to the Contractor. Contact authorities having jurisdiction directly for information and decisions having a bearing on the Work.
- C. This project has been designed based upon the following standards and regulations of the edition listed; the installation shall comply with all laws applicable to the construction which are enforced by the authorities having jurisdiction. The following codes shall apply to this project.
  1. General.
    - a. Florida Building Code: 2007 Edition with 2008 and 2009 Amendments.
    - b. Florida Plumbing Code: 2007 Edition.
    - c. Florida Mechanical Code: 2007 Edition.
    - d. National Electric Code: 2008 Edition.
    - e. NFPA 101 Life Safety Code: 2006 Edition.
    - f. NFPA 101 Standards for Portable Fire Extinguishers.
  2. Specific.
    - a. Florida Administrative Code-Standards for Nursing Homes and Related Facilities: Chapter 59A-4.
    - b. Applicable portions of Guidelines for Design and Construction of Health Care Facilities.
    - c. Florida Americans with Disabilities Act - Florida Building Code Chapter 11.

### **01 41 16 LAWS**

- A. Follow ICC/ANSI 117.1 American National Standard - Accessible and Usable Buildings and Facilities which are guidelines for compliance with the Americans with Disabilities Act (ADA).
- B. Abide by all OSHA requirements and recommendations throughout the project duration.

### **01 41 23 FEES**

- A. Payment of all Impact Fees and assessments will be the responsibility of the Owner.

**01 41 26 PERMITS**

- A. Obtain the required permits, inspections and/or certifications from the appropriate city/county permitting agencies.
  1. Permits, inspections and certificates which may be required include, but are not limited to:
    - a. Construction Permit.
    - b. Electrical Inspections.
    - c. Plumbing Inspections.
    - d. Boiler Inspections.
    - e. Certificate of Occupancy.
    - f. Letter of Approval for new fire alarm systems.
    - g. Tree removal approval.
    - h. Sewer and Water Connection Permit.
- B. Underground Utilities:
  1. Locate existing underground utilities prior to commencing excavation work. Determine exact utility locations by hand excavated test pits. Support and protect utilities to remain in place.
  2. Employ trench protection measures in accordance with safety requirements during excavation activities.
- C. Coordination with Electric Utility Company:
  1. Comply with the utility company requirements for the incoming electric service. Pay the utility company's charges in connection with the installation of the incoming service.
- D. Coordination with Municipality for Water Connection:
  1. Comply with the municipal requirements for the connection of water lines to the municipal utility services. Obtain and pay for all necessary permits from municipal water department. Obtain authority to connect to their existing water mains.
    - a. Make necessary connections to existing municipal water mains under supervision of water department's representative as required.
- E. Coordination with Municipality for Sanitary Sewer Connection:
  1. Comply with the municipal requirements for the connection of sanitary sewer lines to the municipal utility services. Obtain and pay for all necessary permits from municipal sewer department. Obtain authority to connect to their existing sanitary sewers.
    - a. Make necessary connections to existing municipal sanitary sewer under supervision of sewer department's representative as required.

END OF SECTION 01 41 00
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## SECTION 01 42 00 - REFERENCES

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### 1.1 RELATED DOCUMENTS

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

### 1.2 SUBMITTALS

- A. Permits, Licenses and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdiction settlements, notices, receipts for fee payments, judgments, and similar conjunction with compliances with standards and regulations bearing upon performance of the Work.

## **01 42 13 ABBREVIATIONS & ACRONYMS**

- A. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name or the trade association, standards generating organization, authority having jurisdiction, or other entity applicable to the context of the text provision. Refer to the "Encyclopedia of Associations," published by Gale Research Co., available in most libraries.

## **01 42 19 REFERENCE STANDARDS**

### 1.1 INDUSTRY STANDARDS

- A. Applicability of Standards: Except where 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. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Where the date of issue of a referenced standard is not specified, comply with the standard in effect as of date of Contract Documents.
- C. Conflicting Requirements: Where compliance with two or more standards is specified, and the standards establish different or conflicting requirements for minimum quantities or quality levels, refer requirements that are different, but apparently equal, and uncertainties to the 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 within reasonable limits. In complying with these requirements, indicated numeric values are minimum or maximum, as appropriate for the context of the requirements. Refer uncertainties to the Architect for a decision before proceeding/
- D. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with the Contract Documents.
  1. Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.

END OF SECTION 01 42 00
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## SECTION 01 43 00 - QUALITY ASSURANCE

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### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for quality assurance.
- B. Quality assurance services include the provision of qualification of any independent agencies, governing authorities, and the Contractor engaged in testing, calibrating, measuring or otherwise quantifying or verifying materials or workmanship. They do not include Contract enforcement activities performed by the Architect.

### 1.3 SUBSTRATE ACCEPTANCE

- A. Throughout the progression of construction, it is incumbent upon each respective/consecutive installer/tradesperson/craftsperson to inspect the work in-place that constitutes the substrate for which he/she is to build upon. Any conditions found to be outside acceptable tolerances or in any way detrimental to work to be performed is to be corrected by the responsible party prior to commencement of subsequent work.
  - 1. Work commencement by any installer/tradesperson/craftsperson constitutes acceptance without reservation of the existing conditions and that the work preceding is acceptable for work to be performed.

## **01 43 13 MANUFACTURER QUALIFICATIONS**

- A. Only engage manufacturers demonstrating competency in their industry for a minimum of five (5) years, who warrantee their products and who can provide independent test reporting on their product from such institutions as, but not limited to:
  - 1. Underwriters Laboratories
  - 2. Factory Mutual
  - 3. ASTM
- B. One exception to this requirement are those manufacturers of newer, or developing technologies especially in the Sustainable Building Industry. These manufacturers are to be closely evaluated on a case by case basis. Architect involvement in this selection is recommended.

## **01 43 16 SUPPLIER QUALIFICATIONS**

- A. Engage a reputable supplier capable of providing required materials on schedule; one that maintains a good working relationship with the manufacturers with whom they represent; one that can provide uniform product with regard to dye lot, finish, grade, etc.

## **01 43 19 FABRICATOR QUALIFICATIONS**

- A. Engage an established and reputable fabricator that can readily demonstrate their capacity meet the schedule while providing quality work.

## **01 43 23 INSTALLER QUALIFICATIONS**

- A. Installer: Engage an experienced Installer throughout work performance, who has specialized in application of specified systems. Installer must be acceptable to or licensed by the appropriate manufacturer when applicable.
- B. Subcontractors: All work shall be performed by a subcontractor who is a bona fide specialty subcontractor in their given field, and who is authorized by the manufacturer where appropriate for the installation of the manufacturer's material in accordance with the requirements of the project, manufacturer, and specific site conditions.
  - 1. Where applicable: Subcontractor shall submit a letter from the manufacturer stating that subcontractor is authorized by the manufacturer for the installation of their system(s), referencing the specific projects.
  - 2. Letter shall be on letterhead stationery of said manufacturer of said material and shall be signed by an authorized representative of the company.

## **01 43 26 TESTING & INSPECTING AGENCY QUALIFICATIONS**

### 1.1 QUALITY ASSURANCE

- A. Qualification for Service Agencies: Engage inspection and testing service agencies, including independent testing laboratories, which are prequalified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories, and which specialize in the types of inspections and tests to be performed.
  - 1. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the State in which the Project is located.

## **01 43 39 MOCKUPS**

- A. Mockups shall be of full scale and sufficient size to indicate product's finished appearance, or sized as specified in their respective sections.
  - 1. Locate mockups where design drawings call for finish being demonstrated or, in relative proximity to designated final location if such is inaccessible, unsafe or yet unbuilt.
  - 2. Mockups shall be modified and reworked as many times as necessary to reach desired finish as deemed by the Architect and specified in the Project Manual.

END OF SECTION 01 43 00
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## SECTION 01 45 00 - QUALITY CONTROL

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### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for quality control services.
- B. Quality control services include inspections and tests and related actions including reports, performed by independent agencies, governing authorities, and the Contractor. They do not include Contract enforcement activities performed by the Architect.
- C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve the Contractor of responsibility for compliance with Contract Document requirements.
- D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.
  - 1. Specific quality control requirements for individual construction activities are specified in the Sections that specify those activities. Those requirements, including inspections and tests, cover production of standard products as well as customized fabrication and installation procedures.
  - 2. Inspections, test and related actions specified are not intended to limit the Contractor's quality control procedures that facilitate compliance with Contract Document requirements.
  - 3. Requirements for the Contractor to provide quality control services required by the Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

## **01 45 16 FIELD QUALITY CONTROL PROCEDURES**

### 1.1 RESPONSIBILITIES

- A. Contractor Responsibilities: The Contractor shall provide inspections, tests and similar quality control services, specified in individual Specification Sections and required by governing authorities, except where they are specifically indicated to be the Owner's responsibility, or are provided by another identified entity; these services include those specified to be performed by an independent agency and not by the Contractor. Costs for these services shall be included in the Contract Sum.
  - 1. The Contractor shall employ and pay an independent agency, to perform specified quality control services as follows:
    - a. Soil Density report exterior of building.
    - b. Soil Density report with-in building confines
    - c. Concrete Compressive Strength.
    - d. Inspection of Welds.
    - e. Equipotential Grounding.
    - f. HVAC Test and Balance.



2. Retesting: The Contractor is responsible for retesting where results of required inspections, tests or similar services prove unsatisfactory and do not indicate compliance with Contract Document requirements, regardless of whether the original test was the Contractor's responsibility.
    - a. Cost of retesting construction revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original construction.
  3. Associated Services: The Contractor shall cooperate with agencies performing required inspections, tests and similar services and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include but are not limited to:
    - a. Providing access to the Work and furnishing incidental labor and facilities necessary to facilitate inspections and tests.
    - b. Providing the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.
    - c. Security and protection of samples and test equipment at the Project site.
- B. Duties of the Testing Agency: The independent testing agency engaged to perform inspections, sampling and testing of materials and construction specified in individual Specification Sections shall cooperate with the Architect and Contractor in performance of its duties, and shall provide qualified personnel to perform required inspections and tests.
1. The agency shall notify the Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  2. The agency is not authorized to release, revoke, alter or enlarge requirements of the Contract Documents, or approve or accept any portion of the Work.
  3. The agency shall not perform any duties of the Contractor.
- C. Coordination: The Contractor and each agency engaged to perform inspections, tests and similar services shall coordinate the sequence of activities to accommodate required services with a minimum of delay. In addition the Contractor and each agency shall coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.

## 1.2 REPAIR AND PROTECTION

- A. General: Upon completion of inspection, testing, sample-taking and similar services, repair damaged construction and restore substrates and finishes to eliminate deficiencies, including deficiencies in visual qualities of exposed finishes. Comply with Contract Document requirements for "Cutting and Patching."
- B. Protect construction exposed by or for quality control service activities, and protect repaired construction.
- C. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.

## **01 45 19 TESTING & INSPECTING SERVICES**

### 1.1 SUBMITTALS

- A. The independent testing agency shall submit a certified written report of each inspection, test or similar service, to the Architect, in duplicate, unless the Contractor is



responsible for the service. If the Contractor is responsible for the service, submit a certified written report of each inspection, test or similar service through the Contractor, in duplicate.

1. Submit additional copies of each written report directly to the governing authority, when the authority so directs.
2. Report Data: Written reports of each inspection, test or similar service shall include, but not be limited to:
  - a. Date of issue.
  - b. Project title and number.
  - c. Name, address and telephone number of testing agency.
  - d. Dates and locations of samples and tests or inspections.
  - e. Names of individuals making the inspection or test.
  - f. Designation of the Work and test method.
  - g. Identification of product and Specification Section.
  - h. Complete inspection or test data.
  - i. Test results and an interpretations of test results.
  - j. Ambient conditions at the time of sample-taking and testing.
  - k. Comments or professional opinion as to whether inspected or tested Work complies with Contract Document requirements.
  - l. Name and signature of laboratory inspector.
  - m. Recommendations on retesting.

## **01 45 26 TESTING & LABORATORY SERVICES**

### 1.1 SUBMITTALS

- A. Same as Section: 01 45 19

END OF SECTION 01 45 00
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## SECTION 01 51 00 - TEMPORARY UTILITIES

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 QUALITY ASSURANCE

- A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction.
- B. Conditions of Use: Keep temporary services locations clean and orderly. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload utility connections. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. General: When establishing temporary utilities, provide new materials (or undamaged previously used materials in serviceable condition). Provide materials suitable for the use intended.
- B. Lumber and Plywood: Comply with requirements in Division-6 Section "Rough Carpentry."
  - 1. For signs and directory boards, provide exterior type, Grade B-B High Density Concrete Form Overlay Plywood conforming to PS-1, of sizes and thickness indicated.
  - 2. For fences and vision barrier, provide exterior type, minimum 3/8" thick plywood.
  - 3. For safety barriers, sidewalks bridges and similar uses, provide minimum 5/8" thick exterior plywood.
- C. Paint: Comply with requirements of Division-9 Section "Finish Painting."
  - 1. For sign panels and applying graphics, provide exterior grade alkyd gloss enamel over exterior primer.
- D. Tarpaulins: For temporary enclosures provide translucent nylon reinforced laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.
- E. Water: Provide potable water approved by local health authorities.

#### 2.2 EQUIPMENT

- A. General: Provide new equipment or undamaged, previously used equipment in serviceable condition, provide equipment suitable for use intended.
- B. Water Hoses: Provide 3/4" heavy-duty, abrasion-resistant, flexible rubber hoses 100 ft. long, with pressure rating greater than the maximum pressure of the water distribution system; provide adjustable shut-off nozzles at hose discharge.
- C. Electrical Outlets: Provide properly configured NEMA polarized outlets to prevent insertion of 110-120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for connection of power tools and equipment.
- D. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords

where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.

- E. Lamps and Light Fixtures: Provide general service electric lamps of wattage required for adequate illumination. Provide guard cages or tempered glass enclosures, where exposed to breakage. Provide exterior fixtures where exposed to moisture.
- F. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM or another recognized trade association related to the type of fuel being consumed.
- G. Fire Extinguishers: Provide hand-carried, portable UL-rated, class "A" fire extinguishers for temporary offices and similar spaces. In other locations provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.
  - 1. Comply with NFPA 10 and 241 for classification, extinguishing agent and size required by location and class of fire exposure.

### PART 3 - EXECUTION

#### 3.1 TEMPORARY UTILITY INSTALLATION

- A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where the company provides only part of the service, provide the remainder with matching, compatible materials and equipment; comply with the company's recommendations. Use qualified personnel for distribution of temporary utilities
  - 1. Use Charges: Cost or use charges for temporary facilities are not chargeable to the Owner or Architect, and will not be accepted as a basis of claims for a Change Order. The Contractor is responsible for costs and use charges on permanent service until date of substantial completion.
- B. Water Service: Install water service and distribution piping of sizes and pressures adequate for construction until permanent water service is in use.
  - 1. Sterilization: Sterilize temporary water piping prior to use.
- C. Temporary Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload protected disconnects, automatic ground-fault interrupters and main distribution switch gear.
  - 1. Power Distribution System: Install wiring overhead, and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125 Volts, AC 20 ampere rating, and lighting circuits may be nonmetallic sheathed cable where overhead and exposed for surveillance.
- D. Temporary Lighting: Whenever overhead floor or roof deck has been installed, provide temporary lighting with local switching.
  - 1. Install and operate temporary lighting that will fulfill security and protection requirements, without operating the entire system, and will provide adequate illumination for construction operations and traffic conditions.

<b>END OF SECTION 01 51 00</b>
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## SECTION 01 52 00 - TEMPORARY FACILITIES

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 QUALITY ASSURANCE

- A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to:
  - 1. NFPA Code 241, "Building Construction and Demolition Operations", ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition."
  - 2. NECA Electrical Design Library "Temporary Electrical Facilities."

#### 1.3 SUMMARY

- A. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or permit them to interfere with progress. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

### PART 2 - EXECUTION

## **01 52 13 FIELD OFFICES & SHEDS**

#### 2.1 GENERAL

- A. Field Offices: Provide insulated, weathertight temporary offices of sufficient size to accommodate required office personnel at the Project site. Keep the office clean and orderly for use for small progress meetings. Furnish and equip offices as follows:
  - 1. Furnish with desk and chairs, a 4-drawer file cabinet, plan table and plan rack and a 6-shelf bookcase.
  - 2. Equip with a water cooler and private toilet complete with water closet, lavatory and mirror-medicine cabinet unit.
  - 3. Telephone and Fax machine and internet connectivity.
- B. Field Offices shall have lockable entrances, operable windows and serviceable finishes. Provide heated and air-conditioned units on foundations adequate for normal loading.
  - 1. Maintain temporary construction and support facilities as long as necessary or until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.
- C. Fire Extinguishers: Provide hand-carried, portable UL-rated, class "A" fire extinguishers for temporary offices and similar spaces. In other locations provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.

1. Comply with NFPA 10 and 241 for classification, extinguishing agent and size required by location and class of fire exposure.
- D. Storage Sheds/Trailers: Install storage and sheds, sized, furnished and equipped to accommodate materials and equipment involved, including temporary utility service.
- E. Project Identification and Temporary Signs: Prepare project identification and other signs of the size indicated; install signs where indicated to inform the public and persons seeking entrance to the Project. Support on posts or framing of preservative treated wood or steel. Do not permit installation of unauthorized signs.

## 2.1 INSTALLATION

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the 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.
- C. Temporary Lighting: Whenever overhead floor or roof deck has been installed, provide temporary lighting with local switching.
  1. Install and operate temporary lighting that will fulfill security and protection requirements, without operating the entire system, and will provide adequate illumination for construction operations and traffic conditions.

## 2.2 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Temporary Fire Protection: Until fire protection needs are supplied by permanent facilities, install and maintain temporary fire protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers," and NFPA 241 "Standard for Safeguarding Construction, Alterations and Demolition Operations."
  1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.
  2. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
- B. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed provide lighting, including flashing red or amber lights.
- C. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft and similar violations of security.
  1. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.

**01 52 16 FIRST AID FACILITIES**

- A. First Aid Supplies: Comply with governing regulations.
- B. Fire Extinguishers: Provide hand-carried, portable UL-rated, class "A" fire extinguishers for temporary offices and similar spaces. In other locations provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.
  - 1. Comply with NFPA 10 and 241 for classification, extinguishing agent and size required by location and class of fire exposure.

**01 52 19 SANITARY FACILITIES**

- A. Temporary Toilet Units: Provide self-contained, single occupant toilet units of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material.
  - 1. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.

**01 52 26 THERMAL CONDITIONS**

- A. Temporary Heat: Provide temporary heat and/or Air Conditioning required by construction activities, for curing or drying of completed installations or protection of installed construction adverse effects of low temperatures or high humidity. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimize consumption of energy.
- B. Heating Facilities: Except where use of the permanent system is authorized, provide vented self-contained LP gas or fuel oil heaters with individual space thermostatic control.
  - 1. Use of gasoline-burning space heaters, open flame, or salamander type heating units is prohibited.

END OF SECTION 01 52 00
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## SECTION 01 58 00 - PROJECT IDENTIFICATION

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### **01 58 13 TEMPORARY PROJECT SIGNAGE**

- A. Erect and maintain an "O'Keefe-Painter Architects" jobsite sign as per detail found on plans. Place Architect's and Builder's signage together, in an area of high visibility for project identification purposes. Protect from damage during sitework and daily construction activities. Ensure temporary signage is sturdily installed and will not unexpectedly fail during seasonal storms that bring high wind conditions. It is acceptable to lower signage in anticipation of such events; signs must be re-erected the next business day following inclement weather.

### **01 58 16 TEMPORARY INTERIOR SIGNAGE**

- A. Prepare project identification and other signs when necessary; install signs where required to inform the public and persons seeking entrance to, or navigation through the Project. Support on posts or framing of preservative treated wood or steel. Do not permit installation of unauthorized signs.

END OF SECTION 01 58 00
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# SECTION 01 74 00 - CLEANING AND WASTE MANAGEMENT

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## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

- A. This Section chronicles cleaning requirements throughout the duration of the project.

## **01 74 13 PROCESS CLEANING**

### 1.1 PERIODIC AND INCIDENT CLEANING

- A. Maintain a general minimum standard of cleanliness and order throughout the site extents during construction activities.
- B. Provide periodic cleaning to items susceptible to damage due to soiling and take measures to cover and protect those items from stress and wear.
- C. Maintain periodic cleaning for jobsite safety both inside building parameters and out.
- D. Perform cleaning activities directly following a storm or particularly filth generating construction activity. For example:
  - 1. Saw cutting concrete in area with finishes applied.
  - 2. Patching gypsum board assemblies after finishes have been applied.

## **01 74 16 SITE MAINTENANCE**

### 1.1 ROUTINE SERVICES

- A. Provide grass and weed control on a minimum monthly basis.
- B. Survey site weekly for hazards to workers or public. Correct any dangers immediately.

## **01 74 19 CONSTRUCTION WASTE MANAGEMENT & DISPOSAL**

### 1.1 SPECIFIC WASTE REQUIREMENTS

- A. Any hazardous waste created during construction must be disposed of properly in accordance with Federal, State or local laws, codes or statutes and regulations.
- B. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material in a lawful manner.
- C. There are no job specific requirements for this project.
- D. Waste separating and recycling is encouraged.

## **01 74 23 FINAL CLEANING**



## 1.1 PRE-FINAL ACCEPTANCE CLEANING

- A. General: General cleaning during construction is required by the General Conditions and included earlier in this section.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal commercial building cleaning and maintenance program. Comply with manufacturer's instructions:
  - 1. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.
    - a. Remove labels that are not permanent labels.
    - b. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compound and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
    - c. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.
    - d. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.
    - e. Clean the site, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.
- C. Pest Control: Engage an experienced exterminator to make a final inspection and rid the Project of rodents, insects and other pests.
- D. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.

END OF SECTION 01 74 00
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## SECTION 01 75 00 - STARTING AND ADJUSTING

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for systems equipment start-up, including but not limited to:
  - 1. HVAC.
  - 2. Water treatment equipment.
  - 3. Lighting and data.

### **01 75 16 START-UP PROCEDURES**

#### 1.3 SYSTEMS EQUIPMENT

- A. Follow manufacturer's instructions, diagrams and shop drawings to ensure proper installation.
  - 1. When conflict exists, consult manufacturer.

#### 1.4 INITIAL START-UP

- A. HVAC System.
  - 1. Protect ductwork during start-up and for duration of project.
  - 2. Use fresh air make-up only. Do not engage return air and contaminate ductwork with construction pollutants.
  - 3. Exhaust systems shall not be started until make-up air is completely functioning with appropriate filters and correct air flow.
  - 4. Contractor to provide warranty in accordance with Division 00 70 00 regardless of equipment start-up schedule.

END OF SECTION 01 75 00
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# SECTION 01 76 00 - PROTECTING INSTALLED CONSTRUCTION

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## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

- A. It is solely the Contractor's responsibility to implement policy, coordinate work, erect protective barriers, cover, or by any means protect installed construction, equipment and/or furnishings from damage and deterioration for the duration of the project.
  - 1. This applies to the project in its entirety, however specifically includes installed ductwork. Protect from dust and fume contamination during start-up and building flush-out.
  - 2. This applies to the project in its entirety, however specifically includes elevator cabs. Protect from damage and evidence of use throughout project duration.
  - 3. This applies to the project in its entirety, however specifically includes existing site features such as natural drainage and wetlands as well as trees and foliage designated as existing to remain.
- B. The Contractor will correct any work or finish or equipment damaged or blemished during construction until Substantial Completion is issued, to the satisfaction of the Owner and Architect. Items or locations unable to be repaired will be replaced.
- C. After Substantial Completion, Contractor will be responsible for any damage or soiling caused by the Contractor or Contractor's Forces. Any and all such corrective work, replacement work, replacement of finishes or equipment replacement will be performed by the Contractor at no charge to the Owner.

END OF SECTION 01 76 00
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## SECTION 01 77 00 - CLOSE-OUT PROCEDURES

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:
  - 1. Inspection procedures.
- B. Closeout requirements for specific construction activities are included in the appropriate Sections in Divisions 2 through 50.

### **01 77 13 PRELIMINARY CLOSE-OUT REVIEWS**

#### 1.1 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List any exceptions in the request.
  - 1. AHCA survey of the project with approval to occupy the premises with patients.
  - 2. Local authority approval to occupy the premises.
  - 3. Advise Owner of pending insurance change-over requirements.
  - 4. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents in accordance with Section 01 78 00.
  - 5. Deliver tools, spare parts, extra stock, and similar items in accordance with Section 01 78 00.
  - 6. Make final change-over of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of change-over in security provisions.
  - 7. Complete start-up testing of systems in accordance with Section 01 75 00, and instruction of the Owner's operating and maintenance personnel in accordance with Section 01 79 00. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.
  - 8. Complete final clean up requirements, including touch-up painting in accordance with Section 01 74 00. Touch-up and otherwise repair and restore marred exposed finishes.
- B. Inspection Procedures: On receipt of a request for inspection, the Architect will either proceed with inspection or advise the Contractor of unfilled requirements. The Architect will prepare the Certificate of Substantial Completion following inspection, or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

### **01 77 16 FINAL CLOSE-OUT REVIEW**

#### 1.1 FINAL ACCEPTANCE

- A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List any exceptions in the

request.

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
  2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
  3. Submit a certified copy of the Architect's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance. The list must be endorsed and dated by the Architect.
  4. Submit consent of surety to final payment if applicable.
  5. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Reinspection Procedure: The Architect will reinspect the Work upon receipt of notice that the Work, including inspection list (Punch List) items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Architect.
1. Upon completion of reinspection, the Architect will prepare a certificate of final acceptance, or advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
  2. If necessary, reinspection will be repeated, at Contractors expense.

## **01 77 19 CLOSE-OUT REQUIREMENTS**

END OF SECTION 01 77 00
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## SECTION 01 78 00 - CLOSE-OUT SUBMITTALS

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:
  - 1. Submittal of Punch List.
  - 2. Submittal of Operating and Maintenance Manuals.
  - 3. Submittal of Final Survey.
  - 4. Submittal of Bonds.
  - 5. Submittal of Warranties.
  - 6. Submittal of Project Record Documents.
  - 7. Submittal of Spare Parts.
  - 8. Submittal of Extra Stock Materials.
- B. Closeout requirements for specific construction activities are included in the appropriate Sections in Divisions 2 through 50.
- C. Closeout will not be complete for purposes of Retainage Release until the requirements of this section are satisfied.

### **01 78 13 COMPLETION & CORRECTION LIST**

#### 1.1 PUNCH LIST

- A. Submit Contractor's and Architect's comprehensive Completion and Correction List; informally known as the 'Punch List.' Annotate action taken on each item.
  - 1. If multiple lists are made, submit a copy of each list.
  - 2. Completion and Corrections List is to be submitted to the Architect in accordance with Section 01 77 16.

### **01 78 23 OPERATION & MAINTENANCE DATA**

- A. Maintenance Manuals: Organize operating and maintenance data into suitable sets of manageable size. Bind properly indexed data in individual heavy-duty 2-inch, 3-ring vinyl-covered binders, with pocket folders for folded sheet information. Label appropriate identification on front and spine of each binder. Include the following types of information:
  - 1. Equipment Manuals.
  - 2. Emergency Instructions.
  - 3. Spare Parts List.
  - 4. Copies of Warranties.
  - 5. Wiring Diagrams.
  - 6. Preventative Maintenance Instructions.
  - 7. Inspection procedures.
  - 8. Shop Drawings and Product Data.

## 9. Fixture Lamping Schedule.

**01 78 29 FINAL SITE SURVEY**

- A. Upon construction completion, the contractor must submit to the owner, through the Architect a certified as-built survey that accurately shows the location of all site improvements, all utility mains, easements and right-of-ways as well as location and elevation of each building within the site.

**01 78 33 BONDS AND WARRANTIES**

## 1.1 SUMMARY

- A. This Section specifies general administrative and procedural requirements for bonds and warranties required by the Contract Documents, including manufacturer's standard warranties on products and special warranties:
1. Refer to the General Conditions for terms of the Contractor's special warranty of workmanship and materials.
  2. General closeout requirements are included in Section "Closeout Procedures."
  3. Specific requirements for warranties for the Work and products and installations that are specified to be warranted, are included in the individual Sections of Divisions 2 through 50.
  4. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.
- B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

## 1.2 WARRANTY REQUIREMENTS

- A. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.
- B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether or not the Owner has benefited from use of the Work through a portion of its anticipated useful service life.
- D. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.
1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.



- E. The Owner reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

### 1.3 SUBMITTALS

- A. Submit written warranties to the Architect prior to the date scheduled for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Architect.
- B. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect within fifteen days of completion of that designated portion of the Work.
- C. When a special warranty is required to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Architect for approval prior to final execution.
  - 1. Refer to individual Sections of Divisions 2 through 49 for specific content requirements, and particular requirements for submittal of special warranties.
- D. Form of Submittal: At Final Completion compile two copies of each required bond and warranty properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.
  - 1. When operating and maintenance manuals are required for warranted construction, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

## **01 78 39 PROJECT RECORD DOCUMENTS**

### 1.1 RECORD DOCUMENT SUBMITTALS

- A. General: Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Architect's reference during normal working hours.
- B. Record Drawings: Provide a reproducible set of mylar drawings of the Contract Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
  - 1. Correct record sets with reproducible pencil where applicable.
  - 2. Mark new information that is important to the Owner, but was not shown on Contract Drawings or Shop Drawings.
  - 3. Note related Change Order numbers where applicable.
  - 4. Organize complete record drawing submittal into manageable set, including all supporting documentation. If supporting documents cannot be attached to the drawing set in a clear, user-friendly manner, spiral bind with durable clear



plastic protective cover sheet with title page underneath and submit along with drawings.

- C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda, and one copy of other written construction documents such as Change Orders and modifications issued in printed form during construction. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and Product Data
1. Upon completion of the Work, submit record Specifications to the Architect for the Owner's records.

## **01 78 43 SPARE PARTS**

### 1.1 REQUIRED SPARE PARTS

- A. Spare parts required by other sections in this specification shall be packaged in a manner to prevent damage and facilitate orderly storage. They are to be clearly labeled for identification and location.
1. Provide spare parts in original manufacture's packaging when feasible. Otherwise package parts to prevent corrosion, deterioration, rusting, water or moisture damage or other damage during handling and storage.
- B. Neatly arrange packaged spare parts in a service area of the building or at Physical Plant before Final Acceptance of project.

### 1.2 SUBMITTAL

- A. Provide inventoried and itemized accounting with receipt of acceptance from the owner of all spare parts.

## **01 78 46 EXTRA STOCK MATERIALS**

### 1.1 SURPLUS MATERIALS

- A. Treat leftover materials similar to Spare Parts Section 01 78 43 above.
1. Leave materials in original manufacturer's packaging and labeling when possible. Package other materials for protection during handling and storage; clearly label as necessary.
- B. Neatly arrange packaged materials in a service area of the building or at Physical Plant before Final Acceptance of project.

### 1.2 SUBMITTAL

- A. Provide inventoried and itemized accounting with receipt of acceptance from the owner of all extra stock materials.

END OF SECTION 01 78 00
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# SECTION 01 79 00 - DEMONSTRATION AND TRAINING

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## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:
  - 1. Operating and maintenance training for the Owner.
- B. Closeout requirements for specific construction activities are included in the appropriate Sections in Divisions 2 through 49.

### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
  - 1. Submit a log chronicling training dates for all equipment and/or systems satisfying the requirements of Section 01 79 13.
  - 2. Master log must contain legible accounting information of the subject and owner's representative personnel involved in the training.
  - 3. Include a copy of this log in each of the Operations and Maintenance manuals.

## **01 79 13 BUILDING SYSTEMS**

### 1.4 SYSTEMS TRAINING REQUIREMENTS

- A. Operating and Maintenance Instructions: Arrange for each installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. If installers are not experienced in procedures, provide instruction by manufacturer's representatives. Include a detailed review of the following items:
  - 1. Maintenance manuals.
  - 2. Record documents.
  - 3. Lubricants.
  - 4. Fuels.
  - 5. Identification systems.
  - 6. Control sequences.
  - 7. Hazards.
  - 8. Cleaning.
  - 9. Warranties and bonds.
  - 10. Maintenance agreements and similar continuing commitments.
- B. As part of instruction for operating equipment, demonstrate the following procedures:
  - 1. Start-up.
  - 2. Shutdown.
  - 3. Emergency operations.
  - 4. Noise and vibration adjustments.

5. Safety procedures.
6. Economy and efficiency adjustments.
7. Effective energy utilization.

END OF SECTION 01 79 00

## SECTION 03 33 00 - ARCHITECTURAL CONCRETE

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all decorative architectural stamped concrete indicated on drawings and specified herein.

#### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
  - a. Preparation instructions and recommendations.
  - b. Storage and handling requirements and recommendations.
  - c. Installation methods.

#### 1.4 QUALITY ASSURANCE

- A. Inserts and Anchorages: Furnish inserts and anchoring devices that must be set in concrete; coordinate delivery with other work to avoid delay.
- B. Installer Qualifications:
  - a. The Installer shall provide a qualified foreman or supervisor who has a minimum of three years experience with imprinted and textured concrete, and who has successfully completed at least five Bomanite imprinted concrete installations of high quality and similar in scope to that required.
  - b. The concrete is cast in place, on the job site, by trained and experienced workmen who shall be employed by a firm that is a Bomanite Imprint Licensed Contractor.
  - c. Perform work in accordance with ACI 301, 302, 303.
  - d. Obtain materials from same source throughout.
  - e. Conform to applicable codes and regulations for paving work performed within the public right of way.
- C. Ready-Mixed Supplier Qualifications: Supplier of ready-mixed concrete products shall comply with ASTM C 94 requirements for production facilities and equipment. Supplier shall be certified according to NCRMA's "Certification of Ready Mixed Concrete Production Facilities Quality Control Manuals."
- D. Mock-Up: Provide field samples of surface colors textures and patterns specified for architect approval prior to beginning work, 48 inches by 48 inches (1219 mm by 1219 mm) in size illustrating paving finishes.
  - a. Finish areas designated by Architect.
  - b. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
  - c. Refinish mock-up area as required to produce acceptable work.

#### 1.5 DELIVERY, STORAGE AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

#### 1.6 PROJECT CONDITIONS

- A. Do not place pavement when base surface or ambient temperature is less than 40 degrees F (4 degrees C) or if base surface is wet or frozen.
- B. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

#### 1.7 WARRANTY

- A. All materials manufactured by The Bomanite Company are warranted to be of uniform quality within manufacturing tolerances.
- B. Since control is not exercised over their use, no warranty, expressed or implied, is made as to the effects of such use. The Bomanite Company's obligation under this warranty shall be limited to refunding the purchase price of that portion of the material proven to be defective.

### PART 2 - MATERIALS

#### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: The Bomanite Company; 8789 Auburn Folsom Rd #108, Granite Bay, CA 95746. ASD. Tel: (303) 369-1115. Fax: (303) 291-0282. Email: info@bomanite.com. Web: <http://www.bomanite.com>.
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 25 00.

#### 2.2 SYSTEM

- A. Supporting Structure:
  - 1. Mix Design:
    - a. Mix and deliver concrete in accordance with ASTM C94, Alternate 2. Refer to Drawings for concrete strength requirements.
    - b. Use accelerating admixtures containing no calcium chloride in cold weather only when approved by testing laboratory. Use of admixtures will not relax cold weather placement requirements.
    - c. Use set retarding admixtures during hot weather only when approved by testing laboratory.
    - d. Add air entraining agent to concrete mix for concrete work exposed to exterior, in amounts of 4 to 7 percent of total concrete volume or as otherwise recommended by testing laboratory.
    - e. Add coloring admixture where scheduled in quantities recommended by coloring admixture manufacturer to achieve selected color.
    - f. Add polypropylene fiber reinforcement at point of concrete batching at rate scheduled.
    - g. Maintain water cement ratio to produce a minimum of 3 to maximum of 5 inch slump.
    - h. Use of calcium chloride is strictly prohibited.
  - 2. Subgrade:
    - a. Refer to Division 31 for subgrade preparation.

- b. Refer to drawings for scope of subgrade preparation.
3. Reinforcement:
  - a. Fiber Reinforcement: ASTM C948, collated, fibrillated, 3/4 inch (19 mm) long virgin polypropylene fibers, equal to BOMANITE Fibers by The Bomanite Company.
  - b. Reinforcing Steel: ASTM A615; Grade 60; deformed billet steel bars, uncoated finish.
  - c. Welded Steel Wire Fabric: Plain type, ANSI/ASTM A185; in flat sheets; uncoated finish.
- B. Color:
  1. Integral Color:
    - a. Integral Coloring Admixture: Integral Color by The Bomanite Company, synthetic oxide pigment, meeting ASTM C979 and C494.
      - 1) Type A, cement dispersing/water reducing.
      - 2) Type D, set retarding/water reducing.
      - 3) Color to match Architect's sample.
  2. Color Hardener:
    - a. Bomanite Color Hardener: The concrete shall be colored with Bomanite Color Hardener. Color(s) as scheduled. Refer to Drawings.
- C. Tools Selection:
  1. Imprinting Tools:
    - a. Mat type imprinting tools for texturing freshly placed concrete, in pattern/texture as selected by Architect or as scheduled.
    - b. Imprinting tools used in the execution of this project shall be manufactured by The Bomanite Company.
  2. Bomanite Patterns: Design(s) as scheduled. Refer to Drawings.
  3. Bomacron Textures and Patterns: Design(s) as scheduled. Refer to Drawings.
- D. Release Agent Selection:
  1. Powdered Release Agent. Color(s) as scheduled. Refer to Drawings.
    - a. Bomanite Release Agent.
  2. Liquid Release Agent; [Clear color: Bomanite Liquid Release is a clear, non-pigmented solvent with a pleasant bubble gum scent. Bomanite Liquid Release is used for releasing Bomacron imprinting tools from the concrete surfaces and Bomanite Thin-Set, while at the same time serving as an alternative to Bomanite Release Agent when pigmented powders are prohibitive. Bomanite Liquid Release can be utilized for both interior and exterior applications, providing a fast-track imprinting option. Bomanite Liquid Release will not leave a residue on the imprinted surface and can be used in conjunction with Bomanite Chemical Stain, Bomanite Con-Color and Bomanite Topical Stain. Delete if not required.]
    - a. Bomanite Liquid Release
- E. Secondary Antique or Coloration:
  1. Topical Stain: Color(s) as scheduled. Refer to Drawings.
    - a. Bomanite Topical Stain.
  2. Chemical Stain: Color(s) as scheduled. Refer to Drawings; [Bomanite Chemical Stains are water and acid based solutions of metallic salts formulated to "color etch" new or existing concrete surfaces. These penetrating solutions react with cements to form permanent, insoluble precipitants of varying colors.

Bomanite Chemical Stains are intended for use on horizontal concrete and other masonry mediums. Bomanite Chemical Stains produce a mottling of color tones that are directly affected by the substrate color and porosity. Variations and inconsistencies in color are expected and are usually the reason for using this coloring technique. Bomanite Chemical Stain.]

- F. Cure Agent:
  - 1. Membrane Color Cure: Color(s) as scheduled. Refer to Drawings.
    - a. Curing Compound: Meeting ASTM C309, water based emulsion.
      - 1) BOMANITE Color Cure by The Bomanite Company.
      - 2) BOMANITE Clear Cure by The Bomanite Company.
      - 3) BOMANITE Clear Cure Matte Finish by The Bomanite Company.
  - 2. Silicate Cure & Densifier:
    - a. The concrete shall receive a cure treatment utilizing Bomanite Con Shield.
- G. Sealing and Finish Coatings:
  - 1. Colorwax by The Bomanite Company:
  - 2. Hydrolock by The Bomanite Company.
  - 3. VOC II by The Bomanite Company.

## PART 3 - EXECUTION

### 3.1 INSPECTION

- A. Verify compacted subgrade is ready to support paving and imposed loads, free of frost, smooth and properly compacted.
- B. Verify gradients and elevations of base are correct, and proper drainage has been provided so water does not stand in the area to receive paving.
- C. Beginning of installation means acceptance of existing conditions.

### 3.2 PREPARATION

- A. If vapor retarding membrane is not used, moisten base to minimize absorption of water from fresh concrete.
- B. Notify Architect and testing laboratory, minimum 24 hours prior to commencement of concreting operations.

### 3.3 FORMING

- A. Construct and remove forms in accordance with ACI 347.
- B. Place and secure forms to correct location, dimension, and profile. Adequately brace to withstand loads applied during concrete placement.
- C. Assemble formwork to permit easy stripping and dismantling without damaging concrete.
- D. Place joint fillers vertical in position, in straight lines. Secure to formwork during concrete placement.

### 3.4 INSERTS AND ACCESSORIES

- A. Make provisions for installation of inserts, accessories, anchors, and sleeves.
- B. Place vapor retarder continuously over subgrade. Overlap joints a minimum of 12 inches (305 mm) and seal with a joint tape of same permeance as sheeting material.

### 3.5 REINFORCEMENT

- A. Accurately place reinforcement in middle of slabs-on-grade.
- B. Discontinue every other bar of reinforcement at control and expansion joints.
- C. Place reinforcement to achieve slab and curb alignment as detailed.



- D. Steel shall be free of rust, mill scale, dirt and oil.
- E. Provide doweled joints at interruptions of concrete with one end of dowel set in capped sleeve to allow longitudinal movement. Provide support at both ends of dowels.
- F. Support reinforcing on bar chairs. Securely saddle tie at intersections. Rigidly secure in place to minimize displacement during concrete pour.

### 3.6 JOINTS

- A. Intentional stoppage of concrete placing shall be at planned location of either an expansion joint or contraction joint.
- B. When stoppage occurs at an expansion joint, install joint assembly with a bulkhead of sufficient section drilled to accommodate required dowels. Provide expansion joints at maximum 40 feet (12 m) o.c.e.w. in parking lots, 40 feet (12 m) o.c. for curbs and maximum 20 feet (6 m) o.c.e.w. at pedestrian paving.
- C. When stoppage occurs at a contraction joint, install sheet metal joint assembly of sufficient section to prevent deflection, shaped to concrete section. Drill bulkhead to permit continuation of longitudinal reinforcing steel through construction joint.
- D. Stoppage at Unintentional Location.
  - 1. Immediately upon unintended stoppage of concrete placing, place available concrete to a line and install bulkhead perpendicular to surface of pavement and at required elevation. Place and finish concrete to this bulkhead. Remove and dispose of concrete remaining on subgrade ahead of bulkhead.
  - 2. When placing of concrete is resumed before concrete has set to extent that concrete will stand on removal of bulkhead, new concrete shall be rodded with the first; otherwise, carefully preserve joint face.
  - 3. Provide a joint seal space at edges created by a construction joint of this type shall have a joint seal space as detailed on Drawings.
- E. Provide sawed contraction joints in vehicular paving and curbs spaced as detailed on Drawings, but in no case greater than 20 feet (6 m) o.c. spacing.
  - 1. Saw joints after completion of finishing operations as soon as concrete has hardened to extent necessary to prevent revealing of joint or damage to adjacent concrete surfaces.
  - 2. Saw joints same day that concrete is placed except that sawing of joints in concrete placed late in day may be delayed until morning of following day.
  - 3. In any event, saw joints within 18 hours after placing concrete.
  - 4. Use a power-driven concrete saw made especially for sawing concrete and maintain in good operating condition.
  - 5. Saw cut shall be to a depth equal to 1/4 of slab thickness, minimum one inch (25 mm) depth.
  - 6. Align joints in vehicular paving with joints in adjacent pedestrian paving.
  - 7. Cut joints through curbs at right angles to back of curb.
- F. Place joint filler between paving components and building or other appurtenances.
- G. Provide scored joints in sidewalks and plazas to a depth of 1/4 the slab thickness, and at intervals as indicated, but in no case spaced greater than width of walk.

### 3.7 PLACING CONCRETE

- A. Place concrete in accordance with ACI 301, 302, and 304. Deposit concrete so that specified slab thickness will be obtained after vibrating and finishing operations. Minimize handling to prevent segregation. Consolidate concrete by suitable means to



prevent formation of voids or honeycombs. Exercise care to prevent disturbance of forms and reinforcing and damage to vapor retarder. Place concrete to lines and levels shown, properly sloped to drain as designed.

1. Hot Weather Placement: ACI 305.
  2. Cold Weather Placement: ACI 306.
  3. Ensure reinforcement, inserts, embedded parts, and formed joints are not disturbed during concrete placement.
  4. Place concrete continuously between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.
- B. After consolidating and screeding, float concrete to gradients indicated. Use a straight edge to level and test surface in longitudinal direction to required grade. Finish edges to provide a smooth dense surface with 1/8 inch (3 mm) radius.
- C. Apply Bomanite Color Hardener prior to application of pattern. Apply at rate recommended by manufacturer, evenly to the surface of the fresh concrete by the dry-shake method. Applied in two or more shakes, floated after each shake and troweled only after the final floating.
- D. While concrete is still in its plastic state, apply the tool/texture pattern to the surface of the concrete. Properly tamp tools into the surface to achieve the required texture, with uniformity of pattern and depth of stamping. Utilize bond breaker to keep tools from sticking to fresh concrete.
1. Release material shall be applied to the troweled surface prior to imprinting.
- E. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.
- F. Apply secondary stain treatment per approved mock-up or as scheduled to achieve design.
- G. Apply finish sealer per approved mock-up or as specified to achieve design required.
- 3.8 FIELD QUALITY CONTROL
- A. Field inspection and testing will be performed under provisions of Division 1.
  - B. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

#### PART 4 - PROTECTION

- A. Immediately after placement, protect concrete under provisions of Division 1 from premature drying, excessive hot or cold temperatures, and mechanical injury.

<b>END OF SECTION 03 33 00</b>
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## SECTION 04 22 00 - CONCRETE UNIT MASONRY

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes unit masonry assemblies consisting of the following:
  - 1. Concrete masonry units (CMUs).
  - 2. Mortar and grout.
  - 3. Reinforcing steel.
  - 4. Masonry joint reinforcement.
  - 5. Ties and anchors.
  - 6. Miscellaneous masonry accessories.
- B. Related Sections include the following:
  - 1. Division 07 Section "Damp Proofing" for dampproofing applied to unit masonry assemblies.
  - 2. Division 07 Section "Sheet Metal Flashing and Trim" for exposed sheet metal flashing.
  - 3. Division 07 Section "Penetration Firestopping" for firestopping at openings in masonry walls.
  - 4. Division 07 Section "Fire-Resistive Joint Systems" for fire-resistive joint systems at heads of masonry walls.
  - 5. Division 07 Section "Joint Sealants" for sealing control and expansion joints in unit masonry.
- C. Products furnished, but not installed, under this Section include the following:
  - 1. Anchor sections of adjustable masonry anchors for connecting to structural frame, installed under Division 05 Section "Structural Steel Framing."
- D. Products installed, but not furnished, under this Section include the following:
  - 1. Manufactured reglets in masonry joints for metal flashing, furnished under Division 07 Section "Sheet Metal Flashing and Trim."
- E. Allowances: The following are included under the allowances indicated as specified in Division 01 Section "Allowances":
  - 1. Preconstruction, source quality-control and field quality-control testing under Testing and Inspecting Allowance.

#### 1.3 DEFINITIONS

- A. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

#### 1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For the following:
  - 1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.
  - 2. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement." Show elevations of reinforced walls.

- C. Samples for Verification: For each type and color of the following:
  - 1. Accessories embedded in masonry.
- D. Qualification Data: For testing agency.
- E. Material Certificates: Include statements of material properties indicating compliance with requirements including compliance with standards and type designations within standards. Provide for each type and size of the following:
  - 1. Masonry units.
    - a. Include material test reports substantiating compliance with requirements.
    - b. For masonry units used in structural masonry, include data and calculations establishing average net-area compressive strength of units.
  - 2. Cementitious materials. Include brand, type, and name of manufacturer.
  - 3. Preblended, dry mortar mixes. Include description of type and proportions of ingredients.
  - 4. Grout mixes. Include description of type and proportions of ingredients.
  - 5. Reinforcing bars.
  - 6. Joint reinforcement.
  - 7. Anchors, ties, and metal accessories.
- F. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.
  - 1. Include test reports, per ASTM C 780, for mortar mixes required to comply with property specification.
  - 2. Include test reports, per ASTM C 1019, for grout mixes required to comply with compressive strength requirement.

#### 1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent agency qualified according to ASTM C 1093 for testing indicated, as documented according to ASTM E 548.
- B. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, through one source from a single manufacturer for each product required.
- C. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from a single manufacturer for each cementitious component and from one source or producer for each aggregate.
- D. Preconstruction Testing Service: Owner will engage a qualified independent testing agency to perform preconstruction testing indicated below. Payment for these services will be made by Owner. Retesting of materials that fail to meet specified requirements shall be done at Contractor's expense.
  - 1. Concrete Masonry Unit Test: For each type of unit required, per ASTM C 140.
  - 2. Mortar Test (Property Specification): For each mix required, per ASTM C 780.
  - 3. Grout Test (Compressive Strength): For each mix required, per ASTM C 1019.
- E. Fire-Resistance Ratings: Where indicated, provide materials and construction identical to those of assemblies with fire-resistance ratings determined per ASTM E 119 by a testing and inspecting agency, by equivalent concrete masonry thickness, or by other means, as acceptable to authorities having jurisdiction.

- F. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Deliver preblended, dry mortar mix in moisture-resistant containers designed for lifting and emptying into dispensing silo. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in a metal dispensing silo with weatherproof cover.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

#### 1.7 PROJECT CONDITIONS

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
  - 1. Extend cover a minimum of 24 inches down both sides and hold cover securely in place.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least 3 days after building masonry walls or columns.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
  - 1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
  - 2. Protect sills, ledges, and projections from mortar droppings.
  - 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
  - 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
- D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
  - 1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and above and will remain so until masonry has dried, but not less than 7 days after completing cleaning.
- E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

## PART 2 - PRODUCTS

## 2.1 MASONRY UNITS, GENERAL

- A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to exceed tolerances and to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects, including dimensions that vary from specified dimensions by more than stated tolerances, will be exposed in the completed Work or will impair the quality of completed masonry.

## 2.2 CONCRETE MASONRY UNITS (CMUs)

- A. Shapes: Provide shapes indicated and as follows:
  - 1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
  - 2. Provide square-edged units for outside corners, unless otherwise indicated.
- B. Concrete Masonry Units: ASTM C 90.
  - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 1900 psi.
  - 2. Weight Classification: Normal weight.
  - 3. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.

## 2.3 CONCRETE AND MASONRY LINTELS

- A. General: Provide either concrete or masonry lintels, at Contractor's option, complying with requirements below.
- B. Concrete Lintels: Precast units made from concrete matching concrete masonry units in color, texture, and compressive strength and with reinforcing bars indicated or required to support loads indicated. Cure precast lintels by same method used for concrete masonry units.
- C. Concrete Lintels: Precast or formed-in-place concrete lintels complying with requirements in Division 03 Section "Cast-in-Place Concrete."
- D. Masonry Lintels: Prefabricated or built-in-place masonry lintels made from bond beam concrete masonry units with reinforcing bars placed as indicated and filled with coarse grout. Cure precast lintels before handling and installing. Temporarily support built-in-place lintels until cured.

## 2.4 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207, Type S.
- D. Aggregate for Mortar: ASTM C 144.
  - 1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.

2. For joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.

E. Aggregate for Grout: ASTM C 404.

F. Water: Potable.

## 2.5 REINFORCEMENT

A. Uncoated Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60.

B. Masonry Joint Reinforcement, General: ASTM A 951.

1. Interior Walls: Hot-dip galvanized, carbon steel.
2. Exterior Walls: Hot-dip galvanized, carbon steel.
3. Wire Size for Side Rods: W2.8 or 0.188-inch diameter.
4. Wire Size for Cross Rods: W2.8 or 0.188-inch diameter.
5. Wire Size for Veneer Ties: W2.8 or 0.188-inch diameter.
6. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.
7. Provide in lengths of not less than 10 feet.

C. Masonry Joint Reinforcement for Single-Wythe Masonry: Either ladder or truss type with single pair of side rods.

## 2.6 TIES AND ANCHORS

A. Materials: Provide ties and anchors specified in subsequent paragraphs that are made from materials that comply with eight subparagraphs below, unless otherwise indicated.

1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82; with ASTM A 153/A 153M, Class B-2 coating.
2. Stainless-Steel Wire: ASTM A 580/A 580M, Type 304.
3. Galvanized Steel Sheet: ASTM A 653/A 653M, Commercial Steel, G60 zinc coating.
4. Steel Sheet, Galvanized after Fabrication: ASTM A 1008/A 1008M, Commercial Steel, hot-dip galvanized after fabrication to comply with ASTM A 153/A 153M.
5. Stainless-Steel Sheet: ASTM A 666, Type 304.

B. Corrugated Metal Ties: Metal strips not less than 7/8 inch wide with corrugations having a wavelength of 0.3 to 0.5 inch and an amplitude of 0.06 to 0.10 inch made from steel sheet, galvanized after fabrication not less than 0.053 inch thick. Ties made from galvanized steel sheet may be used in interior walls, unless otherwise indicated.

C. Wire Ties, General: Unless otherwise indicated, size wire ties to extend at least halfway through veneer but with at least 5/8-inch cover on outside face. Outer ends of wires are bent 90 degrees and extend 2 inches parallel to face of veneer.

D. Adjustable Anchors for Connecting to Structure: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.

1. Anchor Section for Welding to Steel Frame: Crimped 1/4-inch- diameter, hot-dip galvanized steel wire.
2. Tie Section for Steel Frame: Triangular-shaped wire tie, sized to extend within 1 inch of masonry face, made from 0.25-inch- diameter, hot-dip galvanized steel wire.



3. Connector Section for Concrete: Dovetail tabs for inserting into dovetail slots in concrete and attached to tie section; formed from 0.053-inch-thick, steel sheet, galvanized after fabrication.
4. Tie Section for Concrete: Corrugated metal ties with dovetail tabs for inserting into dovetail slots in concrete and sized to extend to within 1 inch of masonry face.

#### 2.7 MISCELLANEOUS ANCHORS

- A. Anchor Bolts: Headed steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153/A 153M, Class C; of dimensions indicated.

#### 2.8 MISCELLANEOUS MASONRY ACCESSORIES

- A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.
- B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D 2000, Designation M2AA-805 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.
- C. Cavity Drainage Material: Free-draining mesh, made from polymer strands that will not degrade within the wall cavity.
  1. Provide one of the following configurations:
    - a. Strips, full-depth of cavity and 10 inches wide, with dovetail shaped notches 7 inches deep that prevent mesh from being clogged with mortar droppings.
    - b. Strips, not less than 3/4 inch thick and 10 inches wide, with dimpled surface designed to catch mortar droppings and prevent weep holes from being clogged with mortar.
    - c. Sheets or strips full depth of cavity and installed to full height of cavity.
    - d. Sheets or strips not less than 3/4 inch thick and installed to full height of cavity with additional strips 4 inches high at weep holes and thick enough to fill entire depth of cavity and prevent weep holes from being clogged with mortar.
- D. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells with loops for holding reinforcing bars in center of cells. Units are formed from 0.142-inch steel wire, hot-dip galvanized after fabrication. Provide units with either two loops or four loops as needed for number of bars indicated.

#### 2.9 MASONRY CLEANERS

- A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

#### 2.10 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
  - 1. Do not use calcium chloride in mortar or grout.
  - 2. Limit cementitious materials in mortar to portland cement and lime.
- B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
- C. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.
- D. Mortar for Unit Masonry: Comply with ASTM C 270, Property Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.
  - 1. For masonry below grade or in contact with earth, use Type M or S.
  - 2. For reinforced masonry, use Type S.
  - 3. For mortar parge coats, use Type S.
  - 4. For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; for interior non-load-bearing partitions; and for other applications where another type is not indicated, use Type N.
  - 5. For interior non-load-bearing partitions, Type O may be used instead of Type N.
- E. Grout for Unit Masonry: Comply with ASTM C 476.
  - 1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
  - 2. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143/C 143M.

## 2.11 SOURCE QUALITY CONTROL

- A. Owner will engage a qualified independent testing agency to perform source quality-control testing indicated below:
  - 1. Payment for these services will be made by Owner.
  - 2. Retesting of materials failing to comply with specified requirements shall be done at Contractor's expense.
- B. Concrete Masonry Unit Test: For each type of unit furnished, per ASTM C 140.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
  - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
  - 2. Verify that foundations are within tolerances specified.
  - 3. Verify that reinforcing dowels are properly placed.



- B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION, GENERAL

- A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.
- B. Build chases and recesses to accommodate items specified in this and other Sections.
- C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.
- D. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.
  - 1. Mix units from several pallets or cubes as they are placed.
- F. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.
- G. Comply with construction tolerances in ACI 530.1/ASCE 6/TMS 602 and with the following:
  - 1. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
  - 2. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet, or 1/2 inch maximum.
  - 3. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
  - 4. For exposed bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch. Do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.
  - 5. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch. Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch.
  - 6. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch except due to warpage of masonry units within tolerances specified for warpage of units.
  - 7. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch from one masonry unit to the next.

### 3.3 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns,

and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 4-inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- D. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.
- E. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.
- F. Fill space between steel frames and masonry solidly with mortar, unless otherwise indicated.
- G. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core.
- H. Fill cores in hollow concrete masonry units with grout 24 inches under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.
- I. Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above, unless otherwise indicated.
  - 1. Install compressible filler in joint between top of partition and underside of structure above.
  - 2. Fasten partition top anchors to structure above and build into top of partition. Grout cells of CMUs solidly around plastic tubes of anchors and push tubes down into grout to provide 1/2-inch clearance between end of anchor rod and end of tube. Space anchors 48 inches o.c., unless otherwise indicated.
  - 3. Wedge non-load-bearing partitions against structure above with small pieces of tile, slate, or metal. Fill joint with mortar after dead-load deflection of structure above approaches final position.
  - 4. At fire-rated partitions, treat joint between top of partition and underside of structure above to comply with Division 07 Section "Fire-Resistive Joint Systems."

### 3.4 MORTAR BEDDING AND JOINTING

- A. Lay hollow concrete masonry units as follows:
  - 1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
  - 2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
  - 3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
  - 4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.

- B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness, unless otherwise indicated.
- D. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint), unless otherwise indicated.

### 3.5 MASONRY JOINT REINFORCEMENT

- A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.
  - 1. Space reinforcement not more than 16 inches o.c.
  - 2. Space reinforcement not more than 8 inches o.c. in foundation walls and parapet walls.
  - 3. Provide reinforcement not more than 8 inches above and below wall openings and extending 12 inches beyond openings.
    - a. Reinforcement above is in addition to continuous reinforcement.
- B. Interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.
- C. Provide continuity at wall intersections by using prefabricated T-shaped units.
- D. Provide continuity at corners by using prefabricated L-shaped units.
- E. Cut and bend reinforcing units as directed by manufacturer for continuity at corners, returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

### 3.6 ANCHORING MASONRY TO STRUCTURAL MEMBERS

- A. Anchor masonry to structural members where masonry abuts or faces structural members to comply with the following:
  - 1. Provide an open space not less than 1/2 inch in width between masonry and structural member, unless otherwise indicated. Keep open space free of mortar and other rigid materials.
  - 2. Anchor masonry to structural members with anchors embedded in masonry joints and attached to structure.
  - 3. Space anchors as indicated, but not more than 24 inches o.c. vertically and 36 inches o.c. horizontally.

### 3.7 CONTROL AND EXPANSION JOINTS

- A. General: Install control and expansion joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.
- B. Form control joints in concrete masonry as follows:
  - 1. Install preformed control-joint gaskets designed to fit standard sash block.
  - 2. Install temporary foam-plastic filler in head joints and remove filler when unit masonry is complete for application of sealant.
- C. Provide horizontal, pressure-relieving joints by either leaving an air space or inserting a compressible filler of width required for installing sealant and backer rod specified in Division 07 Section "Joint Sealants," but not less than 3/8 inch.

1. Locate horizontal, pressure-relieving joints beneath shelf angles supporting masonry.
- 3.8 LINTELS
- A. Provide concrete or masonry lintels where shown and where openings of more than 12 inches for brick-size units and 24 inches for block-size units are shown without structural steel or other supporting lintels.
  - B. Provide minimum bearing of 8 inches at each jamb, unless otherwise indicated.
- 3.9 FLASHING, WEEP HOLES, CAVITY DRAINAGE, AND VENTS
- A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated. Install vents at shelf angles, ledges, and other obstructions to upward flow of air in cavities, and where indicated.
  - B. Install reglets and nailers for flashing and other related construction where they are shown to be built into masonry.
  - C. Place cavity drainage material in cavities to comply with configuration requirements for cavity drainage material in Part 2 "Miscellaneous Masonry Accessories" Article.
- 3.10 REINFORCED UNIT MASONRY INSTALLATION
- A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.
    1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
    2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other temporary loads that may be placed on them during construction.
  - B. Placing Reinforcement: Comply with requirements in ACI 530.1/ASCE 6/TMS 602.
  - C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
    1. Comply with requirements in ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
    2. Limit height of vertical grout pours to as indicated on drawings.
- 3.11 FIELD QUALITY CONTROL
- A. Inspectors: Owner will engage qualified independent inspectors to perform inspections and prepare reports. Allow inspectors access to scaffolding and work areas, as needed to perform inspections.
    1. Place grout only after inspectors have verified compliance of grout spaces and grades, sizes, and locations of reinforcement.
  - B. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections indicated below and prepare test reports:
    1. Payment for these services will be made by Owner.
    2. Retesting of materials failing to comply with specified requirements shall be done at Contractor's expense.

- C. Testing Frequency: One set of tests for each 5000 sq. ft. of wall area or portion thereof.
- D. Concrete Masonry Unit Test: For each type of unit provided, per ASTM C 140.
- E. Mortar Test (Property Specification): For each mix provided, per ASTM C 780. Test mortar for compressive strength.
- F. Grout Test (Compressive Strength): For each mix provided, per ASTM C 1019.

### 3.12 PARGING

- A. Parge exterior faces of below-grade masonry walls, where indicated, in 2 uniform coats to a total thickness of 3/4 inch. Dampen wall before applying first coat and scarify first coat to ensure full bond to subsequent coat.
- B. Use a steel-trowel finish to produce a smooth, flat, dense surface with a maximum surface variation of 1/8 inch per foot. Form a wash at top of parging and a cove at bottom.
- C. Damp-cure parging for at least 24 hours and protect parging until cured.

### 3.13 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
  - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
  - 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
  - 3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
  - 4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
  - 5. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.
  - 6. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

### 3.14 MASONRY WASTE DISPOSAL

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.

- B. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.
1. Crush masonry waste to less than 4 inches in each dimension.
  2. Mix masonry waste with at least two parts of specified fill material for each part of masonry waste. Fill material is specified in Division 31 Section "Earth Moving."
  3. Do not dispose of masonry waste as fill within 18 inches of finished grade.
- C. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 04 20 00
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## SECTION 04 73 00 – CULTURED STONE VENEER

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### PART 1 - GENERAL

#### 1.01 SUMMARY

A. Section Includes: Cultured stone veneer, cultured stone trim & application materials.

B. Related Sections:

1. Division 04 Concrete Unit Masonry
2. Division 07 Section specifying flashing materials.
3. Division 09 Section specifying portland cement plastering.

#### 1.02 REFERENCES

A. American Concrete Institute (ACI).

B. American Society for Testing and Materials (ASTM):

1. ASTM C 39, Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
2. ASTM C 67, Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile.
3. ASTM C 177, Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
4. ASTM C 192, Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory.
5. ASTM C 270, Standard Specification for Mortar for Unit Masonry.
6. ASTM C 482, Standard Test Method for Bond Strength of Ceramic Tile to Portland Cement.
7. ASTM D 226, Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.

C. Building Materials Evaluation Commission.

D. International Code Council (ICC):

1. ES Report.
2. UBC Standard No. 14-1, Kraft Waterproof Building Paper.

E. Masonry Standards Joint Committee (MSJC) of The Masonry Society.



## F. Underwriters Laboratories (UL):

1. Listing in Material Approval Guide.
2. UL 723, Standard for Safety for Surface Burning Characteristics of Building Materials.

## 1.03 SUBMITTALS

## A. Reference Section 01 33 00–Submittal Procedures; submit following items:

1. Product Data: Manufactured masonry and application materials including mortar color charts, and weather resistant barrier.
2. Samples: Panel containing full-size samples of specified manufactured masonry showing full range of colors and textures complete with specified mortar.
  - a. Actual size of masonry sample approximately 12 by 12 inches (300 by 300 mm).
3. Quality Assurance/Control Submittals:
  - a. Qualifications:
    - 1) Proof of manufacturer qualifications.
    - 2) Proof of installer qualifications.
  - b. Certificates: ICC-ES Report.
  - c. Test Reports for physical properties.
  - d. Manufacturer's Installation Instructions.

## B. Closeout Submittals: Reference Section 01 78 00–Closeout Submittals; submit following items:

1. Maintenance Instructions.
2. Special Warranties.

## 1.04 QUALITY ASSURANCE

## A. Qualifications:

1. Manufacturer Qualifications:
  - a. Minimum five years experience in producing manufactured masonry.
  - b. Member of following organizations:
    - 1) MSJC.
    - 2) ACI.



## 3) ASTM.

2. Installer Qualifications: Company with documented experience in installation of manufactured masonry including minimum 5 projects within 400 mile radius of this Project.

## B. Certifications:

1. Current ICC-ES Report.
2. UL: Listing in Material Approval Guide.
3. Building Materials Evaluation Commission.

## C. Field Samples: Provide in a location selected by Architect showing representative sample of installed product including penetration and termination details, corner detail, and mortar color and tooling.

1. Reference Section 01 45 00 – Quality Control.
2. Minimum Size: [4 by 4 feet]
3. Approved field samples may remain as part of completed Work.

## 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Reference Section 01 66 00–Product Storage and Handling Requirements.
- B. Follow manufacturer’s instructions.
- C. Store moisture-sensitive materials in weather protected enclosures.

## 1.06 PROJECT/SITE CONDITIONS

- A. Environmental Requirements: Maintain materials and ambient temperature in area of installation at minimum 40 degrees F (4 degrees C) prior to, during, and for 48 hours following installation.

## 1.07 WARRANTY

- A. Special Warranty: Provide manufacturer's standard limited warranty against defects in manufacturing for a period of 50 years following date of [Substantial Completion] [Final Acceptance].

## 1.08 MAINTENANCE

- A. Extra Materials: Furnish extra manufactured stone material in a variety of shapes and sizes in quantity equal to three percent of the installed stone.

## PART 2 - PRODUCTS

## 2.01 MANUFACTURER

- A. (Basis of Design) Owens Corning  
One Owens Corning Parkway  
Toledo, OH 43659
- Tel: (800) 255-1727  
Fax: (866) 213-3037  
Website: [www.culturedstone.com](http://www.culturedstone.com)

1. Manufacturer's Distributor:

- B. GAF
- C. Coronado Stone Products
- D. El Dorado Stone

## 2.02 MANUFACTURED MASONRY MATERIALS

- A. Cultured Stone® Textures:

1. Single Texture: Southern LedgeStone, Rustic 2055

- B. Architectural Trim:

1. Watertable/Sill—Stone Textured:
  - a. Color: [MOCHA CSV-444968]
  - b. Size: 2-1/2 by 18 inches.
  - c. Provide sloped top surface and drip edge.
2. Receptacle Stones—Raised Chamfered Edge:
  - a. Color: [Taupe]
  - b. Size: 6 by 8 by 1-1/2 inches
  - c. Provide single receptacle 2 by 4 by 1-1/2" UL approved metal extension box.

- C. Manufactured Masonry Physical Properties:

1. Compressive Strength: ASTM C 192 and ASTM C39, 1800 psi (12.4 MPa), 5 specimen average, 1500 psi (10.3 MPa) minimum for individual unit.
2. Bond Between Stone Unit, Type S Mortar, and Backing: ASTM C 482, 50 psi (345 kPa).
3. Thermal Resistance: ASTM C 177, R-factor, 0.355 per inch (25.4 mm) of thickness.
4. Freeze/Thaw: ASTM C 67, no disintegration and less than 3 percent weight loss.

5. Fire Hazard Test, UL 723:
  - a. Flame spread: 0.
  - b. Smoke Development: 0.
6. Maximum Veneer Unit Weight: 15 psf (73 kg/m<sup>2</sup>).

### 2.03 RELATED MATERIALS

- A. Weather Resistant Barrier: [Kraft waterproof building paper, UBC Standard No. 14-1] [No. 15, Type I, asphalt saturated felt, ASTM D 226].
- B. Metal Lath: [2.5 lb galvanized expanded metal lath] [18 gauge woven wire mesh] [3.4 lb galvanized expanded rib lath].
- C. Mortar: Premixed Type N or mortar mixed using components and proportions following manufactured masonry manufacturer's installation instructions. Comply with ASTM C 270.
  1. Mortar Color: Iron oxide pigments.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates upon which manufactured masonry will be installed.
- B. Coordinate with responsible entity to correct unsatisfactory conditions.
- C. Commencement of work by installer is acceptance of substrate conditions.

### 3.02 PREPARATION

- A. Protection: Prevent work from occurring on the opposite of walls to which manufactured masonry is applied during and for 48 hours following installation of the manufactured masonry.
- B. Surface Preparation: Follow manufacturer's instructions designated below for the appropriate type of manufactured masonry and substrate.

### 3.03 INSTALLATION

- A. Install Cultured Stone<sup>®</sup> products in accordance with manufacturer's Cultured Stone<sup>®</sup> installation instructions using grouted joints.
- B. Install architectural trim products in accordance with manufacturer's Cultured Stone<sup>®</sup> installation instructions.
- C. Install/Apply Related Materials specified above in accordance with type of substrate and manufactured masonry manufacturer's installation instructions.

3.04 CLEANING

- A. Reference Section 01 74 00–Cleaning and Waste Management.
- B. Clean manufactured masonry in accordance with manufacturer's installation instructions.

3.05 PROTECTION

- A. Protect finished work from rain during and for 48 hours following installation.
- B. Protect finished work from damage during remainder of construction period.

END OF SECTION

## SECTION 05 58 00 - FORMED METAL FABRICATIONS

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Steel framing and supports for overhead doors.
  - 2. Steel framing and supports for countertops.
  - 3. Steel framing and supports for mechanical and electrical equipment.
  - 4. Steel framing and supports for applications where framing and supports are not specified in other Sections.
  - 5. Shelf angles.
  - 6. Loose bearing and leveling plates.
  - 7. Steel weld plates and angles for casting into concrete not specified in other Sections.
  - 8. Miscellaneous steel trim including steel angle corner guards and loading-dock edge angles.
- B. Products furnished, but not installed, under this Section include the following.
  - 1. Loose steel lintels.
  - 2. Anchor bolts, steel pipe sleeves, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.
- C. Related Sections includes the following:
  - 1. Division 3 Section "Cast-in-Place Concrete" for installing anchor bolts, steel pipe sleeves, wedge-type inserts and other items indicated to be cast into concrete.
  - 2. Division 4 Section "Unit Masonry Assemblies" for installing loose lintels, anchor bolts, and other items indicated to be built into unit masonry.
  - 3. Division 5 Section "Structural Steel."
  - 4. Division 5 Section "Decorative Metal Railings."
  - 5. Division 6 Section "Rough Carpentry" for metal framing anchors.

#### 1.3 PERFORMANCE REQUIREMENTS

- A. Thermal Movements: Provide exterior metal fabrications that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
  - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces

#### 1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.

## B. Product Data for the following:

1. Prefabricated building columns.
2. Paint products.
3. Grout.

## C. Shop Drawings: Show fabrication and installation details for metal fabrications:

1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
2. Provide templates for anchors and bolts specified for installation under other Sections.
3. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

## D. Samples for Verification: N/A.

## E. Mill Certificates: Signed by manufacturers of stainless-steel sheet certifying that products furnished comply with requirements.

## F. Welding certificates.

## 1.5 QUALITY ASSURANCE

## A. Welding: Qualify procedures and personnel according to the following:

1. AWS D1.1, "Structural Welding Code--Steel."
2. AWS D1.2, "Structural Welding Code--Aluminum."
3. AWS D1.3, "Structural Welding Code--Sheet Steel."
4. AWS D1.6, "Structural Welding Code--Stainless Steel."

## 1.6 PROJECT CONDITIONS

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

1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating metal fabrications without field measurements. Coordinate wall and other contiguous construction to ensure that actual dimensions correspond to established dimensions.
2. Provide allowance for trimming and fitting at site.

## 1.7 COORDINATION

## A. Coordinate installation of anchorages for metal fabrications. 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.

## B. Coordinate installation of steel weld plates and angles for casting into concrete that are specified in this Section but required for work of another Section. Deliver such items to Project site in time for installation.

## PART 2 - MATERIALS

## 2.1 MANUFACTURERS

## A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Products: Subject to compliance with requirements, provide one of the products

specified.

2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

## 2.2 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces, unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

## 2.3 FERROUS METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces, unless otherwise indicated. For metal fabrications exposed to view in the completed.
- B. Stainless-Steel Sheet, Strip, Plate, and Flat Bars: ASTM A 666, Type **316L**.
- C. Stainless-Steel Bars and Shapes: ASTM A 276, Type **316L**.
- D. Steel Tubing: ASTM A 500, cold-formed steel tubing.
- E. Steel Pipe: ASTM A 53, standard weight (Schedule 40), unless another weight is indicated or required by structural loads.
- F. Slotted Channel Framing: Cold-formed metal channels with continuous slot complying with MFMA-3.
  1. Size of Channels: 1-5/8 by 1-5/8 inches.
  2. Material: Galvanized steel complying with ASTM A 653, structural steel, Grade 33, with G90 coating; 0.079-inch nominal thickness.
  3. Material: Steel complying with ASTM A 1008, structural steel, Grade 33, 0.0677-inch minimum thickness.
- G. Cast Iron: ASTM A 48, Class 30, unless another class is indicated or required by structural loads.

## 2.4 NONFERROUS METALS

- A. Aluminum Plate and Sheet: ASTM B 209, Alloy 6061-T6.
- B. Aluminum Extrusions: ASTM B 221, Alloy 6063-T6.
- C. Aluminum Castings: ASTM B 26, Alloy 443.0-F.
- D. Bronze Plate, Sheet, Strip, and Bars: ASTM B 36, Alloy UNS No. C28000 (muntz metal, 60 percent copper).
- E. Bronze Extrusions: ASTM B 455, Alloy UNS No. C38500 (extruded architectural bronze).
- F. Bronze Castings: ASTM B 584, Alloy UNS No. C83600 (leaded red brass) or No. C84400 (leaded semired brass).
- G. Nickel Silver Extrusions: ASTM B 151, Alloy UNS No. C74500.
- H. Nickel Silver Castings: ASTM B 584, Alloy UNS No. C97600 (20 percent leaded nickel bronze).

## 2.5 FASTENERS

- A. General: Unless otherwise indicated, provide Type **316** stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, at exterior walls. Provide stainless-steel fasteners for fastening aluminum. Select fasteners for type, grade, and class required.
- B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A; with hex nuts, ASTM A 563; and, where indicated, flat washers.
- C. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, nuts and, where indicated, flat washers; ASTM F 593 for bolts and ASTM F 594 for nuts,

## Alloy Group 1 [2].

- D. Anchor Bolts: ASTM F 1554, Grade 36.
  - 1. Provide hot-dip or mechanically deposited, zinc-coated anchor bolts where item being fastened is indicated to be galvanized.
- E. Eyebolts: ASTM A 489.
- F. Machine Screws: ASME B18.6.3.
- G. Lag Bolts: ASME B18.2.1.
- H. Wood Screws: Flat head, ASME B18.6.1.
- I. Plain Washers: Round, ASME B18.22.1.
- J. Lock Washers: Helical, spring type, ASME B18.21.1.
- K. Cast-in-Place Anchors in Concrete: Anchors capable of sustaining, without failure, a load equal to four times the load imposed, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
  - 1. Threaded or wedge type; galvanized ferrous castings, either ASTM A 47 malleable iron or ASTM A 27 cast steel. Provide bolts, washers, and shims as needed, hot-dip galvanized per ASTM A 153.

## 2.6 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. Shop Primers: Provide primers that comply with Division 9 painting Section.
- C. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79.
  - 1. Use primer with a VOC content of 3.5 lb/gal. or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
  - 2. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.
- D. Zinc-Rich Primer: Complying with SSPC-Paint 20 or SSPC-Paint 29 and compatible with topcoat.
  - 1. Use primer with a VOC content of 3.5 lb/gal. or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
  - 2. Products:
    - a. Benjamin Moore & Co.; Epoxy Zinc-Rich Primer CM18/19.
    - b. Carboline Company; Carbozinc 621.
    - c. ICI Devoe Coatings; Catha-Coat 313.
    - d. International Coatings Limited; Interzinc 315 Epoxy Zinc-Rich Primer.
    - e. PPG Architectural Finishes, Inc.; Aquapon Zinc-Rich Primer 97-670.
    - f. Sherwin-Williams Company (The); Corothane I GalvaPac Zinc Primer.
    - g. Tnemec Company, Inc.; Tneme-Zinc 90-97.
- E. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.
- F. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.
- G. Nonshrink, Metallic Grout: Factory-packaged, ferrous-aggregate grout complying with ASTM C 1107, specifically recommended by manufacturer for heavy-duty loading applications.
- H. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- I. Concrete Materials and Properties: Comply with requirements in Division 3 Section



"Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of 3000 psi, unless otherwise indicated.

## 2.7 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch, unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work true to line and level with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) screws or bolts, unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
  - 1. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches, with a minimum 6-inch embedment and 2-inch hook, not less than 8 inches from ends and corners of units and 24 inches o.c. unless otherwise indicated.

## 2.8 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from steel shapes, plates, and bars of welded construction, unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction retained by framing and supports. Cut, drill, and tap units to receive hardware, hangers, and similar items.
  - 1. Fabricate units from slotted channel framing where indicated.
  - 2. Furnish inserts if units are installed after concrete is placed.
- C. Galvanize miscellaneous framing and supports where indicated.

D. Prime miscellaneous framing and supports with zinc-rich primer where indicated.

#### 2.9 LOOSE STEEL LINTELS

- A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Weld adjoining members together to form a single unit where indicated.
- B. Size loose lintels to provide bearing length at each side of openings equal to 1/12 of clear span but not less than 8 inches, unless otherwise indicated.
- C. Galvanize loose steel lintels located in exterior walls.

#### 2.10 SHELF ANGLES

- A. Fabricate shelf angles from steel angles of sizes indicated and for attachment to concrete framing. Provide horizontally slotted holes to receive 3/4-inch bolts, spaced not more than 6 inches from ends and 24 inches o.c., unless otherwise indicated.
  - 1. Provide mitered and welded units at corners.
  - 2. Provide open joints in shelf angles at expansion and control joints. Make open joint approximately 2 inches larger than expansion or control joint.
- B. For cavity walls, provide vertical channel brackets to support angles from backup masonry and concrete.
- C. Galvanize shelf angles located in exterior walls.

#### 2.11 LOOSE BEARING AND LEVELING PLATES

- A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.
- B. Galvanize plates after fabrication.

#### 2.12 STEEL WELD PLATES AND ANGLES

- A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the Work. Provide each unit with not less than two integrally welded steel strap anchors for embedding in concrete.

#### 2.13 MISCELLANEOUS STEEL TRIM

- A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.
- B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.
  - 1. Provide with integrally welded steel strap anchors for embedding in concrete or masonry construction.
- C. Galvanize **exterior miscellaneous steel trim and interior miscellaneous steel trim, where indicated.**
- D. Prime **exterior miscellaneous steel trim and interior miscellaneous steel trim, where indicated** with zinc-rich primer.

#### 2.14 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish metal fabrications after assembly.

#### 2.15 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with applicable standard listed below.

1. ASTM A 123 for galvanizing steel and iron products.
  2. ASTM A 153 for galvanizing steel and iron hardware.
- B. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications.
1. Exteriors (SSPC Zone 1B)[ **and Items Indicated to Receive Zinc-Rich Primer**]: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
  2. Interiors (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."
- C. Shop Priming: Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

#### 2.16 STAINLESS STEEL FINISHES

- A. Remove tool and die marks and stretch lines or blend into finish.
- B. Grind and polish surfaces to produce uniform, directionally textured, polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.
- C. Bright, Directional Satin Finish: No. 4.
- D. Dull Satin Finish: No. 6.
- E. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

#### 2.17 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. As-Fabricated Finish: AA-M10 (Mechanical Finish: as fabricated, unspecified).
- C. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.

#### 2.18 COPPER ALLOY FINISHES

- A. Finish designations for copper alloys comply with the system established for designating copper-alloy finish systems defined in NAAMM's "Metal Finishes Manual for Architectural and Metal Products."
- B. Cast-**Bronze** Finish: M12 (Mechanical Finish: matte finish, as fabricated).
- C. Extruded-**Bronze** Finish: M11 (Mechanical Finish: specular, as fabricated).
- D. Bronze Plate, Sheet, Strip, and Bar Finish: M10 (Mechanical Finish: unspecified, as fabricated).

### PART 3 - EXECUTION

#### 3.1 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-

dip galvanized after fabrication and are for bolted or screwed field connections.

C. Field Welding: Comply with the following requirements.

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag bolts, wood screws, and other connectors.

E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

F. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint.

### 3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.

B. Anchor supports for operable partitions securely to and rigidly brace from building structure.

C. Support steel girders on solid grouted masonry, concrete, or steel pipe columns. Secure girders with anchor bolts embedded in grouted masonry or concrete or with bolts through top plates of pipe columns.

D. Install pipe columns on concrete footings with grouted baseplates. Position and grout column baseplates as specified in "Installing Bearing and Leveling Plates" Article.

### 3.3 INSTALLING PREFABRICATED BUILDING COLUMNS

A. Install prefabricated building columns to comply with AISC's "Specification for Structural Steel Buildings Allowable Stress Design and Plastic Design with Commentary" and with requirements applicable to listing and labeling for fire-resistance rating indicated.

### 3.4 INSTALLING BEARING AND LEVELING PLATES

A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.

B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with non-shrink, non-metallic grout.

### 3.5 ADJUSTING AND CLEANING

A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.

- B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Division 9 painting Sections.
- C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION 05 58 00

## SECTION 05 73 00 - DECORATIVE METAL RAILINGS

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Aluminum Railing system at **Covered Walkways, Gazebos, & Screen Porches**

#### 1.3 DEFINITIONS

- A. Definitions in ASTM E 985 for railing related terms apply to this Section.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. General: In engineering handrail and railing systems to withstand structural loads indicated, determine allowable design working stresses of railing materials based on the following:
  - 1. Aluminum: AA "Specifications for Aluminum Structures."
- B. Structural Performance of Handrails and Railing Systems: Engineer, fabricate, and install handrails and railing systems to withstand the following structural loads without exceeding the allowable design working stress of the materials for handrails, railing systems, anchors, and connections. Apply each load to produce the maximum stress in each of the respective components comprising handrails and railing systems.
  - 1. Top Rail of Guardrail Systems: Capable of withstanding the following loads applied as indicated:
    - a. Concentrated load of 200 lb/ft (890 N) applied at any point and in any direction.
    - b. Uniform load of 50 lb/ft (730 N/m) applied horizontally and concurrently with uniform load of 100 lb/ft (1460 N/m) applied vertically downward.
    - c. Concentrated and uniform loads above need not be assumed to act concurrently.
  - 2. Handrails Not Serving as Top Rails: Capable of withstanding the following loads applied as indicated:
    - a. Concentrated load of 200 lb/ft (890 N) applied at any point and in any direction.
    - b. Uniform load of 50 lb/ft (730 N/m) applied in any direction.
    - c. Concentrated and uniform loads above need not be assumed to act concurrently.
  - 3. Infill Area of Guardrail Systems: Capable of withstanding a horizontal concentrated load of 200 lb/ft (890 N) applied to 1 sq. ft. (0.09 sq. m) at any point in the system, including panels, intermediate rails, balusters, or other elements composing the infill area.
    - a. Above load need not be assumed to act concurrently with loads on top rails of railing systems in determining stress on guard.
- C. Thermal Movement: Allow for thermal movement resulting from the following maximum change (range) in ambient temperature in engineering, fabricating, and



installing handrails and railing systems to prevent buckling, opening of joints, overstressing of components and connections, and other detrimental effects. Base engineering calculation on actual surface temperatures of materials due to both solar heat gain and nighttime sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces to 10 deg F.
- D. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

#### 1.5 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for manufacturer's product lines of handrails and railing systems assembled from standard components. Submit product data for grout, anchoring cement, and paint products.
- C. Shop drawings showing fabrication and installation of handrails and railings, including plans, elevations, sections, details of components, and attachments to other units of Work.
1. For installed handrails and railing systems indicated to comply with certain design loadings, include structural analysis data sealed and signed by the qualified professional engineer who was responsible for their preparation.
- D. Samples for initial selection in the form of manufacturer's color charts showing the full range of colors available for units with factory-applied color finishes.
- E. Samples for verification of each type of exposed finish required, prepared on components indicated below of same thickness and metal indicated for final unit of Work. Where finishes involve normal color and texture variations, include sample sets showing the full range of variations expected.
1. 6-inch- (150-mm-) long sections of each distinctly different linear railing member, including handrails, top rails, posts, and balusters.
  2. Fittings and brackets.
  3. Welded connections.
  4. Assembled sample of railing system, made from full-size components, including top rail, post, handrail, and infill. Show method of finishing members at intersections. Sample need not be full height.
- F. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- G. Product test reports from a qualified independent testing agency evidencing compliance of handrails and railing systems with requirements based on comprehensive testing of current products.

#### 1.6 QUALITY ASSURANCE

- A. Single Source Responsibility: Obtain handrails and railing systems of each type and material from a single manufacturer.

#### 1.7 STORAGE

- A. Store handrails and railing systems inside a well ventilated area, away from uncured concrete and masonry and protected from weather, moisture, soiling, abrasion, extreme temperatures, and humidity.

## 1.8 PROJECT CONDITIONS

- A. Field Measurements: Where handrails and railings are indicated to fit to other construction, check actual dimensions of other construction by accurate field measurements before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

## 1.9 SEQUENCING AND SCHEDULING

- A. Sequence and coordinate installation of wall handrails as follows:
  - 1. Mount handrails only on completed walls. Do not support handrails temporarily by any means not satisfying structural performance requirements.
  - 2. Mount handrails on plaster or gypsum board assemblies only where reinforced to receive anchors and where the locations of concealed reinforcements have been clearly marked for the benefit of the installer.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Aluminum Railing System at basis of design: Manufacturer subject to requirements:
  - 1. Paradise Railings Model R-2.
    - a. 40" height.
    - b. 3" profiled cap w/ 3" x Z" Apron Rail
    - c. 1" x 5" posts.
    - d. 3/4" x 3/4" pickets.
    - e. 2" x 1" bottom rail.
    - f. Wall Brackets & Core drilled into concrete and pre-cast plank.
  - 2. Architectural Railings and Grilles.
    - a. match above specifications.
  - 3. or approved equal.

### 2.2 METALS

- A. General: Provide metal free from surface blemishes where exposed to view in the finished unit. Exposed to view surfaces exhibiting pitting, seam marks, roller marks, stains, discolorations, or other imperfections on finished units are not acceptable.
- B. Aluminum: Alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with not less than the strength and durability properties of the alloy and temper designated below for each aluminum form required:
  - 1. Extruded Bar and Tube: ASTM B 221 (ASTM B 221M), alloy 6063T5/T52.
  - 2. Plate and Sheet: ASTM B 209 (ASTM B 209M), 6061-T6.
  - 3. Castings: ASTM B 26/B 26M, A356-T6.

### 2.3 FASTENERS

- A. Fasteners for Anchoring Railings to Other Construction: Select fasteners of the type, grade, and class required to produce connections that are suitable for anchoring railing to other types of construction indicated and capable of withstanding design loadings.
  - 1. For aluminum railings, provide fasteners fabricated from type 304 or type 316 stainless steel.
- B. Fasteners for Interconnecting Railing Components: Use fasteners of same basic metal as the fastened metal, unless otherwise indicated. Do not use metals that are corrosive or incompatible with materials joined.
  - 1. Provide concealed fasteners for interconnecting handrail and railing components



and for attaching them to other work, except where otherwise indicated.

- C. Cast in Place and Postinstalled Anchors: Anchors of type indicated below, fabricated from corrosion resistant materials with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry and 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 agency.
  - 1. Cast in place anchors.
  - 2. Expansion anchors.

#### 2.4 FABRICATION

- A. General: Fabricate handrails and railing systems to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including wall thickness of hollow members, post spacings, and anchorage, but not less than that required to support structural loads.
- B. Prefabricate in shop to the 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.
- C. Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain profile of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of handrail and railing components.
- D. Nonwelded Connections: Fabricate railing systems and handrails by connecting members with railing manufacturer's standard concealed mechanical fasteners and fittings, unless otherwise indicated. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.
- E. Brackets, Flanges, Fittings, and Anchors: Provide manufacturer's standard wall brackets, flanges, miscellaneous fittings, and anchors to connect handrail and railing members to other construction.
- F. Provide inserts and other anchorage devices to connect handrails and railing systems to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by handrails and railing systems. Coordinate anchorage devices with supporting structure.
- G. Ease exposed edges to a radius of approximately 1/32 inch (1 mm), unless otherwise indicated. Form bent metal corners to the smallest radius possible without causing grain separation or otherwise impairing work.
- H. Cut, reinforce, drill, and tap components, as indicated, to receive finish hardware, screws, and similar items.
- I. Provide weep holes or another means to drain entrapped water in hollow sections of railing members that are exposed to exterior or to moisture from condensation or other sources.
- J. Fabricate joints that will be exposed to weather in a watertight manner.
- K. Close exposed ends of handrail and railing members with prefabricated end fittings.
- L. Provide wall returns at ends of wall mounted handrails, unless otherwise indicated. Close ends of returns unless clearance between end of the railing and wall is 1/4 inch (6 mm) or less.

#### 2.5 FINISHES, GENERAL

- A. Comply with NAAMM "Metal Finishes Manual" for recommendations relative to applying and designating finishes.

- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering prior to shipment.
- 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 they are assembled or installed to minimize contrast.

## 2.6 ALUMINUM FINISHES

- A. Finish designations prefixed by AA. Conform to the system established by the Aluminum Association for designating aluminum finishes.
- B. 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 specifications for cleaning, conversion coating, and painting.
  - 1. Organic Coating: Thermosetting modified acrylic enamel primer/topcoat system complying with AAMA 603.8 except with minimum dry film thickness of 1.5 mils (0.0381 mm), medium gloss.
  - 2. Color: Architect to choose from manufacturer's full range of color options.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Coordinate setting drawings, diagrams, templates, instructions, and directions for installing anchorages, such as sleeves, concrete inserts, anchor bolts, and miscellaneous items having integral anchors, that are to be embedded in concrete as masonry construction. Coordinate delivery of such items to Project site.

### 3.2 INSTALLATION, GENERAL

- A. Fit exposed connections accurately together to form tight, hairline joints.
- B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing handrails and railings. Set handrails and railings accurately in location, alignment, and elevation, measured from established lines and levels and free from rack.
  - 1. Do not weld, cut, or abrade surfaces of handrails and railing components that have been coated or finished after fabrication and are intended for field connection by mechanical or other means without further cutting or fitting.
  - 2. Set posts plumb within a tolerance of 1/4 inch in 12 feet (2 mm in 1 m).
  - 3. Align rails so that 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 (2 mm in 1 m).
- C. Corrosion Protection: Coat concealed surfaces of the following, that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.
  - 1. Aluminum alloys.
- D. Adjust handrails and railing systems prior to anchoring to ensure matching alignment at abutting joints. Space posts at interval indicated but not less than that required by structural loads.
- E. Fastening to In Place Construction: Use anchorage devices and fasteners where necessary for securing handrails and railings systems and for properly transferring loads to in place construction.

### 3.3 RAILING CONNECTIONS

- A. Nonwelded Connections: Use mechanical or adhesive joints for permanently connecting railing components. Use wood blocks and padding to prevent damage to railing members and fittings. Seal recessed holes of exposed locking screws using plastic filler, cement colored to match finish of handrails and railing systems.

### 3.4 ANCHORING POSTS

- 1. Nonshrink, nonmetallic grout or anchoring cement.
- A. Cover anchorage joint with a round flange of same metal as post, attached to post as follows:
  - 1. By set screws.
- B. Anchor posts to metal surfaces with oval flanges, angle type or floor type as required by conditions, connected to posts and to metal supporting members as follows:
  - 1. For aluminum railings, attach posts as indicated using fittings designed and engineered for this purpose.

### 3.5 ANCHORING RAIL ENDS

- A. Anchor rail ends into concrete and masonry with round flanges connected to rail ends and anchored into wall construction with postinstalled anchors and bolts.
- B. Anchor rail ends to metal surfaces with oval or round flanges.
  - 1. Connect flanges to rail ends using nonwelded connections.
  - 2. Bolt flanges to metal surfaces.

### 3.6 ATTACHING HANDRAILS TO WALLS

- A. Attach handrails to wall with wall brackets and end fittings. Provide bracket with 1-1/2-inch (38-mm) clearance from inside face of handrail and finished wall surface.
- B. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.
- C. Secure wall brackets and wall return fittings to building construction as follows:
  - 1. Use type of bracket with flange tapped for concealed anchorage to threaded hanger bolt.
  - 2. For concrete and solid masonry anchorage, use drilled in expansion shield and either concealed hanger bolt or exposed lag bolt, as applicable.
  - 3. For hollow masonry anchorage, use toggle bolts with square heads.
  - 4. For wood stud partitions, use lag bolts set into wood backing between studs. Coordinate with stud installations to accurately locate backing members.

### 3.7 ADJUSTING AND CLEANING

- A. Clean the following metals by washing thoroughly with clean water and soap, followed by rinsing with clean water.
  - 1. Aluminum.
- B. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material.

### 3.8 PROTECTION

- A. Protect finishes of railing systems and handrails from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at the time of Substantial Completion.
- B. Restore finishes damaged during installation and construction period so that 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 73 00

## SECTION 06 11 00 - ROUGH CARPENTRY

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Framing with dimension lumber.
  - 2. Wood grounds, nailers, and blocking.
  - 3. Sheathing.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 6 Section "Finish Carpentry" for nonstructural carpentry items exposed to view and not specified in another Section.
  - 2. Division 6 Section "Interior Architectural Woodwork" for interior woodwork specially fabricated for this Project.

#### 1.3 DEFINITIONS

- A. Rough carpentry includes carpentry work not specified as part of other Sections and generally not exposed, unless otherwise specified.

#### 1.4 QUALITY ASSURANCE

- A. Single-Source Responsibility for Engineered Wood Products: Obtain each type of engineered wood products from one source from a single manufacturer.
- B. Single-Source Responsibility for Fire Retardant Treated Wood: Obtain each type of fire-retardant-treated wood product from one source for both treatment and fire-retardant formulation.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Storage: Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber as well as plywood and other panels; provide for air circulation within and around stacks and under temporary coverings including polyethylene and similar materials.
  - 1. For lumber and plywood pressure treated with waterborne chemicals, place spacers between each bundle to provide air circulation.

### PART 2 - PRODUCTS

#### **06 11 13 ENGINEERED WOOD PRODUCTS**

#### **06 11 16 MECHANICALLY GRADED LIMBER**

##### 2.1 LUMBER, GENERAL

- A. Lumber Standards: Furnish lumber manufactured to comply with PS 20 "American Softwood Lumber Standard" and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review.

- B. Inspection Agencies: Inspection agencies and the abbreviations used to reference them with lumber grades and species include the following:
  - 1. Grade Stamps: Provide lumber with each piece factory-marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.
    - a. For exposed lumber furnish pieces with grade stamps applied to ends or back of each piece; or omit grade stamps entirely and provide certificates of grade compliance issued by inspection agency.
- C. Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by PS 20, for moisture content specified for each use.
  - 1. Provide dressed lumber, S4S, unless otherwise indicated.
  - 2. Provide seasoned lumber with 19 percent maximum moisture content at time of dressing and shipment for sizes 2 inches or less in nominal thickness, unless otherwise indicated.

## 2.2 DIMENSION LUMBER

- A. For light framing (2 to 4 inches thick, 2 to 4 inches wide) provide the following grade and species:
  - 1. "Standard" grade of the Southern Pine Inspection Bureau (SPIB).
  - 2. "No. 2 Grade" Spruce-Pine-Fir (SPF)
- B. For structural light framing (2 to 4 inches thick, 2 to 4 inches wide), provide the following grade and species:
  - 1. "Standard" grade of the Southern Pine Inspection Bureau (SPIB).
  - 2. "No. 2 Grade" Spruce-Pine-Fir (SPF).
- C. For structural framing (2 to 4 inches thick, 5 inches and wider), provide the following grade and species:
  - 1. "Standard" grade of the Southern Pine Inspection Bureau (SPIB).
  - 2. "No. 2 Grade" Spruce-Pine-Fir (SPF).

## 2.3 MISCELLANEOUS LUMBER

- A. General: Provide lumber for support or attachment of other construction including, cant strips, bucks, nailers, blocking, furring, grounds, stripping, and similar members.
- B. Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.
- C. Moisture content: 19 percent maximum for lumber items not specified to receive wood preservative treatment.
- D. Grade: "Standard" grade light-framing-size lumber of any species or board-size lumber as required. "No. 3 Common" or "Standard" grade boards per WCLIB or WWPA rules or "No. 2 Boards" per SPIB rules.

## 2.4 CONSTRUCTION PANELS FOR BACKING

- A. Plywood Backing Panels: For mounting electrical or telephone equipment provide grade designation, APA C-D PLUGGED EXPOSURE 1, in thickness indicated, or, if not otherwise indicated, not less than 3/4 inch.

## 2.5 EXTERIOR SHEATHING BOARD - WOOD PRODUCTS

- A. Provide Plywood sheathing featuring the official American Plywood Association (APA) Mark to ensure quality and uniform consistency..
  - 1. Provide thickness and grade specified on drawings and by Structural Engineer.



2. Use not less than APA Exposure 1 grade in exterior locations.
- B. Provide Oriented Strand Board (OSB) sheathing featuring the official APA Mark to ensure quality and uniform consistency.
  1. Provide thickness and grade specified on drawings and by Structural Engineer.
  2. Provide slip-resistant textured sheathing for roofing applications.

## 2.6 EXTERIOR SHEATHING BOARD - GYPSUM PRODUCTS

- A. Gypsum sheathing board consisting of noncombustible silicone treated gypsum core surfaced on face, back, and long edges with inorganic glass mat facing and alkali-resistant coating.
  1. Type: Regular (not Type X).
  2. Edge and End Configuration: Square.
  3. Thickness: 1/2 inch.
  4. Size: 4 feet by 8 feet.
- B. Products: Subject to compliance with requirements, provide one of the following:
  1. Exterior Sheathing Board with Regular Type:
    - a. "Dens-Glass Gold, Sheathing" Georgia Pacific.

## 2.7 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
  1. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with a hot-dip zinc coating per ASTM A 153 or of AISI Type 304 stainless steel.
- B. Conform to nailing patterns in accordance with Florida Building Code 2007.
- C. Power Driven Fasteners: National Evaluation Report NER-272.
- D. Wood Screws: ANSI B18.6.1.
- E. Lag Bolts: ANSI B18.2.1.
- F. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and where indicated, flat washers.

## 2.8 METAL FRAMING ANCHORS

- A. General: Provide metal framing anchors of type, size, metal, and finish indicated that comply with requirements specified including the following:
  1. Current Evaluation/Research Reports: Provide products for which model code evaluation/research reports exist that are acceptable to authorities having jurisdiction and that evidence compliance of metal framing anchors for application indicated with the building code in effect for this Project.
  2. Allowable Design Loads: Provide products for which manufacturer publishes allowable design loads that are determined from empirical data or by rational engineering analysis and that are demonstrated by comprehensive testing performed by a qualified independent testing laboratory.
- B. Galvanized Steel Sheet: Steel sheet zinc-coated by hot-dip process on continuous lines prior to fabrication to comply with ASTM A 525 for Coating Designation G60 and with ASTM A 446, Grade A (structural quality); ASTM A 526 (commercial quality); or ASTM A 527 (lock-forming quality); as standard with manufacturer for type of anchor indicated.
  1. Use galvanized steel framing anchors for rough carpentry exposed to weather, in ground contact, or in area of high relative humidity, and where indicated.

## 2.9 PRESERVATIVE WOOD TREATMENT BY PRESSURE PROCESS

- A. General: Where lumber or plywood is indicated as preservative-treated wood or is specified herein to be treated, comply with applicable requirements of AWWA Standards C2 (Lumber) and C9 (Plywood). Mark each treated item with the AWPB or SPIB Quality Mark Requirements.
- B. Pressure-treat above-ground items with water-borne preservatives to a minimum retention of 0.25 pcf. For interior uses, after treatment, kiln-dry lumber and plywood to a maximum moisture content, respectively, of 19 percent and 15 percent. Treat indicated items and the following:
  - 1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
  - 2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
  - 3. Wood framing members less than 18 inches above grade.
- C. Complete fabrication of treated items prior to treatment, where possible. If cut after treatment, coat cut surfaces to comply with AWWA M4. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.

#### 2.10 FIRE-RETARDANT TREATMENT BY PRESSURE PROCESS

- A. General: Where fire-retardant-treated wood is indicated, pressure impregnate lumber and plywood with fire-retardant chemicals to comply with AWWA C20 and C27, respectively, for treatment type indicated; identify "fire-retardant-treated wood" with appropriate classification marking of Underwriters Laboratories, Inc., U.S. Testing, Timber Products Inspection, Inc. or other testing and inspecting agency acceptable to authorities having jurisdiction.
  - 1. Current Evaluation/Research Reports: Provide fire-retardant-treated wood for which a current model code evaluation/research report exists that is acceptable to authorities having jurisdiction and that evidences compliance of fire-retardant-treated wood for application indicated.
- B. Interior Type A: For interior locations use fire-retardant chemical formulation that produces treated lumber and plywood with the following properties under conditions present after installation:
  - 1. No reduction takes place in bending strength, stiffness, and fastener holding capacities below values published by manufacturer of chemical formulation that are based on tests by a qualified independent testing laboratory of treated wood products identical to those indicated for this Project under elevated temperature and humidity conditions simulating installed conditions.
  - 2. No other form of degradation occurs due to acid hydrolysis or other causes related to manufacture and treatment.
  - 3. No corrosion of metal fasteners results from their contact with treated wood.
- C. Exterior Type: Use for exterior locations and where indicated.
- D. Inspect each piece of treated lumber or plywood after drying and discard damaged or defective pieces.
- E. Products: Subject to compliance with requirements, provide one of the following:
  - 1. Interior Type A Fire-Retardant-Treated Wood:
    - a. "Dricon," Hickson Corporation.
    - b. "Pyro-Guard," Hoover Treated Wood Products.
    - c. "Flameproof LHC-HTT," Osmose Wood Preserving Co., Inc.
  - 2. Exterior Type Fire-Retardant-Treated Wood:



- a. "Exterior Fire-X," Hoover Treated Wood Products.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Discard units of material with defects that impair quality of rough carpentry construction and that are too small to use in fabricating rough carpentry with minimum joints or optimum joint arrangement.
- B. Set rough carpentry to required levels and lines, with members plumb and true to line and cut and fitted.
- C. Fit rough carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.
- D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated; as required; or in accordance with Florida Building Code 2007.
- E. Countersink nail heads on exposed carpentry work and fill holes.
- F. Use common wire nails, unless otherwise indicated. Use finishing nails for finish work. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood; predrill as required.

### 3.2 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS

- A. Install wood grounds, nailers, blocking, and sleepers where shown and where required for screeding or attachment of other work. Form to shapes as shown and cut as required for true line and level of work to be attached. Coordinate location with other work involved.
- B. Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise indicated. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.
- C. Install permanent grounds of dressed, preservative treated, key-bevelled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material involved. Remove temporary grounds when no longer required.

### 3.3 WOOD FRAMING, GENERAL

- A. Framing Standard: Comply with N.F.P.A. "Manual for House Framing," unless otherwise indicated.
- B. Install framing members of size and spacing indicated.
- C. Anchor and nail as shown, and to comply with Florida Building Code 2007.
- D. Do not splice structural members between supports.
- E. Firestop concealed spaces of wood framed walls and partitions at each floor level and at the ceiling line of the top story. Where firestops are not automatically provided by the framing system used, use closely fitted wood blocks of nominal 2-inch-thick lumber of the same width as framing members.

### 3.4 GYPSUM SHEATHING

- A. General: Install gypsum board sheathing where shown. Fasten to exterior face of stud framing for exterior walls. Comply with manufacturer's guidelines and Florida Building Code 2007 for fastening schedule. Keep perimeter fasteners 3/8 inch from edges and ends of board units. Fit boards tightly against each other and around openings.

- B. Install 4-foot by 8-foot or longer sheathing vertically with long edges parallel to, and centered over, studs. Install solid wood blocking where end joints do not bear against framing sills or plates. Nail to each support to comply with manufacturer's recommended spacing, but space fasteners not more than 8 inches o.c. around perimeter at edge and end supports and 8 inches o.c. at intermediate supports.

END OF SECTION 06 11 00

## SECTION 06 20 00 - FINISH CARPENTRY

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

#### 1.2 DESCRIPTION OF WORK:

- A. Definition: Finish carpentry includes carpentry work which is exposed to view, is non-structural, and which is not specified as part of other sections.
- B. Types of finish carpentry work in the section include:
  - 1. Exterior running and standing trim.
  - 2. Interior running and standing trim.
- C. Rough carpentry is specified in another Division-6 section.
- D. Builders hardware and wood doors are specified in Division-8 sections.
- E. Architectural woodwork is specified in another Division-6 section.
- F. All exterior running trim shall be back primed, coordinate with painting.

#### 1.3 PRODUCT DELIVERY, STORAGE AND HANDLING:

- A. Protect finish carpentry materials during transit, delivery, storage and handling to prevent damage, soiling and deterioration.
- B. Do not deliver finish carpentry materials, until painting, wet work, grinding and similar operations which could damage, soil or deteriorate woodwork have been completed in installation areas. If, due to unforeseen circumstances, finish carpentry materials must be stored in other than installation areas, store only in areas meeting requirements specified for installation areas.

#### 1.4 JOB CONDITIONS:

- A. Conditioning: Installer shall advise Contractor of temperature and humidity requirements for finish carpentry installation areas. Do not install finish carpentry until required temperature and relative humidity have been stabilized and will be maintained in installation areas.

### PART 2 - PRODUCTS

#### 2.1 WOOD PRODUCT QUALITY STANDARDS:

- A. Softwood Lumber Standards: Comply with PS 20 and with applicable grading rules of the respective grading and inspecting agency for the species and product indicated.
- B. Hardwood Lumber Standard: Comply with National Hardwood Lumber Association (NHLA) rules.
- C. Woodworking Standard: Where indicated for a specific product; comply with specified provision of the following:
  - 1. Architectural Woodwork Institute (AWI) "Quality Standards".

#### 2.2 MATERIALS:

- A. General:
  - 1. Nominal sizes are indicated, except as shown by detailed dimensions. Provide dressed or worked and dressed lumber, as applicable, manufactured to the actual sizes as required by PS 20 or to actual sizes and patterns as shown, unless otherwise indicated.

2. Moisture Content of Softwood Lumber: Provide seasoned (KD) lumber having a moisture content from time of manufacture until time of installation not greater than values required by the applicable grading rules of the respective grading and inspecting agency for the species and product indicated.
  3. Moisture Content of Hardwood Lumber: Provide kiln-dried (KD) lumber having a moisture content from time of manufacture until time of installation within the ranges required in the referenced woodworking standard.
  4. Lumber for Transparent Finish (Stained or Clear): Use pieces made of solid lumber stock.
  5. Lumber for Painted Finish: At Contractor's option, use pieces which are either glued-up lumber or made of solid lumber stock.
- B. Exterior Finish Carpentry:
1. Standing and Running Trim: For trim in form of boards and worked products, provide lumber complying with the following requirements including those of the grading agency listed with species.
    - a. Species: Cedar
      - 1) Grade: VG or FG Finish
    - b. Texture: Rough-Sawn
  2. Plywood for Painted Finish: Any softwood species, Exterior type, Medium Density Overlay (MDO/EXT-APA), of thickness indicated.
- C. Interior Finish Carpentry:
1. Standing and Running Trim for Transparent Finish: Use the following, manufactured to sizes and patterns (profiles) shown from selected First Grade Lumber by the NHLA:
    - a. Stain-Grade Hardwood (to receive cherry finish)
    - b. AWI Grade: Custom.
  2. WM/Series Wood Molding Patterns: For stock molding patterns graded under Wood Molding and Millwork Producers Industry WM 4, provide the following grade based on finish indicated and fabricated from any Western softwood species graded and inspected by WWP.
    - a. Moldings for Transparent Finish: N-Grade.
    - b. Moldings for Painted Finish: P Grade.
  3. Standing and Running Trim for Painted Finish: Any Western soft- wood species graded and inspected by WWP.
    - a. Grade for Standard Sizes and Patterns: "C Select" or "Choice" for Idaho White Pine.
- D. Miscellaneous Materials:
1. Fasteners and Anchorages: Provide nails, screws and other anchoring devices of the type, size, material and finish required for application indicated to provide secure attachment, concealed where possible.
    - a. Where finish carpentry is exposed on exterior or in areas of high relative humidity, provide fasteners and anchorages with a hot-dipped zinc coating (ASTM A 153).

## PART 3 - EXECUTION

### 3.1 PREPARATION:

- A. Condition wood materials to average prevailing humidity conditions in installation areas prior to installation.

- B. Backprime lumber for painted finish exposed on the exterior or, where indicated, to moisture and high relative humidities on the interior. Comply with requirements of section on painting within Division 9 for primers and their application.

### 3.2 INSTALLATION:

- A. Discard units of material which are unsound, cupped, warped, bowed twisted, improperly treated, not adequately seasoned or too small to fabricate work with minimum joints or optimum jointing arrangements, or which are manufacturer defective with respect to surfaces, sizes or patterns.
- B. Install the work plumb, level, true and straight with no distortions. Shim as required using concealed shims. Install to a tolerance of 1/8" in 8'-0" for plumb and level countertops; and with 1/16" maximum offset in flush adjoining, 1/16" maximum offset in revealed adjoining surfaces.
- C. Scribe and cut work to fit adjoining work, and refinish cut surfaces or repair damaged finish at cuts.
- D. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum lengths of lumber available) to the greatest extent possible. Stagger joints in adjacent and related members. Cope at returns, miter at corners, to produce tight fitting joints with full surface contact throughout length of joint. Use scarf joints for end-to-end joints.
  - 1. Make exterior joints water-resistant by careful fitting.
  - 2. Apply flat grain lumber with bark side exposed to weather.
- E. Anchor finish carpentry work to anchorage devices or blocking built-in directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Except where prefinished matching fastener heads are required, use fine finishing nail for exposed nailings, countersunk and filled flush with finished surface; or countersink screws and plug. Match grain direction of plug with grain direction of material being plugged. Match final finish where transparent is indicated.

### 3.3 ADJUSTMENT, CLEANING, FINISHING AND PROTECTION:

- A. Repair damaged and defective finish carpentry work wherever possible to eliminate defects functionally and visually; where not possible to repair properly, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean finish carpentry work on exposed and semi-exposed surfaces. Touch-up shop-applied finishes to restore damaged or soiled areas.
- C. Refer to Division-9 sections for final finishing of installed finish carpentry work.
- D. Protection: Installer of finish carpentry work shall advise Contractor of final protection and maintained conditions necessary to ensure that work will be without damage or deterioration at time of acceptance.

END OF SECTION 06 20 00

# SECTION 06 41 00 - ARCHITECTURAL WOOD CASEWORK

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## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Laminate clad cabinets (plastic covered casework craftsman style wood cabinets).
  - 2. Cabinet tops (countertops).
  - 3. Interior miscellaneous ornamental items.

### 1.3 RELATED SECTIONS

- 1. Division 6 Section "Rough Carpentry" for furring, blocking, and other carpentry work that is not exposed to view.
- 2. Division 6 Section "Finish Carpentry" for carpentry exposed to view that is not specified in this section.
- 3. Division 9 Section "Painting" for final finishing of installed architectural woodwork.

### 1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Shop drawings showing location of each item, dimensioned plans, elevations, and sections, large-scale details, attachment devices, and other components.
- C. Samples for initial selection purposes of the following in form of manufacturer's color charts consisting of actual units or sections of units showing full range of colors, textures, and patterns available for each type of material indicated.
  - 1. Plastic Laminate
  - 2. Solid Surface Materials
  - 3. Natural Stone Materials
  - 4. Cultured Stone Materials
  - 5. Wood species with accompanying stain and sealant
- D. Installer Qualifications: Arrange for installation of architectural casework by a firm that can demonstrate successful experience in installing architectural woodwork items similar in type and quality to those required for this project.

### 1.5 QUALITY ASSURANCE

- A. **AWI Quality Standard: Comply with applicable requirements of "Architectural Woodwork Quality Standards" published by the Architectural Woodwork Institute (AWI) August, 2009 except as otherwise indicated.**
  - 1. Any reference to AWI throughout this Specification Section refers to the August 2009 Architectural Woodwork Quality Standards Edition 1.

### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect casework during transit, delivery, storage, and handling to prevent damage, soiling, and deterioration.

- B. Do not deliver casework until painting, wet work, grinding, and similar operations that could damage, soil, or deteriorate woodwork have been completed in installation areas. If casework must be stored in other than installation areas, store only in areas whose environmental conditions meet requirements specified in "Project Conditions."

#### 1.7 PROJECT CONDITIONS

- A. Environmental Conditions: Obtain and comply with Casework Manufacturer's and Installer's coordinated advice for optimum temperature and humidity conditions for casework during its storage and installation. Do not install woodwork until these conditions have been attained and stabilized so that woodwork is within plus or minus 1.0 percent of optimum moisture content from date of installation through remainder of construction period.
- B. Field Measurements: Where casework is indicated to be fitted to other construction, check actual dimensions of other construction by accurate field measurements before manufacturing woodwork; show recorded measurements on final shop drawings. Coordinate manufacturing schedule with construction progress to avoid delay of Work.

### PART 2 - PRODUCTS

#### **LAMINATE-CLAD CABINETS**

##### 2.1 HIGH PRESSURE DECORATIVE LAMINATE (HPDL) MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, Architect shall provide selection of high pressure decorative laminates from any one of the following:
  - 1. Formica Corp.
  - 2. Laminart.
  - 3. Micarta Div., Westinghouse Electric Corp.
  - 4. Nevamar Corp.
  - 5. Wilsonart

##### 2.2 MATERIALS

- A. General: Provide materials that comply with requirements of the AWI woodworking standard for each type of casework and quality grade indicated and, where the following products are part of casework, with requirements of the referenced product standards, that apply to product characteristics indicated:
  - 1. Hardboard: ANSI/AHA A135.4
  - 2. High Pressure Laminate: NEMA LD 3.
  - 3. Medium Density Fiberboard: ANSI A208.2.
  - 4. Particleboard: 45lb. density ANSI A208.1
  - 5. Softwood Plywood: PS 1.
  - 6. Formaldehyde Emission Levels: Comply with formaldehyde emission requirements of each voluntary standard referenced below:
    - a. Particleboard: NPA 8.
    - b. Medium Density Fiberboard: NPA 9.

##### 2.3 FABRICATION, GENERAL

- A. Wood Moisture Content: Comply with requirements of referenced quality standard for moisture content of lumber in relation to relative humidity conditions existing during time of fabrication and in installation areas.
- B. Fabricate casework to dimensions, profiles, and details indicated. Ease edges to radius



indicated for the following:

1. Corners of cabinets and edges of solid wood (lumber) members less than 1 inch in nominal thickness: 1/16 inch.
  2. Edges of rails and similar members more than 1 inch in nominal thickness: 1/16 inch.
- C. Complete fabrication, including assembly, finishing, and hardware application, before shipment to project site to maximum extent possible. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
- D. Factory cut openings, to maximum extent possible, to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or rough-in diagrams to produce accurately sized and shaped openings. Smooth edges of cutouts and, where located in countertops and similar exposures, seal edges of cutouts with a water-resistant coating.

#### 2.4 LAMINATE CLAD CABINETS (PLASTIC-COVERED CASEWORK)

- A. Quality Standard: Comply with AWI Section 400 and its Division 400B "Laminate Clad Cabinets."
- B. Grade: Custom.
1. Reveal Dimension: As indicated.
- C. Laminate Cladding: High Pressure Decorative Laminate complying with the following requirements:
1. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
    - a. Provide selections made by Interior Designer from laminate manufacturer's full range of colors and finishes in the following categories:
      - 1) Solid Colors.
      - 2) Wood Grains.
      - 3) Patterns.
  2. Laminate Grade for Exposed Surfaces: Provide laminate cladding complying with the following requirements for type of surface and grade.
    - a. Horizontal surfaces other than tops: GP-50 (0.050-inch nominal thickness).
    - b. Post formed Surfaces: PF-42 (0.042-inch nominal thickness).
    - c. Vertical Surfaces: GP-50 (0.050-inch nominal thickness).
    - d. Edges: GP-50 (0.050-inch nominal thickness).
  3. Semi-exposed Surfaces: Provide surface materials indicated below:
    - a. High pressure laminate, CL-20.
    - b. Woodwork manufacturer's standard cured wet film.
    - c. Woodwork manufacturer's standard low pressure laminate.

#### 2.5 CABINET HARDWARE AND ACCESSORY MATERIALS

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets, except for items specified in Division 8 Section "Finish Hardware."
- B. Cabinet Hardware Schedule: Refer to schedule at end of this section for cabinet hardware required for architectural cabinets.



## 2.6 PLASTIC LAMINATE COUNTERTOPS

- A. Quality Standard: Comply with AWI Section 400 and its Division 400C.
- B. Laminate Cladding for Horizontal Surface: HPDL as follows:
  - 1. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
    - a. Provide selections made by Interior Designer from manufacturer's full range of standard colors and finishes in the following categories:
      - 1) Solid colors.
      - 2) Patterns.
      - 3) Wood grains.
  - 2. Grade: GP-50 (0.050-inch nominal thickness).
  - 3. Edge Treatment: As indicated.

## 2.7 FASTENERS AND ANCHORS

- A. Screws: Select material, type, size, and finish required for each use.
- B. Nails: Select material, type, size, and finish required for each use.
- C. Anchors: Select material, type, size, and finish required by each substrate for secure anchorage. Provide nonferrous metal or hot dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed steel or lead expansion bolt devices for drilled-in-place anchors. Furnish inserts and anchors, as required, to be set into concrete or masonry work for subsequent woodwork anchorage.

## 2.8 ARTS &amp; CRAFTS (CRAFTSMAN) STYLE WOOD CABINETS

- A. The basis of the design is Crownpoint Cabinetry (1-800-999-4994). Other manufactures will be considered if equal in style and quality, contractor shall request a substitution per section 012500

## 2.9 DESIGN &amp; MATERIALS

- A. Series: Square Insert
- B. Wood: Stain-Grade Hardwood (to receive cherry finish)
- C. Finish: Unfinished (filed finish on site)
- D. Door Style: Craftsman (Mission at glass doors)
- E. Drawer Fronts: Flat
- F. Hardware:
  - 1. Craftsman Style antique bronze (to be selected by architect)
  - 2. Provide key locks on all doors and drawers
  - 3. Fully adjustable barrel style inset hinges
- G. Warranty: 10 years
- H. Construction: 1" solid wood face frames, doors, and drawers. 3/4" min. plywood box construction. Cabinet end panels to be square inset to match doors. Manufacturer shall adjust standard height cabinets to ADA- accessible per drawings at no additional charge.

## 2.10 SOLID SURFACE COUNTERTOPS

- A. The basis of the design is 1/2" thick Corian (Anthracite with semi-gloss finish) over 1" thick plywood with 1-1/2" thick built-up Corian edges.

## 2.11 DESIGN &amp; MATERIALS

## 2.12 SUMMARY

A. This Section includes the following horizontal and trim solid surface product types:

1. Countertops
2. Reception areas/nurses stations
3. Vanity tops
4. Faux fireplace surround and hearth

## 2.13 DEFINITION

A. Solid surface is defined as nonporous, homogeneous material maintaining the same composition throughout the part with a composition of acrylic polymer, aluminum trihydrate filler and pigment.

## 2.14 SUBMITTALS

A. Product data:

B. Shop drawings:

1. Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices and other components.
  - a. Show full-size details, edge details, thermoforming requirements, attachments, etc.
  - b. Show locations and sizes of furring, blocking, including concealed blocking and reinforcement specified in other Sections.
  - c. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, waste receptacle and other items installed in solid surface.

C. Samples:

1. For each type of product indicated.
  - a. Submit minimum 6-inch by 6-inch sample in specified gloss.
  - b. Cut sample and seam together for representation of inconspicuous seam.
  - c. Indicate full range of color and pattern variation.
2. Approved samples will be retained as a standard for work.

D. Product data:

1. Indicate product description, fabrication information and compliance with specified performance requirements.

E. Fabricator/installer qualifications:

1. Provide copy of certification number.

F. Manufacturer certificates:

1. Signed by manufacturers certifying that they comply with requirements.

G. NSF/ANSI standards:

1. Refer to [www.nsf.org](http://www.nsf.org) for the latest compliance to NSF/ANSI Standard 51 for food zone — all food types.

H. Maintenance data:

1. Submit manufacturer's care and maintenance data, including repair and cleaning instructions.
  - a. Maintenance kit for finishes shall be submitted.
2. Include in project closeout documents.

## 2.15 QUALITY ASSURANCE

## A. Qualifications:

1. 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.

## B. Fabricator/installer qualifications:

1. Work of this section shall be by a certified fabricator/installer, certified in writing by the manufacturer.

## C. Applicable standards:

## 1. Standards of the following, as referenced herein:

- a. American National Standards Institute (ANSI)
- b. American Society for Testing and Materials (ASTM)
- c. National Electrical Manufacturers Association (NEMA)
- d. NSF International

## 2. Fire test response characteristics:

- a. Provide with the following Class A (Class I) surface burning characteristics as determined by testing identical products per UL 723 (ASTM E84) or another testing and inspecting agency acceptable to authorities having jurisdiction:
  - 1) Flame Spread Index: 25 or less.
  - 2) Smoke Developed Index: 450 or less.

## D. Coordination drawings:

## 1. Shall be prepared indicating:

- a. Plumbing work.
- b. Electrical work.
- c. Miscellaneous steel for the general work.
- d. Indicate location of all walls (rated and non-rated), blocking locations and recessed wall items, etc.

## 2. Content:

- a. Project-specific information, drawn accurately to scale.
- b. Do not base coordination drawings on reproductions of the contract documents or standard printed data.
- c. Indicate dimensions shown on the contract drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements.
- d. Provide alternate sketches to designer for resolution of such conflicts.
  - 1) Minor dimension changes and difficult installations will not be considered changes to the contract.

## E. Drawings shall:

1. Be produced in 1/2-inch scale for all fabricated items.

## F. Drawings must be complete and submitted to the architect within 60 days after award of contract for record only.

1. No review or approval will be forthcoming.
2. Coordination drawings are required for the benefit of contractor's fabricators/installers as an aid to coordination of their work so as to eliminate or reduce conflicts that may arise during the installation of their work.

## G. Job mock-up:

1. Prior to fabrication of architectural millwork, erect sample unit to further verify

selections made under sample submittals and to demonstrate the quality of materials and execution.

2. Mock-up shall be RECEPTION DESK .
3. Build the mock-up to comply with the contract documents and install in a location as directed by the architect.
4. Notify the architect two weeks in advance of the date of when the mock-up will be delivered.
5. Should mock-up not be approved, re-fabricate and reinstall until approval is secured.
  - a. Remove rejected units from project site.
6. After approval, the mock-up may become a part of the project.
7. This mock-up, once approved, shall serve as a standard for judging quality of all completed units of work.

#### 2.16 DELIVERY, STORAGE AND HANDLING

- A. Deliver no components to project site until areas are ready for installation.
- B. Store components indoors prior to installation.
- C. Handle materials to prevent damage to finished surfaces.
  1. Provide protective coverings to prevent physical damage or staining following installation for duration of project.

#### 2.17 WARRANTY

- A. Provide manufacturer's warranty against defects in materials.
  1. Warranty shall provide material and labor to repair or replace defective materials.
  2. Damage caused by physical or chemical abuse or damage from excessive heat will not be warranted.
- B. Manufacturer's warranty period:
  1. Ten years from date of substantial completion.

#### 2.18 MAINTENANCE

- A. Provide maintenance requirements as specified by the manufacturer.

#### 2.19 MANUFACTURERS

- A. Manufacturers:
  1. Subject to compliance with requirements, provide products by one of the following:
    - a. Corian surfaces from the DuPont company (basis of design).
    - b. Silestone
    - c. Formica
    - d. Wilsonart

#### 2.20 MATERIALS

- A. Solid polymer components
  1. Cast, nonporous, filled polymer, not coated, laminated or of composite construction with through body colors meeting ANSI Z124.3 or ANSI Z124.6, having minimum physical and performance properties specified.

2. Superficial damage to a depth of 0.010 inch (.25 mm) shall be repairable by sanding and/or polishing.

B. Thickness:

2. 1/2 inch

C. Edge treatment:

4. To be selected by architect

G. Backsplash:

1. Applied.

H. Sidesplash:

1. Applied.

I. Performance characteristics:

Property	Typical Result	Test
Tensile Strength	6,000 psi	ASTM D 638
Tensile Modulus	$1.5 \times 10^{-6}$ psi	ASTM D 638
Tensile Elongation	0.4% min.	ASTM D 638
Flexural Strength	10,000 psi	ASTM D 790
Flexural Modulus	$1.2 \times 10^{-6}$ psi	ASTM D 790
Hardness	>85	Rockwell "M" Scale
	56	ASTM D 785 Barcol Impressor
		ASTM D 2583
Thermal Expansion	$3.02 \times 10^{-5}$ in./in./°C ( $1.80 \times 10^{-5}$ in./in./°F)	ASTM D 696
Gloss (60° Gardner)	5–75 (matte—highly polished)	ANSI Z124
Light Resistance	(Xenon Arc) No effect	NEMA LD 3-2000 Method 3.3
Wear and Cleanability	Passes	ANSI Z124.3 & Z124.6
Stain Resistance: Sheets	Passes	ANSI Z124.3 & Z124.6
Fungus and Bacteria Resistance	Does not support microbial growth	ASTM G21&G22
Boiling Water Resistance	No visible change	NEMA LD 3-2000 Method 3.5
High Temperature Resistance	No change	NEMA LD 3-2000 Method 3.6
Izod Impact (Notched Specimen)	0.28 ft.-lbs./in. of notch	ASTM D 256 (Method A)
Ball Impact Resistance: Sheets	No fracture—1/2 lb. ball: 1/4" slab—36" drop 1/2" slab—144" drop	NEMA LD 3-2000 Method 3.8
Weatherability	$\Delta E^*_{94} < 5$ in 1,000 hrs.	ASTM G 155
Specific Gravity †	1.7	
Water Absorption	Long-term 0.4% (3/4") 0.6% (1/2")	ASTM D 570

Toxicity	0.8% (1/4") 99 (solid colors) 66 (patterned colors)	Pittsburgh Protocol Test ("LC50" Test)
Flammability	All colors (Class I and Class A)	ASTM E 84, NFPA 255 & UL 723
Flame Spread Index	<25	
Smoke Developed Index	<25	

† Approximate weight per square foot: 1/4" (6 mm) 2.2 lbs., 1/2" (12.3 mm) 4.4 lbs.  
Shapes meet or exceed the ANSI Z124.3 and ANSI Z124.6 standards for plastic sinks and lavatories.

NEMA results based on the NEMA LD 3-2000

## 2.21 ACCESSORIES

### A. Joint adhesive:

1. Manufacturer's standard one- or two-part adhesive kit to create inconspicuous, nonporous joints.

### B. Sealant:

1. Manufacturer's standard mildew-resistant, FDA-compliant, NSF 51-compliant (food zone — any type), UL-listed silicone sealant in colors matching components.

### C. Sink/lavatory mounting hardware:

### D. Conductive tape:

1. Manufacturer's standard aluminum foil tape, with required thickness, for use with cutouts near heat sources.

### E. Insulating felt tape:

1. Manufacturer's standard for use with conductive tape in insulating solid surface material from adjacent heat source.

## 2.22 FACTORY FABRICATION

### A. Shop assembly

1. Fabricate components to greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and manufacturer's printed instructions and technical bulletins.
2. Form joints between components using manufacturer's standard joint adhesive without conspicuous joints.
  - a. Reinforce with strip of solid polymer material, 2" wide.
3. Provide factory cutouts for plumbing fittings and bath accessories as indicated on the drawings.
4. Rout and finish component edges with clean, sharp returns.
  - a. Rout cutouts, radii and contours to template.
  - b. Smooth edges.
  - c. Repair or reject defective and inaccurate work.

### B. Thermoforming:

1. Comply with manufacturer's data.
2. Heat entire component.
  - a. Material shall be uniform, between 275 and 325 degrees Fahrenheit during forming.
3. Form pieces to shape prior to seaming and joining.
4. Cut pieces to finished dimensions.
5. Sand edges and remove nicks and scratches.

#### 2.23 FINISHES

- A. Select from the manufacturer's standard color chart.
  1. Color:
    - a. Anthracite (basis of design)
- B. Finish:
  1. Provide surfaces with a uniform finish.
    - a. Semigloss; gloss range of 20–50.

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Condition woodwork to average prevailing humidity conditions in installation areas before installing.
- B. Deliver concrete inserts and similar anchoring devices to be built into substrates well in advance of time substrates are to be built.
- C. Before installing architectural woodwork, examine shop fabricated work for completion and complete work as required, including back priming and removal of packing.

#### 3.2 INSTALLATION

- A. Quality Standard: Install woodwork to comply with AWI Guidelines for same grade specified in Part 2 of this section for type of woodwork involved.
- B. Install woodwork plumb, level, true, and straight with no distortions. Shim as required with concealed shims. Install to a tolerance of 1/8 inch in 8'-0" for plumb and level (including tops) and with no variations in flushness of adjoining surfaces.
- C. Scribe and cut woodwork to fit adjoining work and refinish cut surfaces or repair damaged finish at cuts.
- D. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Except where prefinished matching fastener heads are required, use fine finishing nails for exposed nailing, countersunk and filled flush with woodwork and matching final finish where transparent finish is indicated.
- E. Cabinets: Install without distortion so that doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete the installation of hardware and accessory items as indicated. Maintain veneer sequence matching (if any) of cabinets with transparent finish.
- F. Completely Seal all voids and/or openings and joints between each cabinet and between a cabinet and an adjacent surface to prevent the passage of insects and filth.
- G. Tops: Anchor securely to base units and other support systems as indicated. Seal as



required.

### 3.3 ADJUSTMENT AND CLEANING

- A. Repair damaged and defective woodwork where possible to eliminate defects functionally and visually; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean, lubricate, and adjust hardware.
- C. Clean woodwork on exposed and semi-exposed surfaces. Touch up factory applied finishes to restore damaged or soiled areas.

### 3.4 PROTECTION

- A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer to protect casework from damage or deterioration until Substantial Completion.

### 3.5 HARDWARE SCHEDULE ( PLASTIC LAMINATE CABINETS ONLY)

- A. Miscellaneous Cabinet Hardware Finish
  - 1. Hinges - One pair per door. See cabinet details. Module 165 0-protrusion (165 deg. opening) hinges as manufactured by Julius Blum Inc.,
  - 2. Drawer Guides - Julius Blum Company, Inc., Carlstadt, New Jersey. Double track drawer slide kit. One (1) set each drawer.
  - 3. Door Pulls - Stanley #4483 - One per door, Polished Brass Finish.
  - 4. Drawer Pulls - Stanley #4483 - One per drawer, Polished Brass Finish.
  - 5. Door Catches - Stanley #41 - Magnetic one per door.
  - 6. Door & Drawer Cabinet Locks - Hudson WDL - 1125, 1-1/2" brass by Hudson Lock Inc.

END OF SECTION 06 41 00
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## SECTION 07 11 00 - DAMPPROOFING

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### **07 11 13 BITUMINOUS DAMPPROOFING**

RELATED DOCUMENTS: Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section .

SUMMARY:

1. This Section includes:
  - a. Bituminous Dampproofing
  - b. Cementitious Dampproofing
  - c. Sheet Dampproofing

GENERAL:

1. Submittals: For each dampproofing material specified, submit product data in accordance with Conditions of Contract and Division 1 Section "Submittals". Include data substantiating that materials comply with specified requirements.
  2. Project Conditions: Proceed with dampproofing work only after substrate construction and penetrating work have been completed and when existing and forecast weather conditions will permit work to be performed in accordance with manufacturer's recommendations.
- B. Products:
1. Cold-Applied Asphalt Emulsion Dampproofing: Asphalt-and-water-emulsion coating, compounded to penetrate substrate and build a moisture-resistant coating.
    - a. Provide semi-fibrated type semi-mastic asbestos-free emulsion; ASTM 1227, Type II, except containing non-asbestos fibrous reinforcement and filler materials.
  2. Manufacturer: Subject to compliance with requirements, provide coal-tar products of one of the following:
    - a. Celotex Corporation.
    - b. ChemRex, Inc./Sonneborn Building Products Div.
    - c. Karnak Chemical Corporation
    - d. Koppers Company, Inc.
    - e. Manville Building Materials Corporation.
    - f. Tamko Corporation.
    - g. Tremco, Inc.
- C. Execution:
1. Preparation: Clean substrate of projections and substances detrimental to work and install cant strips at changes in plane. Fill voids, seal joints, and apply bond breakers (if any) as recommended by prime materials manufacturer, with particular attention at construction joints.
  2. Prime substrate as recommended by primer materials manufacturer.
  3. Protection of Other Work: Do not allow liquids and mastic compounds to enter and clog drains and conductors. Prevent spillage and migration onto other surfaces of work by masking or otherwise protecting adjoining work.
  4. Installation, General: Apply bituminous dampproofing to all exterior below-grade surfaces of exterior underground walls in contact with earth or other backfill and where space is enclosed on opposite side.

- a. Reinforcement: At changes in plane or where otherwise shown as "Reinforced", install lapped course of glass-fiber mat in first coat of dampproofing compound before it thickens.
  - b. Extend vertical dampproofing down walls from finished grade line to top of footing, extend over top of footing. Extend 12 inches onto intersecting walls and footings but do not extend onto surfaces that will be exposed to view when project is completed.
  - c. Any disturbed or damaged membrane shall be corrected to Architects satisfaction prior to concealment.
5. Rate of Bitumen Application: Apply dampproofing compound to comply with minimum rate of application to achieve minimum uniform dry film thickness as follows:
- a. Brush-applied or spray-applied semi-fibrated emulsion: 5 gallons/100 sq. ft.; minimum 30-mil dry film thickness.

END OF SECTION 07 11 00
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## SECTION 07 21 00 - THERMAL INSULATION

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Board Insulation
  - 2. Blanket Insulation
  - 3. Foamed-in-Place Insulation
  - 4. Sprayed Insulation
- B. Related Sections: The following sections contain requirements that relate to this section:
  - 1. Division 7 Roofing Section indicated below for roof insulation specified as part of roofing construction:
    - a. "Single Ply Membrane Roofing."

#### 1.3 DEFINITIONS

- A. Thermal Resistivity: Where the thermal resistivity of insulation products are designated by "R-values," they represent the reciprocal of thermal conductivity (k-values). Thermal conductivity is the rate of heat flow through a homogenous material exactly 1 inch thick. Thermal resistivities are expressed by the temperature difference in degrees F between the two exposed faces required to cause one BTU to flow through one square foot per hour at mean temperatures indicated.

#### 1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of insulation product specified.
- C. Product test reports from and based on tests performed by qualified independent testing laboratory evidencing compliance of insulation products with requirements including R-values (aged values for plastic foam insulations), fire performance characteristics, perm ratings, water absorption ratings, and other properties, based on comprehensive testing of current products.

#### 1.5 REFERENCES

- A. ASTM C 518: Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
- B. ASTM C 1338: Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings
- C. ASTM D 6866: Standard Test Methods for Determining the Biobased Content of Solid, Liquid, and Gaseous Samples Using Radiocarbon Analysis
- D. ASTM E 84: Test Method for Surface Burning Characteristics of Building Materials
- E. ASTM E 96: Standard Test Methods for Water Vapor Transmission of Materials
- F. ASTM E 283: Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.

## G. ASTM E 2178: Standard Test Method for Air Permeance of Building Materials

## 1.6 QUALITY ASSURANCE

- A. 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.
- B. Manufacturer's Qualifications: Product produced in an ISO 9001 registered factory.
- C. Installer Qualifications: engage an Icynene Licenced Dealer (installer) who has been trained and certified by Icynene Inc.
- D. Installer Qualifications for Foamed-In-Place Masonry Insulation: Engage an experienced dealer/applicator who has been trained and licensed by the product manufacturer and which has not less than ten years direct experience in the installation of the product used.
  - 1. Fire Performance Characteristics: Provide insulation materials which are identical to those whose fire performance characteristics, as listed for each material or assembly of which insulation is a part, have been determined by testing, per methods indicated below, by a testing agency acceptable to authorities having jurisdiction.
- E. Fire-Test-Response Characteristics: Provide materials specified as determined by testing identical products per test method indicated below by a testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
  - a. Surface-Burning Characteristics: ASTM E 84
- F. Toxicity/Hazardous Materials
  - a. Provide products that contain no urea-formaldehyde
  - b. Products and equipment requiring or using CFCs, HCFCs, or HFCs during the manufacturing or installation process will not be permitted
  - c. Provide products that contain no PBDE's
  - d. Provide products that are "Low-emitting"

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. 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.

## PART 2 - PRODUCTS

**07 21 13 BOARD INSULATION****07 21 13.13 FOAM BOARD INSULATION**

## 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide insulation products of one of the following:
  - 1. Celotex
  - 2. Dow
  - 3. Johns Manville
  - 4. Owens-Corning Fiberglass Corporation

## 2.1 INSULATING MATERIALS

- A. General: Provide insulating materials that comply with requirements and with referenced standards.
- B. Polyisocyanurate Board Insulation: ¾" Thick Rigid, cellular thermal insulation with glass fiber reinforced polyisocyanurate closed cell foam core and aluminum foil facing laminated to both sides; complying with FS HH I 1972/1, Class 2; aged r values of 8 and 7.2 at 40 and 75 deg F (4.4 and 23.9 deg C), respectively; and as follows:
  - 1. Surface Burning Characteristics: Maximum flame spread and smoke developed values of 20 and 200, respectively

## **07 21 16 BLANKET INSULATION (BATT)**

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide insulation products of one of the following:
  - 1. CertainTeed Corp.
  - 2. Johns Manville
  - 3. Knauf Fiber Glass GmbH.
  - 4. Owens/Corning Fiberglas Corp.
  - 5. Thermafiber

### 2.1 INSULATING MATERIALS

- A. General: Provide insulating materials that comply with requirements and with referenced standards Ceilings mid. R-30, Stud walls min. R-19
- B. Unfaced Mineral Fiber Blanket\Batt Insulation: Thermal insulation produced by combining mineral fibers of type described below with thermosetting resins to comply with ASTM C 665 for Type I (blankets without membrane facing); and as follows:
  - 1. Mineral Fiber Type: Fibers manufactured from glass or slag.
  - 2. Surface Burning Characteristics: Maximum flame spread and smoke developed values of 25 and 50, respectively.

## **07 21 19.16 FOAMED IN PLACE MASONRY WALL INSULATION**

### 2.1 MANUFACTURERS

- A. Manufacturers of Foamed-in-Place Masonry Insulation: Subject to compliance with requirements, provide products from the following:
  - 1. "Core-Fill 500<sup>TM</sup>" - Tailored Chemical Products
    - P.O. Drawer 4186
    - Hickory, NC 28663
    - (800) 627-1687
  - a. Florida and Georgia Distributor - Tailored Foam of Florida Inc.
    - 3900 Saint Johns Parkway
    - Sanford, FL 32771
    - (407) 332-0333
  - b. Air Krete, Inc.
    - P.O. Box 380
    - Weedsport, NY 13166
  - c. CP Chemical Co. (Tripolymer).
    - White Plains, NY

### 2.2 PRODUCTS

- A. Expanding Insulation Product must be classified by Underwriters Laboratory (UL) as to

Surface Burning Characteristics as follows:

- a. Fire Resistance Ratings: ASTM E 119.
  - b. Surface Burning Characteristics: ASTM E 84.
  - c. Combustion Characteristics: ASTM E 136.
- B. Foamed-in-Place Masonry Insulation: Two component thermal insulation produced by combining a plastic resin and catalyst foaming agent surfactant which, when properly ratioed and mixed, together with compressed air produce a cold-setting foam insulation in the hollow cores of hollow unit masonry walls.
- a. Fire-Resistance Ratings: Minimum four (4) hour fire resistance wall rating (ASTM E 119) for 8" and 12" concrete masonry units when used in standard two (2) hour rated CMUs.
  - b. Surface Burning Characteristics: Maximum flame spread, smoke developed and fuel contributed of 0, 5 and 0 respectively.
  - c. Combustion Characteristics: Must be noncombustible, Class A building material.
  - d. Thermal Values: "R" Value of 4.91/inch @ 32 degrees F mean; ASTM C-177.
  - e. Sound Abatement: Minimum Sound Transmission Class ("STC") rating of 53 and a minimum Outdoor Indoor Transmission Class ("OITC") rating of 44 for 8" wall assembly (ASTM E 90-90).

### 2.3 INSTALLATION

- A. Fill all open cells and voids in hollow concrete masonry walls where shown on drawings. The foam insulation shall be pressure injected through a series of 5/8" to 7/8" holes drilled into every vertical column of block cells (every 8" on center) beginning at an approximate height of four (4) feet from finished floor level. Repeat this procedure at an approximate height of ten (10) feet above the first horizontal row of holes (or as needed) until the void is completely filled. Patch holes with mortar and score to resemble existing surface.

## **07 21 16 SPRAYED INSULATION**

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide insulation products of one of the following:
1. Thermafiber

### 2.2 FIRESAFING MATERIALS

- A. Fire safing insulation shall be Thermafiber safing 4" thick, or approved equal.

## 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 insulation until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Clean substrates of substances harmful to insulations or vapor retarders, including removal of projections that might puncture vapor retarders.
- B. Close off openings in cavities receiving poured-in-place insulation to prevent the escape of insulation. Provide bronze or stainless steel screen (inside) where openings must be maintained for drainage or ventilation.



**3.3 INSTALLATION, GENERAL**

- A. 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.
- B. Extend insulation full thickness as indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation. Remove projections that interfere with placement.
- C. Apply a single layer of insulation of required thickness, unless otherwise shown or required to make up total thickness.

**3.4 INSTALLATION OF GENERAL BUILDING INSULATION**

- A. Apply insulation units to substrate by method indicated, complying with manufacturer's recommendations. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.
- B. Seal joints between closed-cell (nonbreathing) insulation units by applying aluminum foil faced tape to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic, or sealant as recommended by insulation manufacturer. Tape seal insulation to all window frames, door frames, sealants and all penetration seals for air tight construction.
- C. For filled cell masonry: Install - Foam insulation after all masonry and structural work is in place. Drill 7/8" hole in each vertical column of masonry cells approximately 4 feet above each floor level. Foam shall be pressure injected into cells in excess of 100 PSI. Repeat each 10 feet of wall height until voids are completely filled. Remove excess foam patch holes with mortar and tool smooth, consistent with adjacent surfaces.

**3.5 PROTECTION**

- A. General: 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.

<b>END OF SECTION 07 21 00</b>
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## **SECTION 07 25 00 – AIR BARRIER**

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### **PART 1 GENERAL**

#### **1.1 Summary:**

##### **A. Includes but not limited to:**

- 1) Furnish and install air barrier/weather resistant barrier over exterior of wall sheathing at all locations regardless of whether or not indicated on drawings to protect exterior sheathing and interior walls.

#### **1.2 Related Sections**

##### **A. Section 07610 – Flashing and Sheet Metal**

#### **1.3 References:**

- A. American Society for Testing and Materials
- B. Technical Association of the Pulp and Paper Industry
- C. American Association of Textile Chemists and Colorists

#### **1.4 Submittals:**

- A. General: Submit each item in this Article according to the conditions of the Contract and Division I Specifications Sections.
- B. Product Data: Submit product specifications, technical data and installation instructions of manufacturer equaling or exceeding those specified.

#### **1.5 Quality Assurance**

##### **A. Qualifications:**

- 1) Installer with successful experience in the installation of air barrier/secondary weather resistant barriers.
- B. Install job mock-up using specified air barrier/secondary weather resistant barrier with system of fastening and taping seams as per manufacturer's instructions. Obtain architect's approval of system for appearance and workmanship standard.

### **PART 2 – PRODUCTS**

#### **2.1 Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include, but are not limited to the following:**

##### **A. Acceptable Manufacturer:**

DuPont Weatherization Systems  
4417 Lancaster Pike, Building 728  
Wilmington, DE 19805  
800-448-9835

#### **2.2 Materials**

- A. DuPont Tyvek HomeWrap A flash spunbonded olefin, non-woven, non-perforated secondary weather resistant barrier.
- B. Performance Characteristics
  - 1) AATCC–127, Water Penetration Resistance, exceeded at 210
  - 2) TAPPI T–460, Gurley Hill (sec/100cc) Air infiltration at 300 seconds
  - 3) ASTM E 96 Method B(g/m<sup>2</sup>–24hr.)Water vapor transmission of 400
  - 4) TAPPI T-41D, Basis weight of 1.8oz/yd
  - 5) ASTM E96 Method B, Water Vapor Transmission, 58 perms
  - 6) ASTM E1677, Air Retarder Material Standard Specification, Type I air barrier

- C. Sealing Tape/Fasteners
- 1) DuPont Tyvek Tape, DuPont Weatherization Systems.
  - 2) For steel frame construction: DuPont Tyvek Wrap Cap Screws, DuPont Weatherization Systems. 1 5/8" rust resistant screws with 2" diameter plastic cap
  - 3) For wood frame construction: DuPont Tyvek Wrap Caps, DuPont Weatherization Systems. Nails with large heads or plastic washers. Wide staples with a 1.0 inch minimum crown may be used if applied on wood sheathing.
  - 4) Caulks and Sealants: polyurethane or elastomeric sealants
    1. Available Products:
      - a. OSI® Quad Pro-Series®, solvent release butyl rubber sealant
      - b. DAP® Dynaflex 230™
      - c. Other products as approved and recommended by air barrier/weather resistant barrier manufacturer.

## PART 3 - EXECUTION

### 3.1 Installation

- A. Install Air Barrier over exterior side of exterior wall sheathing.
1. Install Air Barrier after sheathing is installed and before windows and doors are installed. Install lower level barrier prior to upper layers to ensure proper shingling of layers.
  2. Overlap Air Barrier at corners of building by a minimum of 12 inches.
  3. Overlap Air Barrier vertical seams by a minimum of 6 inches.
  4. Ensure barrier is plum and level with foundation, and unroll extending Air Barrier over window and door openings.
  5. Attach Air Barrier to wood, insulated sheathing board or exterior gypsum with plastic cap nails every 12" to 18" on vertical stud line with wood stud framing, and screws with washers to metal stud framing. When attaching to wood sheathing, a minimum 1.0 inch crown staple may be used. When attaching to masonry, use adhesive recommended by manufacturer.
  6. Prepare window and door rough openings as follows:
    - a. Prepare each window rough opening by cutting a modified "I" pattern in the Air Barrier.
      1. Horizontally cut Air Barrier along bottom of header.
      2. Vertically cut Air Barrier down the center of window openings from the top of the window opening down to 2/3 of the way to the bottom of the window openings.
      3. Diagonally cut Air Barrier from the bottom of the vertical cut to the left and right corners of opening.
      4. Fold side and bottom flaps into window opening and fasten every 6 inches. Trim off excess.
    - b. Prepare each rough door opening by cutting a standard "I" pattern in the Air Barrier.
      1. Horizontally cut Air Barrier along bottom of door frame header and along top of sill.
      2. Vertically cut Air Barrier down the center of door openings from the top of the door opening (header) down to the bottom of the door opening (sill).

3. Fold side flaps inside around door openings and fasten every 6 inches. Trim off excess.
7. Tape all horizontal and vertical seam of Air Barrier with DuPont™ Tyvek® Tape.
8. Seal all tears and cuts in Air Barrier with DuPont™ Tyvek® Tape.

**END OF SECTION 07 25 00**

## **SECTION 07 31 00 – ASPHALT SHINGLES**

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes asphalt shingles for steep roofs.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 6 Section "Rough Carpentry" for wood sheathing.
  - 2. Division 7 Section "Flashing and Sheet Metal" for metal valley flashing, step flashing, drip edges, and other sheet metal work.
  - 3. Division 7 Section "Roof Specialties & Accessories" for roof penetrations.

#### 1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for each type of product specified, including details of construction relative to materials, dimensions of individual components, profiles, textures, and colors.
- C. Samples for initial selection in the form of manufacturer's sample finishes showing the full range of colors and profiles available for each type of asphalt shingle indicated.
- D. Samples for verification in the form of 2 full-size units of each type of asphalt shingle indicated showing the full range of variations expected in these characteristics.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's unopened bundles or containers with labels intact.
- B. Handle and store materials at Project site to prevent water damage, staining, or other physical damage. Store roll goods on end. Comply with manufacturer's recommendations for job-site storage, handling, and protection.

#### 1.5 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installing asphalt shingles only when existing and forecasted weather conditions will permit work to be performed according to manufacturers' recommendations and warranty requirements, and when substrate is completely dry.

#### 1.6 WARRANTY

- A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

- B. Special Warranty: Submit a written warranty signed by manufacturer agreeing to repair or replace asphalt shingles that fail in materials or workmanship within the specified warranty period. Failures include, but are not limited to, deformation or deterioration of asphalt shingles beyond normal weathering.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, provide asphalt shingles produced by one of the following:
1. CertainTeed Corporation.
  2. GAF Building Materials Corporation.
  3. Manville Roofing System Division
  4. Owens-Corning Fiberglas Corp.

### **2.2 ASPHALT SHINGLES**

- A. Colors, Blends, and Patterns: Where manufacturer's standard products are indicated, provide asphalt shingles with the following requirements:
1. Provide Architect's selections from manufacturer's full range of colors, textures, and patterns for asphalt shingles of type indicated two color selections to be selected by architect.
- B. Three-Dimensional Architectural, Fiberglass, Laminated Strip Shingles: 30 year Mineral-surfaced, self-sealing, laminated, multi-ply overlay construction, fiberglass-based, strip asphalt shingles, complying with both ASTM D 3018, Type I, and ASTM D 3462. Provide shingles with a Class A fire-test-response classification that pass the wind-resistance-test requirements of ASTM D 3161.
1. Fungus Resistant: Provide shingles that have been surface treated to remain free of fungus and algae growth, which adversely affects the appearance of the roof, for at least 5 years.
- C. Hip and Ridge Shingles: Manufacturers factory units of same color, warranty, and construction.

### **2.3 METAL TRIM AND FLASHING**

- A. Sheet Metal Materials: Furnish the following sheet metal materials:
1. Aluminum Sheets: ASTM B 209 (ASTM B 209M), alloy 3003 H14 with mill finish, minimum 0.024 inch (0.6 mm) thick, unless otherwise indicated.
- B. Metal Drip Edge: Brake-formed sheet metal with at least a 3-inch (50-mm) roof deck flange and a 1-1/2-inch (38-mm) fascia flange with a 3/8-inch (9.6-mm) drip at lower edge. Furnish the following material in lengths of 8 or 10 feet (2.5 to 3 m).
1. Material: Minimum 0.024 - Inch prefinished aluminum sheets.
- C. Metal Flashing: Job-cut to sizes and configurations required.
1. Material: Minimum 0.024 - Inch mill finish aluminum sheets.
- D. Open-Valley Metal Flashing: Preformed, inverted "V" profile at center of valley and flanges extending at least 9 inches (230 mm) in each direction from centerline of valley.
1. Material: Minimum 0.024 - Inch mill finish aluminum sheets.

- E. Vent Pipe Flashing: Lead conforming to ASTM B 749, Type L51121, at least 1/16 inch (1.6 mm) thick, unless otherwise indicated. Provide lead sleeve sized to slip over and turn down into pipe, soldered to skirt at slope of roof extending at least 4 inches (100 mm) from pipe onto roof.

## 2.4 ACCESSORIES

- A. Peel and Stick Ice and Water Shield Underlayment: 40 mils, 36-inch- (914-mm-) wide, tensile strength lbf/in MD= 32-38, CD 26-30, adhesion to plywood at 75 degrees F 30 lbf/ft of width, adhesion to plywood at 40 degrees F 18 lbf/ft of width, slip resistant, water vapor permeability of 0.1 US Perm or less, compound stability of 260 degrees F , complying with ASTM D-1970. Basis of Specification Tarco, Leak-Barrier PS 200.
- B. Smooth-Surface Roll Roofing: Organic roofing felt saturated with asphalt and coated on both sides with an asphaltic compound, 36 inches (914 mm) wide, weighing at least 50 lb/square (244 kg/sq. m) and complying with ASTM D 224, Type II or III.
- C. Asphalt Plastic Cement: Nonasbestos fibrated asphalt cement, complying with ASTM D 4586.
- D. Nails: Aluminum or hot-dip galvanized steel, 0.120-inch- (3-mm-) diameter barbed shank, sharp-pointed, conventional roofing nails with a minimum 3/8-inch- (9.5-mm-) diameter head and of sufficient length to penetrate through roofing materials and a minimum of 3/4 inch (19 mm) into solid decking or at least 1/8 inch (3 mm) through plywood sheathing.
  - 1. Where nails are in contact with flashing, prevent galvanic action by providing nails made from the same metal as that of the flashing.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrate for compliance with requirements for substrates, installation tolerances, and other conditions affecting performance of asphalt shingles. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application. Cover knotholes or other minor voids in substrate with sheet metal flashing secured with noncorrosive roofing nails.
- B. Coordinate installation with flashings and other adjoining work to ensure proper sequencing. Do not install roofing materials until all vent stacks and other penetrations through roof sheathing have been installed and are securely fastened against movement.

### 3.3 INSTALLATION

- A. General: Comply with manufacturer's instructions and recommendations but not less than those recommended by ARMA's "Residential Asphalt Roofing Manual" or "The NRCA Steep Roofing Manual."
  - 1. Fasten asphalt shingles to roof sheathing with nails.
- B. Peel and Stick Ice and Water Shield Underlayment: Apply 1 layer of underlayment horizontally over entire surface to receive asphalt shingles, lapping succeeding courses a minimum of 3 inches, end laps a minimum of 6 inches, and hips and valleys a minimum of 8 inches. Install per manufacturer's recommendations. Do not leave exposed more than 30



days.

- C. Open Valleys: Comply with ARMA and NRCA recommendations. Install a metal valley with shingle lapped at least 9 inches (225 mm) and sealed with plastic asphalt cement.
- D. Flashing: Install metal flashing and trim as indicated and according to details and recommendations of the "Asphalt Roofing" section of "The NRCA Steep Roofing Manual" and ARMA's "Residential Asphalt Roofing Manual."
- E. Install asphalt shingles, beginning at roof's lower edge, with a starter strip of roll roofing or inverted asphalt shingles. Fasten asphalt shingles in the desired weather exposure pattern; use number of fasteners per shingle as recommended by manufacturer. Use vertical and horizontal chalk lines to ensure straight coursing.
  - 1. Cut and fit asphalt shingles at valleys, ridges, and edges to provide maximum weather protection. Provide same weather exposure at ridges as specified for roof. Lap asphalt shingles at ridges to shed water away from direction of prevailing wind.
  - 2. Use fasteners at ridges of sufficient length to penetrate sheathing as specified.

### 3.4 ADJUSTING

- A. Replace any damaged materials installed under this Section with new materials that meet specified requirements.

**END OF SECTION 07 31 00**

## SECTION 07 41 00 – SHEET METAL ROOFING

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### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes the following:
  - 1. Standing seam metal roofing.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 7 Section "Insulation" for roof insulation.
  - 2. Division 7 Section "Flashing and Sheet Metal" for flashing not part of roofing and other sheet metal work.
  - 3. Division 7 Section "Joint Sealants" for field applied panel sealants.

#### 1.2 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data including metal manufacturer's and fabricator's specifications, installation instructions, and general recommendations for roofing applications. Include certification or other data substantiating that materials comply with requirements.
- C. Shop drawings showing manner of forming, joining, and securing metal roofing, and pattern of seams. Show expansion joint details and waterproof connections to adjoining work and at obstructions and penetrations.
- D. Samples: consisting of 12-inch-square specimens of specified metal roofing material with specified finishes applied. Project will have two color selections

#### 1.3 QUALITY ASSURANCE

- A. Installer: A firm with 10 years of successful experience with installation of metal roofing of type and scope equivalent to Work of this Section.
- B. Industry Standard: Except as otherwise shown or specified, comply with applicable recommendations and details of "Architectural Sheet Metal Manual" by SMACNA in order to achieve a water-tight installation. Conform to dimensions and profiles shown.
- C. Wind Uplift: Provide roof assemblies meeting requirements of UL 580 for Class 90 wind uplift resistance. Verify local requirements.
- D. Design roof assembly to conform to the requirements of ANSI A 58.1..

#### 1.4 WARRANTY

- A. Aluminum Finish Warranty: Furnish manufacturer's written warranty covering failure of the factory applied exterior finish on aluminum sheet metal roofing within the

warranty period. This warranty shall be in addition to and not a limitation of other rights the Owner may have against the Contractor under the Contract Documents.

1. Warranty period is 20 years after date of Substantial Completion.

## PART 2 -PRODUCTS

### 2.1 MANUFACTURERS

- A. ASTM C 518: Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
  1. Alumax Building Products
  2. M.M Systems Corporation
  3. Petersen Aluminum Corporation
  4. MBCI / Metal Building Components
  5. ATAS Aluminum Corp.

### 2.2 MATERIALS

- A. Aluminum Roofing Sheet: Aluminum sheet of alloy and temper recommended by manufacturer for use intended and as required for type of finish indicated, but with not less than strength and durability properties specified in ASTM B 209 for 3003 H14, unless otherwise indicated.
  1. Provide alloy Alclad 3003 or Alclad 3004; tempers H14, H24, or H34.
  2. Thickness: 0.032 inch unless otherwise indicated.
  3. Fluoropolymer Coating Finish: Manufacturer's standard coil coated, thermocured, full strength 70 percent "Kynar 500" coating consisting of a primer and a minimum 0.75 mil dry film thickness with a total minimum dry film thickness of 0.9 mil and 30 percent reflective gloss when tested in accordance with ASTM D 523.
    - a. Durability: Provide coating that has been field tested under normal range of weathering conditions for minimum of 20 years without significant peel, blister, flake, chip, crack, or check in finish and without chalking in excess of No. 8 in accordance with ASTM D 659, and without fading in excess of 5 NBS units.
    - b. Architect shall select two color choices from manufacturer's complete color line.
- B. Miscellaneous Materials: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants and accessory items as recommended by sheet metal manufacturer and fabricator for metal roofing work, except as otherwise indicated.
- C. Expansion Joint Sealant: For hooked type expansion joints, which must be free to move, provide nonsetting, nonhardening, nonmigrating, heavy bodied polyisobutylene mastic sealant.
- D. Paper Slip Sheet: Minimum 5 lb. rosin sized building paper.
- E. Felts: Provide asphalt saturated organic felts conforming to the requirements of ASTM D 226, Type II (No. 30).

- F. Accessories: Except as indicated as work of another specification Section, provide components required for a complete roof system, including trim, copings, fascias, ridge closures, clips, seam covers, battens, flashings, gutters, louvers, sealants, gaskets, and closure strips. Match materials and finishes of roof.
1. Sealing Tape: Pressure sensitive 100 percent solids polyisobutylene compound sealing tape with release paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape.
  2. Joint Sealant: One part elastomeric polyurethane, polysulfide, or silicone rubber sealant as recommended by the building manufacturer.
- G. Bituminous Coating: Cold applied asphalt mastic, SSPC paint 12, compounded for 15 mil dry film thickness per coat, except as otherwise indicated. Provide inert type noncorrosive compound, nominally free of sulfur components and other deleterious impurities.
- H. Peel and stick ice & water shield underlayment, . 40 MILS, 36 inc wide, ASTM D-1970. Basis of Specification Tarco, leak-barrier ps200

### 2.3 SHOP-FABRICATED UNITS

- A. General Metal Fabrication: Shop fabricate work to greatest extent possible. Comply with details shown and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate for waterproof and weather resistant performance with expansion provisions for running work, sufficient to permanently prevent leakage, damage, or deterioration of the work. Form work to fit substrate. Comply with material manufacturer's instructions and recommendations for forming material. Form exposed sheet metal work without excessive oil canning, buckling, and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.
- B. Seams: Fabricate nonmoving seams in sheet metal with flat lock seams. For metal other than aluminum, tin edges to be seamed, form seams, and solder. Form aluminum seams with epoxy seam sealer; rivet joints for additional strength where required.
- C. Expansion Provisions: Where lapped or bayonet type expansion provisions in work cannot be used, or would not be sufficiently water/weatherproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).
- D. Sealant Joints: Where movable, non expansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant, in compliance with SMACNA standards.
- E. Separations: Provide for separation of metal from noncompatible metal or corrosive substrate by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator

## PART 3 - EXECUTION

## 3.1 PREPARATION

- A. Coordinate metal roofing with rain drainage work, flashing, trim and construction of decks, parapets, walls, and other adjoining work to provide a permanently leak proof, secure, and noncorrosive installation.

## 3.2 INSTALLATION

- A. Manufacturer's Recommendations: Except as otherwise shown or specified, comply with recommendations and instructions of manufacturer of sheet metal being fabricated and installed.
- B. Separate dissimilar metals by painting each metal surface in area of contact with a bituminous coating, by applying rubberized asphalt underlayment to each metal surface, or by other permanent separation as recommended by manufacturers of dissimilar metals.
- C. Install underlayment and paper slip sheet on substrate under metal roofing to greatest extent possible unless otherwise recommended by manufacturer of sheet metal. Use adhesive for temporary anchorage, where possible, to minimize use of mechanical fasteners under metal roofing. Lap joints 2 inches minimum.
- D. Coat the back side of metal roofing with bituminous coating where it will be in contact with wood, ferrous metal, or cementitious construction.
- E. Form and fabricate sheets, seams, strips, cleats, valleys, ridges, edge treatments, integral flashings, and other components of metal roofing to profiles, patterns, and drainage arrangements shown and as required for permanently leakproof construction. Provide for thermal expansion and contraction of the work. Seal joints as shown and as required for leak proof construction. Shop fabricate materials to greatest extent possible.
- F. Sealant-Type Joints: Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1 inch into sealant. Form joints to conceal sealant completely. When ambient temperature is moderate at time of installation (40 deg F to 70 deg F or 4 deg C to 21 deg C), set joint members for 50 percent movement either way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F (4 deg C). Comply with requirements of Division 7 "Sealant" Sections for handling and installing sealants.
- G. Fabricate and install work with lines and corners of exposed units true and accurate. Form exposed faces flat and free of buckles, excessive waves, and avoidable tool marks considering temper and reflectivity of metal. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant. Except as otherwise shown, fold back sheet metal to form a hem on concealed side of exposed edges
- H. Conceal fasteners and expansion provisions where possible in exposed work, and locate so as to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

I. Rivet joints in aluminum where necessary for strength. Clean exposed surfaces of every substance that is visible or might cause corrosion of metal or deterioration of finish.

3.3 CLEANING & PROTECTING

- A. Remove protective film (if any) from exposed surfaces of metal roofing promptly upon installation. Strip with care to avoid damage to finishes.
- B. Clean exposed metal surfaces of substances that would interfere with uniform oxidation and weathering.
- C. Provide final protection in a manner acceptable to installer that ensures that metal roofing is without damage or deterioration at time of Substantial Completion.

END OF SECTION 07 41 00
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## SECTION 07 46 00 – FIBER - CEMENT SIDING & TRIM

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### PART 1 - GENERAL

A. Work under this section is subject to the provisions of the contract documents which in any way affect the work specified herein.

#### 1.1 SCOPE

- A. Furnish and install fiber-cement siding, and moulding and accessories where shown on drawings or as specified herein.
- B. Coordinate this section with interfacing and adjoining work for proper sequence of installation.
- C. Work in other sections affecting this work.
  - 1. Division 4 – Masonry
  - 2. Division 5 - Metals
  - 3. Division 7 - Thermal and Moisture Protection

#### 1.2 Quality Assurance

- A. Submittals:
  - 1. Submit three 6 inch x 6 inch pieces of siding and trim claddings in texture and widths shown and specified herein.
  - 2. Submit three copies of specifications, installation data and other pertinent manufacturer's literature.

#### 1.3 Product Handling

- A. Stack products on edge or lay flat on a smooth, level surface. Protect edges and corners from chipping. Store sheets under cover and keep dry prior to installing.

#### 1.4 Job Conditions

- A. Install weather-resistive barriers and claddings to dry surfaces.
- B. Repair any punctures or tears in the weather-resistive barrier prior to the installation of the siding.
- C. Protect siding from other trades.

#### 1.5 Warranty

- A. Limited product warranty against manufacturing defects in siding for 50 years, and trim for 10 years.
- B. Workmanship: application limited warranty for 2 years.



**PART 2 - PRODUCTS****2.1 Available Manufactures:**

Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include, but are not limited to the following: Hardiplank.

**2.2 Hardiplank and Harditrim Fascia and Moulding**

- A. Non-asbestos fiber-cement siding to comply with ASTM Standard Specification C1186 Grade II, Type A.
  
- B. Siding to meet the following building code compliance National Evaluation Report No. NER 405 (BOCA, ICBO, SBCCI); Metro Dade County, Florida Acceptance No. 94-1234.04; US Department of Housing and Urban Development Materials Release 1263a; Non-asbestos fiber-cement siding to be non-combustible when tested in accordance with ASTM test method E136.
  
- C. Type: Cedarmill 8-1/4" See elevations for exposure
  
- D. Trim Type: Cedarmill 4" Harditrim  
James Hardie Building Products, 1-800-9-HARDIE

**2.3 Fasteners**

- A. Masonry: Power actuated stainless steel fastener as recommended by manufacture for direct attachment to masonry.
  
- B. Wood sheathing: 0.121" shank x 0.371" head x 1 1/4" corrosion resistant roofing nails in wood furring.

**PART 3 - EXECUTION****3.1 Surface Conditions**

- A. Correct conditions detrimental to timely and proper completion of work.

**3.2 Installation - Harditrim Fascia and Moulding**

- A. Install flashing around all wall openings.
  
- B. Fasten through trim into structural framing or code complying sheathing. Fasteners must penetrate minimum 3/4 inch or full thickness of sheathing. Additional fasteners may be required to ensure adequate security.
  
- C. Place fasteners no closer than 3/4 inch and no further than 2 inch from side edge of trim board and no closer than 1 inch from end. Fasten maximum 16 inch on center.
  
- D. Maintain clearance between trim and adjacent finished grade.
  
- E. Trim inside corner with single board.

- F. Install single board of outside corner board then align second corner board to outside edge of first corner board. Do not fasten Harditrim board to Harditrim board.
- G. Allow 1/8 inch gap between trim and siding.
- H. Seal gap with high quality, paint-able caulk.
- I. Shim frieze board as required to align with corner trim.
- J. Install Harditrim fascia over structural subfascia.

### 3.3 Installation - Siding

- A. Starting: Install a minimum 1/4 inch thick lath starter strip at the bottom course of the wall. Apply planks horizontally with minimum 1 1/4 inch wide laps at the top. The bottom edge of the first plank overlaps the starter strip.
- B. Allow minimum 1 inch vertical clearance between roofing and bottom edge of siding.
- C. Align vertical joints of the planks over framing members.
- D. Maintain clearance between siding and adjacent finished grade.
- E. Locate splices at least one stud cavity away from window and door openings.
- F. Wind Resistance: Where a specified level of wind resistance is required Hardiplank lap siding is installed to framing members and secured with fasteners described in Table No. 2 in National Evaluation Service Report No. NER-405.

### 3.4 Finishing

- A. Finish unprimed siding with minimum one coat high quality, alkali-resistant primer and one coat of 100% acrylic latex, exterior grade topcoat. Follow paint manufacturer's written product recommendation and written application instructions.

END OF SECTION 07 46 00

# SECTION 07 54 00 - LOW SLOPE SINGLE-PLY MEMBRANE ROOFING

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## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all Elastomeric sheet roofing systems as specified herein, including:
  - 1. Roofing manufacturer's requirements for the specified warranty.
  - 2. Preparation of roofing substrates.
  - 3. Wood nailers for roofing attachment.
  - 4. Insulation.
  - 5. Thermoplastic membrane roofing.
  - 6. Metal roof edging and copings.
  - 7. Flashings.
  - 8. Walkway pads.
  - 9. Other roofing-related items specified or indicated on the drawings or otherwise necessary to provide a complete weatherproof roofing system.
- B. Disposal of construction waste is the responsibility of Contractor. Perform disposal in manner complying with all applicable federal, state, and local regulations.
- C. Comply with the published recommendations and instructions of the roofing membrane manufacturer, at <http://manual.fsbp.com>.
- D. Commencement of work by the Contractor shall constitute acknowledgement by the Contractor that this specification can be satisfactorily executed, under the project conditions and with all necessary prerequisites for warranty acceptance by roofing membrane manufacturer. No modification of the Contract Sum will be made for failure to adequately examine the Contract Documents or the project conditions.

### 1.3 RELATED SECTIONS

- A. Section 06 10 00 - Rough Carpentry: Wood nailers associated with roofing and roof insulation.
- B. Section 07 62 00 - Sheet Metal Flashing and Trim: Formed metal flashing and trim items associated with roofing.
- C. Section 07 71 00 - Roof Specialties: Manufactured copings, fascias, gravel stops, and other flashing-related items.
- D. Section 07 72 00 - Roof Accessories: Roof hatches, vents, and manufactured curbs.

### 1.4 REFERENCES

- A. Referenced Standards: These standards form part of this specification only to the extent they are referenced as specification requirements.
- B. ASTM C 1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2004.
- C. ASTM C 1549 - Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer; 2004.

- D. ASTM D 638 - Standard Test Method for Tensile Properties of Plastics; 2003.
- E. ASTM D 1004 - Standard Test Method for Initial Tear Resistance of Plastic Film and Sheeting; 2003.
- F. ASTM D 1079 - Standard Terminology Relating to Roofing, Waterproofing, and Bituminous Materials; 2005a.
- G. ASTM D 6878 - Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing; 2003.
- H. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2005.
- I. CAN-ULC-S770 - Standard Test Method Determination of L-Term Thermal Resistance Of Closed-Cell Thermal Insulating Foams; 2003.
- J. PS 1 - Construction and Industrial Plywood; 1995.
- K. PS 20 - American Softwood Lumber Standard; 2005.
- L. SPRI ES-1 - Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems; 2003. (ANSI/SPRI ES-1).

#### 1.5 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 for definition of terms related to roofing work not otherwise defined in the section.
- B. LTTR: Long Term Thermal Resistance, as defined by CAN-ULC S770.

#### 1.6 SUBMITTALS

- A. General: Submit the following in accordance with the Conditions of Contract and Division 1 Specifications Sections.
- B. Product Data: Provide membrane manufacturer's printed data sufficient to show that all components of roofing system, including insulation and fasteners, comply with the specified requirements and with the membrane manufacturer's requirements and recommendations for the system type specified; include at least the following:
  - 1. Technical data sheet for roof membrane.
  - 2. Technical data sheets for splice tape and adhesives.
  - 3. Technical data sheet for each insulation type.
  - 4. Technical data sheet for each type of metal edging.
- C. Samples: Submit samples of each product to be used.
- D. Shop Drawings: Provide:
  - 1. For tapered insulation, provide project-specific layout and dimensions for each board.
- E. Specimen Warranty: Submit prior to starting work.
- F. Installer Qualifications: Letter from manufacturer attesting that the roofing installer meets the specified qualifications.
- G. Pre-Installation Notice: Copy to show that manufacturer's required Pre Installation Notice (PIN) has been accepted and approved by the manufacturer.
- H. Executed Warranty.

#### 1.7 QUALITY ASSURANCE

- A. Applicator Qualifications: Roofing installer shall have the following:
  - 1. Current Firestone Red Shield Licensed Contractor status.
  - 2. Fully staffed office within 100 miles of the job site.
  - 3. At least five years experience in installing specified system.
- B. Pre-Installation Conference: Before start of roofing work, Contractor shall hold a meeting to discuss the proper installation of materials and requirements to achieve the warranty:
  - 1. Require attendance with all parties directly influencing the quality of roofing work or

affected by the performance of roofing work.

2. Notify all parties not less than two weeks in advance of meeting.

#### 1.8 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in manufacturer's original containers, dry and undamaged, with seals and labels intact and legible.
- B. Store materials clear of ground and moisture with weather protective covering.
- C. Keep combustible materials away from ignition sources.

#### 1.9 WARRANTY

- A. Comply with all warranty procedures required by manufacturer, including notifications, scheduling, and inspections.
- B. Warranty: Firestone 20 year Red Shield Limited Warranty covering membrane, roof insulation, and membrane accessories.
  1. Limit of Liability: No dollar limitation.
  2. Scope of Coverage: Repair leaks in the roofing system caused by:
    - a. Ordinary wear and tear of the elements.
    - b. Manufacturing defect in Firestone brand materials.
    - c. Defective workmanship used to install these materials.
    - d. Damage due to winds up to 55 mph.
  3. Not Covered:
    - a. Damage due to winds in excess of 55 mph.
    - b. Damage due hurricanes or tornadoes.
    - c. Hail.
    - d. Intentional damage.
    - e. Unintentional damage due to normal rooftop inspections, maintenance, or service.
- C. Metal Roof Edging: Full-system warranty for roof edge system, covering blow-off from winds up to 150 mph.
- D. Metal Roof Edging with Exposed Decorative Fascia: Provide 20 year warranty for painted finish covering color fade, chalk, and film integrity.

#### 1.10 PROJECT CONDITIONS

- A. Coordinate accessory locations, installation, and sequencing with other work to avoid interference and to assure proper installation, operation, adjustment, cleaning, and servicing of accessory items.

### PART 2 - MATERIALS

#### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer - Roofing System: Firestone Building Products Co., Carmel, IN. [www.firestonebpco.com](http://www.firestonebpco.com).
  1. Roofing systems manufactured by others are acceptable provided the roofing system is completely equivalent in materials and warranty conditions and the manufacturer meets the following qualifications.
    - a. Specializing in manufacturing the roofing system to be provided.
    - b. Minimum ten years of experience manufacturing the roofing system to be provided.
    - c. Able to provide a no dollar limit, single source roof system warranty that is backed by corporate assets in excess of one billion dollars.
    - d. ISO 9002 certified.
    - e. Able to provide isocyanurate insulation that is produced in own facilities.

- f. Roofing systems manufactured by the companies listed below are acceptable provided they are completely equivalent in materials and warranty conditions:
  - 1) Versico
  - 2) or approved equal
- B. Manufacturer of Insulation: Same manufacturer as roof membrane.
- C. Manufacturer of Metal Roof Edging: Same manufacturer as roof membrane.
  1. Field or shop fabricated metal roof edgings are not acceptable.
  2. Factory fabricated products by other manufacturers are acceptable provided they are completely equivalent in materials, performance and attachment.
  3. Factory fabricated products manufactured by the companies listed below are acceptable provided they are completely equivalent in materials and performance:
    - a. Metal-Era.
    - b. W.P. Hickman.
- D. Substitution Procedures: See Instructions to Bidders and Specification Section 01 25 00.
  1. Submit evidence that the proposed substitution complies with the specified requirements.

## 2.2 ROOFING SYSTEM DESCRIPTION

- A. Roofing System:
  1. Membrane: Thermoplastic olefin (TPO).
  2. Thickness: 60 mil.
  3. Membrane Attachment: Fully adhered.
  4. Slope: Provide Primary slope of 1/4 inch per foot by means of tapered insulation. Overlaid saddle tapering may be 1/8" per ft.
  5. Comply with applicable local building code requirements, Florida Building Code and Miami/Dade NOA for specified design pressures.
- B. Insulation:
  1. Total R Value: R 30, minimum.
  2. Minimum Board Thickness: 2.0 inches; use as many layers as necessary; stagger joints in adjacent layers.
  3. Tapered: Slope as indicated; provide minimum R value at thinnest point; place tapered layer on bottom.
  4. Base Layer: Polyisocyanurate foam board, non-composite:
    - a. Attachment: **Mechanical** fastening at **steel deck** locations.
    - b. Attachment: **Adhered** fastening at **concrete deck** locations.
  5. Intermediate Layer(s): Polyisocyanurate foam board, non-composite.
    - a. Attachment: Low rise adhesive attachment.
  6. Top Layer: Polyisocyanurate foam board, non-composite.
    - a. Attachment: Low rise adhesive attachment.
- C. Crickets: Tapered insulation of same type as specified for top layer; slope as indicated.

## 2.3 TPO MEMBRANE MATERIALS

- A. Membrane: Flexible, heat weldable sheet composed of thermoplastic polyolefin polymer and ethylene propylene rubber; complying with ASTM D 6878, with polyester weft inserted reinforcement and the following additional characteristics:
  1. Thickness: 0.060 inch plus/minus 10 percent, with coating thickness over reinforcement of 0.024 inch plus/minus 10 percent.
  2. Sheet Width: Provide the widest available sheets to minimize field seaming.
  3. Puncture Resistance: 265 lbf, minimum, when tested in accordance FTM 101C



Method 2031.

4. Solar Reflectance: 0.79, minimum, when tested in accordance with ASTM C 1549.
  5. Color: White.
  6. Acceptable Product: ULTRAPLY TPO by Firestone.
- B. Curb and Parapet Flashing: Same material as membrane, with encapsulated edge which eliminates need for seam sealing the flashing-to-roof splice; precut to 18 inches wide.
- C. Formable Flashing: Non-reinforced, flexible, heat weldable sheet, composed of thermoplastic polyolefin polymer and ethylene propylene rubber.
1. Thickness: 0.060 inch plus/minus 10 percent.
  2. Tensile Strength: 1550 psi, minimum, when tested in accordance with ASTM D 638 after heat aging.
  3. Elongation at Break: 650 percent, minimum, when tested in accordance with ASTM D 638 after heat aging.
  4. Tearing Strength: 12 lbf, minimum, when tested in accordance with ASTM D 1004 after heat aging.
  5. Color: White.
  6. Acceptable Product: ULTRAPLY TPO Flashing by Firestone.
- D. Tape Flashing: 5-1/2 inch nominal wide TPO membrane laminated to cured rubber polymer seaming tape, overall thickness 0.065 inch nominal; TPO QuickSeam Flashing by Firestone.
- E. Bonding Adhesive: Neoprene and SBR rubber blend, formulated for compatibility with the membrane other substrate materials, including masonry, wood, and insulation facings; ULTRAPLY Bonding Adhesive by Firestone.
- F. Pourable Sealer: Two-part polyurethane, two-color for reliable mixing; Pourable Sealer by Firestone.
- G. Seam Plates: Steel with barbs and Galvalume coating; corrosion-resistance complying with FM 4470.
- H. Termination Bars: Aluminum bars with integral caulk ledge; 1.3 inches wide by 0.10 inch thick; Firestone Termination Bar by Firestone.
- I. Cut Edge Sealant: Synthetic rubber-based, for use where membrane reinforcement is exposed; UltraPly TPO Cut Edge Sealant by Firestone.
- J. General Purpose Sealant: EPDM-based, one part, white general purpose sealant; UltraPly TPO General Purpose Sealant by Firestone.
- K. Coated Metal Flashing and Edgings: Galvanized steel with roofing manufacturer's bonded TPO coating; UltraPly TPO Coated Metal by Firestone.
- L. Molded Flashing Accessories: Unreinforced TPO membrane pre-molded to suit a variety of flashing details, including pipe boots, inside corners, outside corners, etc.; UltraPly TPO Small and Large Pipe Flashing by Firestone.
- M. Water Block Seal: Butyl rubber sealant for use between two surfaces, not exposed; Water Block Seal by Firestone.
- N. Roof Walkway Pads: Non-reinforced TPO walkway pads, 0.130 inch by 30 inches by 40 feet long with patterned traffic bearing surface; UltraPly TPO Walkway Pads by Firestone.
- 2.4 ROOF INSULATION AND COVER BOARDS
- A. Polyisocyanurate Board Insulation: Closed cell polyisocyanurate foam with black glass reinforced mat laminated to faces, complying with ASTM C 1289 Type II Class 1, with the following additional characteristics:
1. Thickness: As indicated elsewhere.



2. Size: 48 inches by 96 inches, nominal.
  - a. Exception: Insulation to be attached using adhesive or asphalt may be no larger than 48 inches by 48 inches, nominal.
3. R-Value (LTTR).
  - a. 1.0 inch Thickness: 6.0, minimum.
  - b. 1.25 inch Thickness: 7.5, minimum.
  - c. 1.5 inch Thickness: 9.0, minimum.
  - d. 1.75 inch Thickness: 10.5, minimum.
  - e. 2.0 inch Thickness: 12.1, minimum.
  - f. 3.0 inch Thickness: 18.5, minimum.
  - g. 4.0 inch Thickness: 25.0, minimum.
4. Compressive Strength: 20 psi when tested in accordance with ASTM C 1289.
5. UL-Classified and FM-approved for direct to steel deck applications.
6. Ozone Depletion Potential: Zero; made without CFC or HCFC blowing agents.
7. Recycled Content: 19 percent post-consumer and 15 percent post-industrial, average.
8. Acceptable Product: ISO 95+ GL Polyisocyanurate Insulation by Firestone.
- B. Insulation Fasteners: Type and size as required by roof membrane manufacturer for roofing system and warranty to be provided; use only fasteners furnished by roof membrane manufacturer.
- C. Adhesive for Insulation Attachment: Type as required by roof membrane manufacturer for roofing system and warranty to be provided; use only adhesives furnished by roof membrane manufacturer.

## 2.5 METAL ACCESSORIES

- A. Metal Roof Edging and Fascia: Continuous metal edge member serving as termination of roof membrane and retainer for metal fascia; watertight with no exposed fasteners; mounted to roof edge nailer:
  1. Wind Performance:
    - a. Membrane Pull-Off Resistance: 100 lbs/ft, minimum, when tested in accordance with ANSI/SPRI ES-1 Test Method RE-1, current edition.
    - b. Fascia Pull-Off Resistance: At least the minimum required when tested in accordance with ANSI/SPRI ES-1 Test Method RE-2, current edition.
    - c. Provide product listed in current Factory Mutual Research Corporation Approval Guide with at least FM 1-270 rating.
  2. Description: Two-piece; extruded aluminum T-shaped edge member securing top and bottom edges of flat-faced formed metal fascia; Firestone AnchorGard.
  3. Fascia Face Height: 5 inches.
  4. Edge Member Height Above Nailer: 1-1/4 inches.
  5. Fascia Material and Finish: 0.040 inch thick formed aluminum, natural mill finish; matching concealed joint splice plates; factory-installed protective plastic film.
  6. Length: 144 inches.
  7. Functional Characteristics: Fascia retainer supports while allowing for free thermal cycling of fascia.
  8. Aluminum Bar: Continuous 6063-T6 alloy aluminum extrusion with pre-punched slotted holes; miters welded; injection molded EPDM splices to allow thermal expansion.
  9. Anchor Bar Cleat: 20 gage, 0.036 inch G90 coated commercial type galvanized steel with pre-punched holes.
  10. Curved Applications: Factory modified.

11. Fasteners: Factory-provided corrosion resistant fasteners, with drivers; no exposed fasteners permitted.
  12. Special Shaped Components: Provide factory-fabricated pieces necessary for complete installation, including miters, scuppers, and end caps; minimum 14 inch long legs on corner pieces.
  13. Scuppers: Welded watertight.
  14. Accessories: Provide matching brick wall cap, downspout, extenders, and other special fabrications as shown on the drawings.
- B. Parapet Copings: Formed metal coping with galvanized steel anchor/support cleats for capping any parapet wall; watertight, maintenance free, without exposed fasteners; butt type joints with concealed splice plates; mechanically fastened as indicated; Firestone PTCF.
1. Wind Performance:
    - a. At least the minimum required when tested in accordance with ANSI/SPRI ES-1 Test Method RE-3, current edition.
    - b. Provide product listed in current Factory Mutual Research Corporation Approval Guide with at least FM 1-90 rating.
  2. Description: Coping sections allowed to expand and contract freely while locked in place on anchor cleats by mechanical pressure from hardened stainless steel springs factory attached to anchor cleats; 8 inch wide splice plates with factory applied dual non-curing sealant strips capable of providing watertight seal.
  3. Material and Finish: 0.050 inch thick formed aluminum, Kynar 500 finish in manufacturer's standard color; matching concealed joint splice plates; factory-installed protective plastic film.
  4. Dimensions:
    - a. Wall Width: As indicated on the drawings.
    - b. Piece Length: Minimum 144 inches.
    - c. Curved Application: Factory fabricated in true radius.
  5. Anchor/Support Cleats: 20 gage, 0.036 inch thick prepunched galvanized cleat with 12 inch wide stainless steel spring mechanically locked to cleat at 72 inches on center.
  6. Special Shaped Components: Provide factory-fabricated pieces necessary for complete installation, including miters, corners, intersections, curves, pier caps, and end caps; minimum 14 inch long legs on corner, intersection, and end pieces.
  7. Fasteners: Factory-furnished; electrolytically compatible; minimum pull out resistance of 240 pounds for actual substrate used; no exposed fasteners.

## 2.6 ACCESSORY MATERIALS

- A. Wood Nailers: PS 20 dimension lumber, Structural Grade No. 2 or better Southern Pine, Douglas Fir; or PS 1, APA Exterior Grade plywood; pressure preservative treated.
1. Width: 4 inch nominal minimum or as wide as the nailing flange of the roof accessory to be attached.
  2. Thickness: Same as thickness of roof insulation.

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. Install roofing, insulation, flashings, and accessories in accordance with roofing manufacturer's published instructions and recommendations for the specified roofing system. Where manufacturer provides no instructions or recommendations, follow good roofing practices and industry standards. Comply with federal, state, and local

regulations.

- B. Obtain all relevant instructions and maintain copies at project site for duration of installation period.
- C. Do not start work until Pre-Installation Notice has been submitted to, and approved by manufacturer as notification that this project requires a manufacturer's warranty.
- D. Perform work using competent and properly equipped personnel.
- E. Temporary closures, which ensure that moisture does not damage any completed section of the new roofing system, are the responsibility of the applicator. Completion of flashings, terminations, and temporary closures shall be completed as required to provide a watertight condition.
- F. Install roofing membrane only when surfaces are clean, dry, smooth and free of snow or ice; do not apply roofing membrane during inclement weather or when ambient conditions will not allow proper application; consult manufacturer for recommended procedures during cold weather. Do not work with sealants and adhesives when material temperature is outside the range of 60 to 80 degrees F.
- G. Protect adjacent construction, property, vehicles, and persons from damage related to roofing work; repair or restore damage caused by roofing work.
  - 1. Protect from spills and overspray from bitumen, adhesives, sealants and coatings.
  - 2. Particularly protect metal, glass, plastic, and painted surfaces from bitumen, adhesives, and sealants within the range of wind-borne overspray.
  - 3. Protect finished areas of the roofing system from roofing related work traffic and traffic by other trades.
- H. Until ready for use, keep materials in their original containers as labeled by the manufacturer.
- I. Consult membrane manufacturer's instructions, container labels, and Material Safety Data Sheets (MSDS) for specific safety instructions. Keep all adhesives, sealants, primers and cleaning materials away from all sources of ignition.

### 3.2 EXAMINATION

- A. Examine roof deck to determine that it is sufficiently rigid to support installers and their mechanical equipment and that deflection will not strain or rupture roof components or deform deck.
- B. Verify that surfaces and site conditions are ready to receive work. Correct defects in the substrate before commencing with roofing work.
- C. Examine roof substrate to verify that it is properly sloped to drains.
- D. Verify that the specifications and drawing details are workable and not in conflict with the roofing manufacturer's recommendations and instructions; start of work constitutes acceptable of project conditions and requirements.
- E. Verify that wood nailers have been properly installed.

### 3.3 PREPARATION

- A. Take appropriate measures to ensure that fumes from adhesive solvents are not drawn into the building through air intakes.
- B. Prior to proceeding, prepare roof surface so that it is clean, dry, and smooth, and free of sharp edges, fins, roughened surfaces, loose or foreign materials, oil, grease and other materials that may damage the membrane.
- C. Fill all surface voids in the immediate substrate that are greater than 1/4 inch wide with fill material acceptable insulation to membrane manufacturer.
- D. Seal, grout, or tape deck joints, where needed, to prevent bitumen seepage into building.

- E. Wood Nailers: Provide wood nailers at all perimeters and other locations where indicated on the drawings, of total height matching the total thickness of insulation being used.

### 3.4 INSULATION AND COVER BOARD INSTALLATION

- A. Install insulation in configuration and with attachment method(s) specified in PART 2, under Roofing System.
- B. Install only as much insulation as can be covered with the completed roofing system before the end of the day's work or before the onset of inclement weather.
- C. Lay roof insulation in courses parallel to roof edges.
- D. Neatly and tightly fit insulation to all penetrations, projections, and nailers, with gaps not greater than 1/4 inch. Fill gaps greater than 1/4 inch with acceptable insulation. Do not leave the roofing membrane unsupported over a space greater than 1/4 inch.
- E. Loose Laid Installation: Install insulation by laying loose over substrate without mechanical fastening of any kind.
- F. Mechanical Fastening: Using specified fasteners and insulation plates engage fasteners through insulation into deck to depth and in pattern required by membrane manufacturer.
- G. Low Rise Adhesive Attachment: Apply in accordance with membrane manufacturer's instructions and recommendations; "walk-in" individual roof insulation boards to obtain maximum adhesive contact.

### 3.5 SINGLE PLY MEMBRANE INSTALLATION

- A. Beginning at low point of roof, place membrane without stretching over substrate and allow to relax at least 30 minutes before attachment or splicing; in colder weather allow for longer relax time.
- B. Lay out the membrane pieces so that field and flashing splices are installed to shed water.
- C. Install membrane without wrinkles and without gaps or fishmouths in seams; bond and test seams and laps in accordance with membrane manufacturer's instructions and details.
- D. Install membrane adhered to the substrate, with edge securement as specified.
- E. Adhered Membrane: Bond membrane sheet to substrate using membrane manufacturer's recommended bonding material, application rate, and procedures.
- F. Edge Securement: Secure membrane at all locations where membrane terminates or goes through an angle change greater than 2 in 12 inches using mechanically fastened reinforced perimeter fastening strips, plates, or metal edging as indicated or as recommended by roofing manufacturer.
  - 1. Exceptions: Round pipe penetrations less than 18 inches in diameter and square penetrations less than 4 inches square.
  - 2. Metal edging is not merely decorative; ensure anchorage of membrane as intended by roofing manufacturer.

### 3.6 FLASHING AND ACCESSORY INSTALLATION

- A. Install flashings, including laps, splices, joints, bonding, adhesion, and attachment, as required by membrane manufacturer's recommendations and details.
- B. Metal Accessories: Install metal edgings, gravel stops, and copings in locations indicated on the drawings, with horizontal leg of edge member over membrane and flashing over metal onto membrane.
  - 1. Follow roofing manufacturer's instructions.
  - 2. Remove protective plastic surface film immediately before installation.

3. Install water block sealant under the membrane anchorage leg.
  4. Flash with manufacturer's recommended flashing sheet unless otherwise indicated.
  5. Where single application of flashing will not completely cover the metal flange, install additional piece of flashing to cover the metal edge.
  6. If the roof edge includes a gravel stop and sealant is not applied between the laps in the metal edging, install an additional piece of self-adhesive flashing membrane over the metal lap to the top of the gravel stop; apply seam edge treatment at the intersections of the two flashing sections.
  7. When the roof slope is greater than 1:12, apply seam edge treatment along the back edge of the flashing.
- C. Scuppers: Set in sealant and secure to structure; flash as recommended by manufacturer.
- D. Flashing at Walls, Curbs, and Other Vertical and Sloped Surfaces: Install weathertight flashing at all walls, curbs, parapets, skylights, and other vertical and sloped surfaces that the roofing membrane abuts to; extend flashing at least 8 inches high above membrane surface.
1. Use the longest practical flashing pieces.
  2. Evaluate the substrate and overlay and adjust installation procedure in accordance with membrane manufacturer's recommendations.
  3. Complete the splice between flashing and the main roof sheet with specified splice adhesive before adhering flashing to the vertical surface.
  4. Provide termination directly to the vertical substrate as shown on roof drawings.
- E. Roof Drains:
1. Taper insulation around drain to provide smooth transition from roof surface to drain. Use specified pre-manufactured tapered insulation with facer or suitable bonding surface to achieve slope; slope not to exceed manufacturer's recommendations.
  2. Position membrane, then cut a hole for roof drain to allow 1/2 to 3/4 inch of membrane to extend inside clamping ring past drain bolts.
  3. Make round holes in membrane to align with clamping bolts; do not cut membrane back to bolt holes.
  4. Apply sealant on top of drain bowl where clamping ring seats below the membrane.
  5. Install roof drain clamping ring and clamping bolts; tighten clamping bolts to achieve constant compression.
- F. Flashing at Penetrations: Flash all penetrations passing through the membrane; make flashing seals directly to the penetration.
1. Pipes, Round Supports, and Similar Items: Flash with specified pre-molded pipe flashings wherever practical; otherwise use specified self-curing elastomeric flashing.
  2. High Temperature Surfaces: Where the in-service temperature is, or is expected to be, in excess of 180 degrees F, protect the elastomeric components from direct contact with the hot surfaces using an intermediate insulated sleeve as flashing substrate as recommended by membrane manufacturer.
- 3.7 FINISHING AND WALKWAY INSTALLATION
- A. Install walkways at access points to the roof, around rooftop equipment that may require maintenance, and where indicated on the drawings.
- B. Walkway Pads: Adhere to the roofing membrane, spacing each pad at minimum of 1.0 inch and maximum of 3.0 inches from each other to allow for drainage.
1. If installation of walkway pads over field fabricated splices or within 6 inches of a splice edge cannot be avoided, adhere another layer of flashing over the splice and

extending beyond the walkway pad a minimum of 6 inches on either side.

2. Prime the membrane, remove the release paper on the pad, press in place, and walk on pad to ensure proper adhesion.

3.8 FIELD QUALITY CONTROL

- A. Inspection by Manufacturer: Provide final inspection of the roofing system by a Technical Representative employed by roofing system manufacturer specifically to inspect installation for warranty purposes (i.e. not a sales person).
- B. Perform all corrections necessary for issuance of warranty.

3.9 CLEANING

- A. Clean all contaminants generated by roofing work from building and surrounding areas, including bitumen, adhesives, sealants, and coatings.
- B. Repair or replace building components and finished surfaces damaged or defaced due to the work of this section; comply with recommendations of manufacturers of components and surfaces.
- C. Remove leftover materials, trash, debris, equipment from project site and surrounding areas.

PART 4 - PROTECTION

- A. Where construction traffic must continue over finished roof membrane, provide durable protection and replace or repair damaged roofing to original condition.

END OF SECTION 07 54 00
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# SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM

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## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all non manufactured metal flashing and trim as specified herein:
  - 1. Metal counter flashing and base flashing
  - 2. Metal wall flashing and expansion joints
  - 3. Built-in metal valleys
  - 4. Exposed metal trim/fascia units
  - 5. Miscellaneous sheet metal accessories
- B. Roofing accessories installed integral with roofing membrane are specified in roofing system sections as roofing work.
- C. Roof accessory units of pre-manufactured, set-on type are specified in Division 7 Section "Roof Accessories."

### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Technical product data, for each type sheet material and fabricated product.
- C. Manufacturer's full color selection palate.

### 1.4 PROJECT CONDITIONS

- A. Coordinate work of this section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of work and protection of materials and finishes.

## PART 2 - PRODUCTS

### 2.1 SHEET METAL FLASHING AND TRIM MATERIALS

- A. Zinc-Coated Steel: Commercial quality with 0.20 percent copper, ASTM A 526 except ASTM A 527 for lock-forming, G90 hot-dip galvanized, mill phosphatized where indicated for painting; 0.0359-inch thick (20 gage) except as otherwise indicated.
- B. Sheet Aluminum: ASTM B 209, alloy 3003, temper H14, AA-C22A41 clear anodized finish; 0.032-inch thick (20 gage) except as otherwise indicated.
- C. Extruded Aluminum: Manufacturer's standard extrusion of sizes and profiles indicated, 60063-T52, AA-C22A41 clear anodized finish; 0.080-inch minimum thickness for primary legs of extrusions.
- D. Miscellaneous Materials and Accessories:
  - 1. Solder: For use with steel or copper, provide 50 - 50 tin/lead solder (ASTM B32), with rosin flux.



2. Fasteners: Same metal as flashing/sheet metal or other non-corrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened.
3. Bituminous Coating: SSPC - Paint 12, solvent-type bituminous mastic, nominally free of sulfur, compounded for 15-mil dry film thickness per coat.
4. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, non-drying, nonmigrating sealant.
5. Elastomeric Sealant: Generic type recommended by manufacturer of metal and fabricator of components being sealed and complying with requirements for joint sealants as specified in Division 7 Section "Joint Sealers."
6. Paper Slip Sheet: 5-lb. rosin-sized building paper.
7. Polyethylene Underlayment: Minimum 6-mil carbonated polyethylene film resistant to decay when tested in accordance with ASTM E 154.
8. Reglets: Metal or plastic units of type and profile indicated, compatible with flashing indicated, noncorrosive.
9. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of work, matching or compatible with material being installed, noncorrosive, size and gage required for performance.
10. Roofing Cement: ASTM D 2822, asphaltic.

## 2.2 FABRICATED UNITS

- A. General Metal Fabrication: Shop-fabricate work to greatest extent possible. Comply with details shown and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate for waterproof and weather-resistant performance, with expansion provisions for running work, sufficient to permanently prevent leakage, damage, or deterioration of the work. Form work to fit substrates. Comply with material manufacturer instructions and recommendations for forming material. Form exposed sheet metal work without excessive oil-canning, buckling, and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.
- B. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. For metal other than aluminum, tin edges to be seamed, form seams, and solder. Form aluminum seams with epoxy seam sealer; rivet joints for additional strength where required.
- C. Expansion Provisions: Where lapped or bayonet-type expansion provisions in work cannot be used or would not be sufficiently water/weatherproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).
- D. Sealant Joints: Where movable, nonexpansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant, in compliance with SMACNA standards.
- E. Separations: Provide for separation of metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.

## PART 3 - EXECUTION

### 3.1 INSTALLATION REQUIREMENTS

- A. General: Except as otherwise indicated, comply with manufacturer's installation instructions and recommendations; and with SMACNA "Architectural Sheet Metal Manual." Anchor units of work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weatherproof.
- B. Underlayment: Where stainless steel or aluminum is to be installed directly on cementitious or wood substrates, install a slip sheet of red rosin paper and a course of polyethylene underlayment.
- C. Bed flanges of work in a thick coat of bituminous roofing cement where required for waterproof performance.
- D. Install reglets to receive counterflashing in manner and by methods indicated. Where shown in concrete, furnish reglets to trades of concrete work for installation as work of Division 3 sections. Where shown in masonry, furnish reglets to trades of masonry work, for installation as work of Division 4 sections.
- E. Install counterflashing in reglets, either by snap-in seal arrangement or by welding in place for anchorage and filling reglet with mastic or elastomeric sealant, as indicated and depending on degree of sealant exposure.
- F. Nail flanges of expansion joint units to curb nailers, at maximum spacing of 6 inches o.c. Fabricate seams at joints between units with minimum 3-inch overlap, to form a continuous, waterproof system.

### 3.2 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.
- B. Protection: Advise Contractor of required procedures for surveillance and protection of flashings and sheet metal work during construction to ensure that work will be without damage or deterioration other than natural weathering at time of Substantial Completion.

END OF SECTION 07 62 00
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## SECTION 07 71 00 - ROOF SPECIALTIES

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all roof specialty items as specified herein.
- B. Types of units specified in this section include the following:
  - 1. Manufactured Copings
  - 2. Manufactured Counterflashing Systems
  - 3. Manufactured Gravel Stops & Facias
  - 4. Manufactured Gutters and downspouts
  - 5. Manufactured Reglets
  - 6. Manufactured Roof Expansion Joints
  - 7. Manufactured Scuppers
- C. Roofing accessories installed integral with roofing membrane are specified in roofing system sections as roofing work.
- D. Roof accessory units of pre-manufactured, set-on type are specified in Division 7 Section "Roof Accessories."

#### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Manufacturer's technical product data, installation instructions and general recommendations for each specified sheet material and fabricated product.

#### 1.4 PROJECT CONDITIONS

- A. Coordinate work of this section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of work and protection of materials and finishes.

### PART 2 - PRODUCTS

#### 2.1 SHEET METAL FLASHING AND TRIM MATERIALS

- A. Zinc-Coated Steel: Commercial quality with 0.20 percent copper, ASTM A 526 except ASTM A 527 for lock-forming, G90 hot-dip galvanized, mill phosphatized where indicated for painting; 0.0359-inch thick (20 gage) except as otherwise indicated.
- B. Sheet Aluminum: ASTM B 209, alloy 3003, temper H14, AA-C22A41 clear anodized finish; 0.032-inch thick (20 gage) except as otherwise indicated.
- C. Extruded Aluminum: Manufacturer's standard extrusion of sizes and profiles indicated, 60063-T52, AA-C22A41 clear anodized finish; 0.080-inch minimum thickness for primary legs of extrusions.
- D. Miscellaneous Materials and Accessories:
  - 1. Solder: For use with steel or copper, provide 50 - 50 tin/lead solder (ASTM B32), with rosin flux.

2. Fasteners: Same metal as flashing/sheet metal or other non-corrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened.
3. Bituminous Coating: SSPC - Paint 12, solvent-type bituminous mastic, nominally free of sulfur, compounded for 15-mil dry film thickness per coat.
4. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, non-drying, nonmigrating sealant.
5. Elastomeric Sealant: Generic type recommended by manufacturer of metal and fabricator of components being sealed and complying with requirements for joint sealants as specified in Division 7 Section "Joint Sealers."
6. Paper Slip Sheet: 5-lb. rosin-sized building paper.
7. Polyethylene Underlayment: Minimum 6-mil carbonated polyethylene film resistant to decay when tested in accordance with ASTM E 154.
8. Reglets: Metal or plastic units of type and profile indicated, compatible with flashing indicated, noncorrosive.
9. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of work, matching or compatible with material being installed, noncorrosive, size and gage required for performance.
10. Roofing Cement: ASTM D 2822, asphaltic.

## 2.2 FABRICATED UNITS

- A. General Metal Fabrication: Shop-fabricate work to greatest extent possible. Comply with details shown and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate for waterproof and weather-resistant performance, with expansion provisions for running work, sufficient to permanently prevent leakage, damage, or deterioration of the work. Form work to fit substrates. Comply with material manufacturer instructions and recommendations for forming material. Form exposed sheet metal work without excessive oil-canning, buckling, and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.
- B. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. For metal other than aluminum, tin edges to be seamed, form seams, and solder. Form aluminum seams with epoxy seam sealer; rivet joints for additional strength where required.
- C. Expansion Provisions: Where lapped or bayonet-type expansion provisions in work cannot be used or would not be sufficiently water/weatherproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).
- D. Sealant Joints: Where movable, nonexpansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant, in compliance with SMACNA standards.
- E. Separations: Provide for separation of metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.
- F. Shop Finish, Rain Drainage: Provide manufacturer's baked-on acrylic shop finish on sheet metal rain drainage units (gutters, downspouts,) and break metal fascia & trim finishes. 1.0-mil dry film thickness.

## PART 3 - EXECUTION

### 3.1 INSTALLATION REQUIREMENTS

- A. General: Except as otherwise indicated, comply with manufacturer's installation instructions and recommendations and with SMACNA "Architectural Sheet Metal Manual." Anchor units of work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weatherproof.
- B. Underlayment: Where stainless steel or aluminum is to be installed directly on cementitious or wood substrates, install a slip sheet of red rosin paper and a course of polyethylene underlayment.
- C. Bed flanges of work in a thick coat of bituminous roofing cement where required for waterproof performance.
- D. Install reglets to receive counterflashing in manner and by methods indicated. Where shown in concrete, furnish reglets to trades of concrete work for installation as work of Division 3 sections. Where shown in masonry, furnish reglets to trades of masonry work, for installation as work of Division 4 sections.
- E. Install counterflashing in reglets, either by snap-in seal arrangement or by welding in place for anchorage and filling reglet with mastic or elastomeric sealant, as indicated and depending on degree of sealant exposure.
- F. Nail flanges of expansion joint units to curb nailers, at maximum spacing of 6 inches o.c. Fabricate seams at joints between units with minimum 3-inch overlap, to form a continuous, waterproof system.

### 3.2 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.
- B. Protection: Advise Contractor of required procedures for surveillance and protection of flashings and sheet metal work during construction to ensure that work will be without damage or deterioration other than natural weathering at time of Substantial Completion.

## **07 71 23 MANUFACTURED GUTTERS & DOWNSPOUTS**

### PART 1 - GENERAL

#### 1.1 SCOPE

- A. Furnish labor, materials and equipment required to complete installation of rain removal systems, otherwise known as gutters and downspouts as well as all other related work indicated on drawings or specified herein.

#### 1.2 REFERENCES

- a. ASTM International: ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated
  - i. Galvanized or Zinc-Iron Alloy-Coated by the Hot-Dip Process.
  - ii. ASTM A924/A924M - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
  - iii. ASTM B32 - Standard Specification for Solder Metal.
  - iv. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
  - v. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric).

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Product Data for proposed system including details of construction relative to materials, dimensions, gages, profiles, method of mounting, specified options, and finishes.
- C. Submit full manufacturer's standard color palate to Architect for selection.

1.4 QUALITY ASSURANCE

- A. Perform work in accordance with SMACNA manual.
- B. Manufacturer's pre-finished metal, 26 gauge minimum thickness Seamless Gutters, downspouts, associated trim, and support work.
- C. Manufacturer anchors and supports profiled to fit gutters and downspouts.
  - 1. Anchoring devices - use threaded, screw-in fasteners appropriate for substrate engaged and of sufficient length to provide minimum 1½ " penetration. Seal any breach in drip edge or prefinished metal fascia from fastener install
  - 2. Downspout supports - use bracket style unless otherwise noted.

PART 2 - PRODUCTS

2.1 FABRICATED UNITS

- A. Shop Finish, Rain Drainage: Provide manufacturer's baked-on acrylic shop finish on sheet metal rain drainage units (gutters, downspouts,) 1.0-mil dry film thickness.
- B. Manufacturer's pre-finished metal angles and turns with sealed joints.
- C. Fabricate gutter and downspout accessories sealant watertight.

PART 3 - EXECUTION

3.1 INSTALLATION OF 'K' STYLE (OGEE) PROFILE

- A. Inboard flange of gutter must be installed behind drip edge with minimum ¾" overlap of drip.
- B. Install gutter elevation according to the following table:

Roof Pitch	Clearance Below Extended Roof Line*
0 in 12 - 2 in 12	1 inch
3 in 12 - 5 in 12	¾ inch
6 in 12 - 8 in 12	½ inch
9 in 12 or Greater	¼ inch

\*Vertical distance between the intersection point of an imaginary line extended out and down following roof slope and a normal (perpendicular to the ground plane) line extended up from the outer profile of the Rain Gutter.

- C. Use only aluminum, angle leveraged hidden hangers with galvanized, threaded screw fasteners.
  - 1. Basis of design is Berger Building Products: H-16 Hidden Hanger.
- D. Use seamless gutters to minimize seams.

END OF SECTION 07 71 00



## SECTION 07 72 00 - ROOF ACCESSORIES

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

#### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all roof accessory items as specified herein.
- B. Types of units specified in this section include the following:
  - 1. Prefabricated Curbs/Supports.
  - 2. Roof Hatches.

#### 1.3 RELATED SECTIONS

- A. Section 06 11 00 - Rough Carpentry; Roof sheathing and nailers.
- B. Section 07 31 00 Asphalt Roof Shingles
- C. Section 07 41 00 Aluminum Roof Panels.
- D. Section 07 62 00 - Sheet Metal Flashing and Trim.
- E. Section 07 71 00 - Roof Specialties.
- F. Division 22 - Plumbing: Plumbing work projecting through roof.
- G. Division 23 - Mechanical: Mechanical work projecting through roof.
- H. Division 26 - Electrical: Electrical work projecting through roof.

#### 1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Product Data; Roof Accessories: Submit manufacturer's technical product data, rough-in diagrams, details, installation instructions and general product recommendations for each item specified.

#### 1.5 QUALITY ASSURANCE

- A. Standards: Comply with SMACNA "Architectural Sheet Metal Manual" details for fabrication of units, including flanges and cap-flashing to coordinate with type of roofing indicated. Comply with "NRCA Roofing and Waterproofing Manual" details for installation of units.
- B. Warranty General: Warranties specified in this Section shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

### PART 2 - PRODUCTS

#### 2.1 PREFABRICATED ROOF HATCHES

- A. General: Fabricate units of sizes shown, single-leaf type unless otherwise indicated, for 40 lbs. per sq. ft. external loading and 20 lbs. per sq. ft. internal loading pressure. Frame with 12" high integral-curb double-wall construction with 1-1/2" insulation, cant strips and cap flashing (roofing counter-flashing), with welded or sealed mechanical corner joints. Provide double-wall cover (lid) construction with 1" insulation core. Equip units with complete hardware set including hold-open devices,



interior padlock hasps, and both interior and exterior latch handles. Provide full perimeter gasketing. Fabricate units of following materials:

1. Aluminum; sheets and extrusions.
  2. Steel; sheets and extrusions.
- B. Manufacturer: Subject to compliance with requirements, provide prefabricated roof hatch units by one of the following:
1. Bilco Co.; New Haven, CT
  2. Nystrom Building Products; Brooklyn Park, MN
  3. Milcor, Inc.; Lima, OH

## 2.2 PREFABRICATED CURBS/EQUIPMENT SUPPORTS

- A. Comply with loading and strength requirements as indicated where units support other work. Coordinate dimensions with rough-in sheets or shop drawings of equipment to be supported. Fabricate of structural quality sheet steel (ASTM A 570, Grade as required) which has been prepared for painting and factory-primed and painted with 2-mil thickness of baked-on synthetic enamel, after fabrication.
1. Fabricate with welded or sealed mechanical corner joints. Provide complete with cant strips and base profile coordinated with roof insulation thickness. Provide preservative-treated wood nailers at tops of curbs, coordinate with thickness of insulation and roof flashing as indicated, tapered as necessary to compensate for roof deck slopes of 1/4" per ft. and less.
  2. Except as otherwise indicated or required for strength, fabricate units of minimum 14-gage (0.0747") metal, and to minimum height of 12".
  3. Sloping Roofs: Where slope of roof deck exceeds 1/4" per ft., fabricate curb/support units with height tapered to match slope, to result in level installation of tops of units.
- B. Manufacturer: Subject to compliance with requirements, provide prefabricated curbs/equipment supports by one of the following:
1. Roof Products and Systems; Carol Stream, IL
  2. ThyCurb Div./ThyBar Corp.; Addison, IL

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. General: Comply with manufacturer's instructions and recommendations. Coordinate with installation of roof deck and other substrates to receive accessory units, and vapor barriers, roof insulation, roofing and flashing; as required to ensure that each element of the work performs properly, and that combined elements are waterproof and weathertight. Anchor units securely to supporting structural substrates, adequate to withstand lateral and thermal stresses as well as inward and outward loading pressures.
1. Except as otherwise indicated install roof accessory items in accordance with construction details of "NRCA Roofing and Waterproofing Manual".
- B. Isolation: Where metal surfaces of units are to be installed in contact with noncompatible metal or corrosive substrates, including wood, apply bituminous coating on concealed metal surfaces, or provide other permanent separation.
- C. Flange Seals: Except as otherwise indicated, set flanges of accessory units in a thick bed of roofing cement to form seal.
- D. Cap Flashing: Where cap flashing is required as component of accessory, install to provide adequate waterproof overlap with roofing or roof flashing (as counter-flashing). Seal with thick bead of mastic sealant, except where overlap is

indicated to be left open for ventilation.

3.2 CLEANING AND PROTECTION

- A. Clean exposed metal and plastic surfaces in accordance with manufacturer's instructions. Touch up damaged metal coatings.

END OF SECTION 07 72 00

## SECTION 07 84 00 - FIRESTOPPING

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all required firestopping materials.
  - 1. At penetrations through fire resistance rated assemblies.
  - 2. At sealant joints in fire resistance rated construction.

#### 1.3 RELATED SECTIONS

- A. Extent of each form and type of joint sealer is indicated on drawings.
- B. Sealing joints related to flashing and sheet metal for roofing is specified in Division-7 Section: "Flashing and Sheet Metal."
- C. Sealants for glazing purposes are specified in Division-8 Section "Glass and Glazing."
- D. Sealing tile joints is specified in Division-9 Section "Tile."

#### 1.4 SYSTEM PERFORMANCE

- A. Provide joint sealers that have been produced and installed to establish and maintain watertight and airtight continuous seals.

#### 1.5 SUBMITTALS

- A. Manufacturers Product Data for each joint sealer product required, including instructions for joint preparation and joint sealer application.

#### 1.6 QUALITY ASSURANCE

- A. Single Source Responsibility for Joint Sealer Materials: Obtain joint sealer materials from a single manufacturer for each different product required.
- B. Comply with governing codes and regulations. Provide products of acceptable manufacturers which have been satisfactory service for minimum three years.
- C. Use only experienced installers that have been engaged in projects of similar scope and type for a minimum three years.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels informing about manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multicomponent materials.
- B. Store and handle materials in compliance with manufacturers' recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

#### 1.8 PROJECT CONDITIONS

- A. Environmental Conditions: Do not proceed with installation of joint sealers under the following conditions:
  - 1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealer manufacturer or below 40 deg F (4.4 deg C).
  - 2. When joint substrates are wet due to rain, frost, condensation, or other causes.

- B. Joint Width Conditions: Do not proceed with installation of joint sealers where joint widths are less than allowed by joint sealer manufacturer for application indicated.
- C. Joint Substrate Conditions: Do not proceed with installation of joint sealers until contaminants capable of interfering with their adhesion are removed from joint substrates.

## PART 2 - PRODUCTS

### 2.1 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealers, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
- B. Colors: Provide color of exposed joint sealers indicated or, if not otherwise indicated, as selected by Architect from manufacturer's standard colors.

### 2.2 FIRE-RESISTANT JOINT SEALERS

- A. General: Provide manufacturer's standard fire-stopping sealant, with accessory materials, having fire-resistance ratings indicated as established by testing identical assemblies per ASTM E 814 by Underwriters Laboratory, Inc. or other testing and inspecting agency acceptable to authorities having jurisdiction.
- B. One-Part Fire-Stopping Sealant: One part elastomeric sealant formulated for use in a through-penetration fire-stop system for sealing openings around cables, conduit, pipes and similar penetrations through walls and floors.
- C. Products: Subject to compliance with requirements, provide one of the following:
  - 1. One-Part Fire-Stopping Sealant:
    - a. "Dow Corning Fire Stop Sealant"; Dow Corning Corp.
    - b. "3M Fire Barrier Caulk CP-25"; Electrical Products Div./3M.
    - c. "RTV 7403"; General Electric Co.

### 2.3 MISCELLANEOUS MATERIALS

- A. Accessory Materials for Fire-Stopping Sealants: Provide forming, joint fillers, packing and other accessory materials required for installation of fire-stopping sealants as applicable to installation conditions indicated.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealers, with Installer present, for compliance with requirements for joint configuration, installation tolerances and other conditions affecting joint sealer performance. Do not proceed with installation of joint sealers until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers and the following requirements:
  - 1. Remove all foreign material from joint substrates which could interfere with adhesion of joint sealer, including dust; paints, except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer; old joint sealers; oil; grease; waterproofing; water repellants; water; surface dirt; and frost.

2. Clean concrete, masonry, unglazed surfaces of ceramic tile and similar porous joint substrate surfaces, by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealers. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
  3. Remove laitance and form release agents from concrete.
  4. Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile; and other nonporous surfaces by chemical cleaners or other means which are not harmful to substrates or leave residues capable of interfering with adhesion of joint sealers.
- B. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealer manufacturer based on preconstruction joint sealer-substrate tests or prior experience. Apply primer to comply with joint sealer manufacturer's recommendations. Confine primers to areas of joint sealer bond, do not allow spillage or migration onto adjoining surfaces.

### 3.3 INSTALLATION OF FIRESTOPPING SEALANT

- A. Installation of Firestopping Sealant: Install sealant, including forming, packing, and other accessory materials to fill openings around mechanical and electrical services penetrating floors and walls to provide fire-stops with fire resistance ratings indicated for floor or wall assembly in which penetration occurs. Comply with installation requirements established by testing and inspecting agency.

### 3.4 CLEANING

- C. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealers and of products in which joints occur.

### 3.5 PROTECTION

- D. Protect joint sealers during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealers immediately and reseal joints with new materials to produce joint sealer installations with repaired areas indistinguishable from original work.

END OF SECTION 07 84 00

## SECTION 07 91 00 - PREFORMED JOINT SEALS

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all preformed joint sealers as specified herein.

#### 1.3 RELATED SECTIONS

- A. Extent of each form and type of joint sealer is indicated on drawings.
- B. Sealing joints related to flashing and sheet metal for roofing is specified in Division-7 Section: "Flashing and Sheet Metal."
- C. Sealants for glazing purposes are specified in Division-8 Section "Glass and Glazing."
- D. Sealing tile joints is specified in Division-9 Section "Tile."

#### 1.4 SYSTEM PERFORMANCE

- A. Provide joint sealers that have been produced and installed to establish and maintain watertight and airtight continuous seals.

#### 1.5 SUBMITTALS

- A. Product Data from manufacturers for each joint sealer product required, including instructions for joint preparation and joint sealer application.

#### 1.6 QUALITY ASSURANCE

- A. Single Source Responsibility for Joint Sealer Materials: Obtain joint sealer materials from a single manufacturer for each different product required.

#### 1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels informing about manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multicomponent materials.
- B. Store and handle materials in compliance with manufacturers' recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

#### 1.8 PROJECT CONDITIONS

- A. Environmental Conditions: Do not proceed with installation of joint sealers under the following conditions:
  - 1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealer manufacturer or below 40 deg F (4.4 deg C).
  - 2. When joint substrates are wet due to rain, frost, condensation, or other causes.
- B. Joint Width Conditions: Do not proceed with installation of joint sealers where joint widths are less than allowed by joint sealer manufacturer for application indicated.
- C. Joint Substrate Conditions: Do not proceed with installation of joint sealers until contaminants capable of interfering with their adhesion are removed from joint substrates.

### PART 2 - MATERIALS

**07 91 23 BACKER RODS**

## 2.1 JOINT SEALANT BACKING

- A. General: Provide sealant backings of material and type which are nonstaining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
  - 1. Install at all locations where sealant is to be applied and will contact three surfaces. Install backer rod so as to prevent sealant adhesion to rear surface in a slot application; allowing sealant only to join and therefore seal two adjacent surfaces.
- B. Bond Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealers, with Installer present, for compliance with requirements for joint configuration, installation tolerances and other conditions affecting joint sealer performance. Do not proceed with installation of joint sealers until unsatisfactory conditions have been corrected.

## 3.2 INSTALLATION

- A. Installation of Sealant Backings: Install sealant backings to comply with the following requirements:
  - 1. Install bond breaker tape between sealants and joint fillers, compression seals, or back of joints where adhesion of sealant to surfaces at back of joints would result in sealant failure.

## 3.3 PROTECTION

- A. Protect joint sealers during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealers immediately and reseal joints with new materials to produce joint sealer installations with repaired areas indistinguishable from original work.

END OF SECTION 07 91 00
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## SECTION 07 92 00 - ELASTOMERIC JOINT SEALANTS

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all joint sealants as specified herein.

#### 1.3 RELATED SECTIONS

- A. Sealing joints related to flashing and sheet metal for roofing is specified in Division 7 Section: " Sheet Metal Flashing and Trim."
- B. Sealants for glazing purposes are specified in Division 8 Section "Glass Glazing."
- C. Sealing tile joints is specified in Division 9 Section "Thin-Set Tiling."

#### 1.4 SYSTEM PERFORMANCE

- A. Provide joint sealers that have been produced and installed to establish and maintain watertight and airtight continuous seals.

#### 1.5 SUBMITTALS

- A. Manufacturers Product Data for each joint sealer product required, including instructions for joint preparation and joint sealer application.

#### 1.6 QUALITY ASSURANCE

- A. Single Source Responsibility for Joint Sealer Materials: Obtain joint sealer materials from a single manufacturer for each different product required.

#### 1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels informing about manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multi-component materials.
- B. Store and handle materials in compliance with manufacturers' recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

#### 1.8 PROJECT CONDITIONS

- A. Environmental Conditions: Do not proceed with installation of joint sealers under the following conditions:
  - 1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealer manufacturer or below 40 deg F (4.4 deg C).
  - 2. When joint substrates are wet due to rain, frost, condensation, or other causes.
- B. Joint Width Conditions: Do not proceed with installation of joint sealers where joint widths are less than allowed by joint sealer manufacturer for application indicated.
- C. Joint Substrate Conditions: Do not proceed with installation of joint sealers until contaminants capable of interfering with their adhesion are removed from joint substrates.

### PART 2 - PRODUCTS

**07 92 13 ELASTOMERIC JOINT SEALANTS**

## 2.1 ELASTOMERIC SEALANTS

- A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated which complies with ASTM C 920 requirements, including those referenced for Type, Grade, Class, and Use.
- B. General: Provide insulating materials that comply with requirements and with referenced standards.
  - 1. One-part Nonsag Urethane Sealant for Use NT: Type M, Grade NS, Class 25, and complying with the following requirements for Uses.

## 2.2 LATEX JOINT SEALANTS

- A. Acrylic-Emulsion Sealant: Manufacturer's standard, one part, nonsag, mildew-resistant, acrylic-emulsion sealant complying with ASTM C 834, formulated to be paintable and recommended for exposed applications on interior and on protected exterior locations involving joint movement of not more than plus or minus 5 percent.
- B. Products: Subject to compliance with requirements, provide one of the following:
  - 1. Acrylic-Emulsion Sealant
    - a. "AC-20"; Pecora Corp.
    - b. "Sonolac"; Sonneborn Building Products Div.; Rexnord Chemical Products, Inc.
    - c. "Tremco Acrylic Latex 834"; Tremco Inc.

**07 92 16 RIGID JOINT SEALANTS****07 92 19 ACOUSTICAL JOINT SEALANTS**

## 2.3 JOINT SEALANT BACKING

- A. See Specification Section 07 91 00 "Preformed Joint Sealants."

## 2.4 MISCELLANEOUS MATERIALS

- A. Primer: Provide type recommended by joint sealer manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint sealer-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Provide nonstaining, chemical cleaners of type which are acceptable to manufacturers of sealants and sealant backing materials, which are not harmful to substrates and adjacent nonporous materials, and which do not leave oily residues or otherwise have a detrimental effect on sealant adhesion or in-service performance.
- C. Accessory Materials for Fire-Stopping Sealants: Provide forming, joint fillers, packing and other accessory materials required for installation of fire-stopping sealants as applicable to installation conditions indicated.

**PART 3 - EXECUTION**

## 3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealers, with Installer present, for compliance with requirements for joint configuration, installation tolerances and other conditions affecting joint sealer performance. Do not proceed with installation of joint sealers

until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers and the following requirements:
1. Remove all foreign material from joint substrates which could interfere with adhesion of joint sealer, including dust; paints, except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer; old joint sealers; oil; grease; waterproofing; water repellants; water; surface dirt; and frost.
  2. Clean concrete, masonry, unglazed surfaces of ceramic tile and similar porous joint substrate surfaces, by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealers. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
  3. Remove laitance and form release agents from concrete.
  4. Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile; and other nonporous surfaces by chemical cleaners or other means which are not harmful to substrates or leave residues capable of interfering with adhesion of joint sealers.
- B. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealer manufacturer based on preconstruction joint sealer-substrate tests or prior experience. Apply primer to comply with joint sealer manufacturer's recommendations. Confine primers to areas of joint sealer bond, do not allow spillage or migration onto adjoining surfaces.

### 3.3 INSTALLATION OF JOINT SEALERS

- A. General: Comply with joint sealer manufacturers' printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.
- B. Elastomeric Sealant Installation Standard: Comply with recommendations of ASTM C 962 for use of joint sealants as applicable to materials, applications and conditions indicated.
- C. Latex Sealant Installation Standard: Comply with requirements of ASTM C 790 for use of latex sealants.
- D. Installation of Sealant Backings: Install sealant backings to comply with the following requirements:
1. Install bond breaker tape between sealants and joint fillers, compression seals, or back of joints where adhesion of sealant to surfaces at back of joints would result in sealant failure.
- E. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint.

Do not use tooling agents which discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

1. Provide concave joint configuration per Figure 6A in ASTM C 962, unless otherwise indicated.
- G. Installation of Fire-Stopping Sealant: Install sealant, including forming, packing, and other accessory materials to fill openings around mechanical and electrical services penetrating floors and walls to provide fire-stops with fire resistance ratings indicated for floor or wall assembly in which penetration occurs. Comply with installation requirements established by testing and inspecting agency.
- 3.4 CLEANING
- C. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealers and of products in which joints occur.
- 3.5 PROTECTION
- D. Protect joint sealers during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealers immediately and reseal joints with new materials to produce joint sealer installations with repaired areas indistinguishable from original work.

END OF SECTION 07 92 00
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## SECTION 08 11 00 - METAL DOORS AND FRAMES

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all hollow metal doors/windows and frames as specified herein.
  - 1. Knock-down frames will not be acceptable.

#### 1.3 RELATED SECTIONS

- A. General
  - 1. Division 4 Section "Unit Masonry Assemblies" for embedding anchors for hollow metal work into masonry construction.
  - 2. Division 8 Section "Door Hardware" for door hardware for hollow metal doors.
  - 3. Division 9 Sections "Exterior Painting" and "Interior Painting" for field painting hollow metal doors and frames.
  - 4. Division 26 Sections for electrical connections including conduit and wiring for door controls and operators.

#### 1.4 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings.
- B. Standard Hollow Metal Work: Hollow metal work fabricated according to ANSI/SDI A250.8.
- C. Custom Hollow Metal Work: Hollow metal work fabricated according to ANSI/NAAMM-HMMA 861.
- D. NOA: Notice of Acceptance (Miami-Dade County Building Code Compliance).

#### 1.5 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Schedule: Provide a schedule of hollow metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with door hardware schedule.
- C. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, fire-resistance rating, temperature-rise ratings, and finishes.
- D. Submit evidence to architect of "Product Control Notice of Acceptance" from Miami-Dade County Building Code Compliance Office.
- E. Shop Drawings: Include the following.
  - 1. Elevations of each door design.
  - 2. Details of doors, including vertical and horizontal edge details and metal thicknesses.
  - 3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
  - 4. Locations of reinforcement and preparations for hardware
  - 5. Details of each different wall opening condition.

6. Details of anchorages, joints, field splices, and connections.
  7. Details of accessories
  8. Details of moldings, removable stops, and glazing.
  9. Details of conduit and preparations for power, signal, and control systems.
- F. Samples for Initial Selection: For units with factory-applied color finishes.
- G. Samples for Verification.
1. For each type of exposed finish required, prepared on Samples of not less than 3 by 5 inches (75 by 125 mm).
  2. For the following items, prepared on Samples about [12 by 12 inches (305 by 305 mm)] to demonstrate compliance with requirements for quality of materials and construction:
    - a. Doors: Show vertical-edge, top, and bottom construction; core construction; and hinge and other applied hardware reinforcement. Include separate section showing glazing if applicable.
    - b. Frames: Show profile, corner joint, floor and wall anchors, and silencers. Include separate section showing fixed hollow metal panels and glazing if applicable.
- H. Other Action Submittals:
1. Oversize Construction Certification: For assemblies required to be fire rated and exceeding limitations of labeled assemblies.
  2. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each type of hollow metal door and frame assembly.
  3. Provide rated doors/windows and frames to match rated wall assemblies whether or not shown on schedule.

## 1.6 QUALITY ASSURANCE

- A. Source Limitations: Obtain hollow metal work from single source from single manufacturer.
- B. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at as close to neutral pressure as possible according to NFPA 252 including hose stream testing.
1. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
  2. Temperature-Rise Limit: At vertical exit enclosures and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire-test exposure.
- C. Fire-Rated, Borrowed-Light Frame 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 257. Label each individual glazed lite.
- D. Provide exterior doors and frames that have been accepted and approved by the Miami-Dade County Building Code Compliance Office.

## 1.7 DELIVERY, STORAGE AND HANDLING



- A. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and Project-site storage. Do not use non-vented plastic.
  - 1. Provide additional protection to prevent damage to finish of factory-finished units.
- B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch- (102-mm-) high wood blocking. Do not store in a manner that traps excess humidity.
  - 1. Provide minimum 1/4-inch (6-mm) space between each stacked door to permit air circulation.

## 1.8 COORDINATION

- A. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

## PART 2 - MATERIALS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following.
  - 1. Steelcraft; an Ingersoll-Rand company. N.O.A #01-0129.06 Expire 07/02/2006.
  - 2. Ceco Door Products; an Assa Abloy Group company.
  - 3. Curries Company; an Assa Abloy Group company.
  - 4. Deansteel Manufacturing Company, Inc.
  - 5. Habersham Metal Products Company.
  - 6. Karpen Steel Custom Doors & Frames.
  - 7. Mesker Door Inc.

### 2.2 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum A40 (ZF120) metallic coating.
- D. Frame Anchors: ASTM A 591/A 591M, Commercial Steel (CS), 40Z (12G) coating designation; mill phosphatized.
  - 1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- F. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow metal frames of type indicated.
- G. Grout: ASTM C 476, except with a maximum slump of 4 inches (102 mm), as measured according to ASTM C 143/C 143M.
- H. Glazing: Comply with requirements in Division 8 Section "Glass Glazing."



- I. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

### 2.3 STANDARD HOLLOW METAL DOORS

- A. General: Provide doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated. Comply with ANSI/SDI A250.8.
  1. Design: As indicated.
  2. Core Construction: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core.
    - a. Fire Door Core: As required to provide fire-protection and temperature-rise ratings indicated.
    - b. Thermal-Rated (Insulated) Doors: Where indicated, provide doors fabricated with thermal-resistance value R-6 when tested according to ASTM C 1363.
      - 1) Locations: Exterior doors and interior doors where indicated.
  3. Vertical Edges for Single-Acting Doors: Manufacturer's standard.
    - a. Beveled Edge: 1/8 inch in 2 inches (3 mm in 50 mm).
  4. Vertical Edges for Double-Acting Doors: Round vertical edges with 2-1/8-inch (54-mm) radius.
  5. Top and Bottom Edges: Closed with flush or inverted 0.042-inch- (1.0-mm-) thick, end closures or channels of same material as face sheets. Exterior applications require the addition of snap-in top caps to protect against the weather.
  6. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."
- B. Exterior Doors: Face sheets fabricated from metallic-coated steel sheet. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level.
  1. Level 3 and Physical Performance (Extra Heavy Duty), Model 1 (Full Flush).
- C. Interior Doors: Face sheets fabricated from cold-rolled steel sheet unless metallic-coated sheet is indicated. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level.
  1. Level 2 and Physical Performance (Heavy Duty), Model 1 (Full Flush).
- D. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.
- E. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel sheet.

### 2.4 HOLLOW METAL DOOR FRAMES

- A. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.
- B. Exterior Frames: Fabricated from metallic-coated steel sheet.
  1. Fabricate frames with mitered or coped corners.
  2. Fabricate frames as full profile welded unless otherwise indicated.
  3. Frames for Level 3 Steel Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
  4. Provide bituminous coating with-in frame profile.

C. Interior Frames: Fabricated from cold-rolled steel sheet unless metallic-coated sheet is indicated.

1. Fabricate frames with mitered or coped corners.
2. Fabricate frames as full profile welded unless otherwise indicated.
3. Frames for Level 2 Steel Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
4. Frames for Wood Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
5. Frames for Borrowed Lights: 0.053-inch- (1.3-mm-) thick steel sheet.

D. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates from same material as frames.

## 2.5 FRAME ANCHORS

A. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch (1.0 mm) thick, with corrugated or perforated straps not less than 2 inches (50 mm) wide by 10 inches (250 mm) long; or wire anchors not less than 0.177 inch (4.5 mm) thick.
2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch (1.0 mm) thick.
3. Compression Type for Drywall Slip-on Frames: Adjustable compression anchors.

B. Floor Anchors: Formed from same material as frames, not less than 0.042 inch (1.0 mm) thick, and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch (50-mm) height adjustment. Terminate bottom of frames at finish floor surface.

## 2.6 STOPS AND MOULDINGS

A. Moldings for Glazed Lites in Doors: Minimum 0.032 inch (0.8 mm) thick, fabricated from same material as door face sheet in which they are installed.

B. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch (16 mm) high unless otherwise indicated.

C. Loose Stops for Glazed Lites in Frames: Minimum 0.032 inch (0.8 mm) thick, fabricated from same material as frames in which they are installed. Locate on secure side of room.

## 2.7 LOUVERS

A. Provide louvers for interior doors, where indicated, that comply with SDI 111C, with blades or baffles formed of 0.020-inch- (0.5-mm-) thick, cold-rolled steel sheet set into 0.032-inch- (0.8-mm-) thick steel frame.

1. Sightproof Louver: Stationary louvers constructed with inverted V-shaped or Y-shaped blades.
2. Lightproof Louver: Stationary louvers constructed with baffles to prevent light from passing from one side to the other, any angle.
3. Fire-Rated Automatic Louvers: Louvers constructed with movable blades closed by actuating fusible link, and listed and labeled for use in fire-rated door assemblies of type and fire-resistance rating indicated by same testing and inspecting agency that established fire-resistance rating of door assembly.

## 2.8 ACCESSORIES

- A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.
- B. Ceiling Struts: Minimum 1/4-inch-thick by 1-inch- (6.4-mm-thick by 25.4-mm-) wide steel.
- C. Grout Guards: Formed from same material as frames, not less than 0.016 inch (0.4 mm) thick.

## 2.9 FABRICATION

- A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Tolerances: Fabricate hollow metal work to tolerances indicated in SDI 117.
- C. Hollow Metal Doors.
  - 1. Exterior Doors: Provide weep-hole openings in bottom of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
  - 2. Glazed Lites: Factory cut openings in doors.
  - 3. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch (19 mm) beyond edge of door on which astragal is mounted.
- D. Hollow Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
  - 1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.
  - 2. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
  - 3. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
  - 4. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
  - 5. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
  - 6. Jamb Anchors: Provide number and spacing of anchors as follows.
    - a. Masonry Type: Locate anchors not more than 18 inches (457 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. and as follows.
      - 1) Two anchors per jamb up to 60 inches (1524 mm) high.
      - 2) Three anchors per jamb from 60 to 90 inches (1524 to 2286 mm) high.
      - 3) Four anchors per jamb from 90 to 120 inches (2286 to 3048 mm) high.
      - 4) Four anchors per jamb plus 1 additional anchor per jamb for each 24 inches (610 mm) or fraction thereof above 120 inches (3048 mm) high.
    - b. Stud-Wall Type: Locate anchors not more than 18 inches (457 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. and as follows:
      - 1) Three anchors per jamb up to 60 inches (1524 mm) high.

- 2) Four anchors per jamb from 60 to 90 inches (1524 to 2286 mm) high.
  - 3) Five anchors per jamb from 90 to 96 inches (2286 to 2438 mm) high.
  - 4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches (610 mm) or fraction thereof above 96 inches (2438 mm) high.
  - 5) Two anchors per head for frames above 42 inches (1066 mm) wide and mounted in metal-stud partitions.
- c. Compression Type: Not less than two anchors in each jamb.
7. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers as follows. Keep holes clear during construction.
- a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
  - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
- E. Fabricate concealed stiffeners, edge channels, and hardware reinforcement from either cold- or hot-rolled steel sheet.
- F. Hardware Preparation: Factory prepare hollow metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates furnished as specified in Division 8 Section "Door Hardware".
1. Locate hardware as indicated, or if not indicated, according to ANSI/SDI A250.8.
  2. Reinforce doors and frames to receive nontemplated, mortised and surface-mounted door hardware.
  3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
  4. Coordinate locations of conduit and wiring boxes for electrical connections with Division 16 Sections.
- G. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.
1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow metal work.
  2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
  3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
  4. Provide loose stops and moldings on inside of hollow metal work.
  5. Coordinate rabbet width between fixed and removable stops with type of glazing and type of installation indicated.

## 2.10 STEEL FINISHES

- A. Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating.
1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine rough-in for embedded and built-in anchors to verify actual locations before frame installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
- B. Prior to installation, adjust and securely brace welded hollow metal frames for squareness, alignment, twist, and plumbness to the following tolerances.
  1. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
  2. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
  3. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
  4. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a perpendicular line from head to floor.
- C. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
- D. Coat inside of frames exposed to concrete/masonry installation with bituminous coating.

### 3.3 INSTALLATION

- A. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.
- B. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with ANSI/SDI A250.11.
  1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
    - a. At fire-protection-rated openings, install frames according to NFPA 80.
    - b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
    - c. Install frames with removable glazing stops located on secure side of opening.
    - d. Install door silencers in frames before grouting.
    - e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
    - f. Check plumbness, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
    - g. Field apply bituminous coating to backs of frames that are filled with grout containing antifreezing agents.
  2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with post installed expansion anchors.
    - a. Floor anchors may be set with powder-actuated fasteners instead of post

- installed expansion anchors if so indicated and approved on Shop Drawings.
3. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
  4. Concrete Walls: Solidly fill space between frames and concrete with grout. Take precautions, including bracing frames, to ensure that frames are not deformed or damaged by grout forces.
  5. In-Place Gypsum Board Partitions: Secure frames in place with postinstalled expansion anchors through floor anchors at each jamb. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
  6. Ceiling Struts: Extend struts vertically from top of frame at each jamb to overhead structural supports or substrates above frame unless frame is anchored to masonry or to other structural support at each jamb. Bend top of struts to provide flush contact for securing to supporting construction. Provide adjustable wedged or bolted anchorage to frame jamb members.
  7. Installation Tolerances: Adjust hollow metal door frames for squareness, alignment, twist, and plumb to the following tolerances.
    - a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    - b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
    - c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    - d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.
- C. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.
1. Non-Fire-Rated Standard Steel Doors.
    - a. Jambs and Head: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
    - b. Between Edges of Pairs of Doors: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
    - c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch (9.5 mm).
    - d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch (19 mm).
  2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.
  3. Smoke-Control Doors: Install doors according to NFPA 105.
- D. Glazing: Comply with installation requirements in Division 8 Section "Glass Glazing" and with hollow metal manufacturer's written instructions.
1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches (230 mm) o.c. and not more than 2 inches (50 mm) o.c. from each corner.

### 3.4 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow metal work immediately after installation.



- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- D. Metallic-Coated Surfaces: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

**PART 4 - PROTECTION**

- A. Protect installed and finished doors and door frames from damage and wear resultant from subsequent construction activity for the duration of the project.

**END OF SECTION 08 11 00**



## SECTION 08 14 00 - WOOD DOORS

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

##### A. Section Includes:

1. Solid-core wood doors with wood-veneer faces.
2. Hollow-core doors with wood-veneer faces.
3. Factory fitting flush wood doors to frames and factory machining for hardware.

#### 1.3 RELATED SECTIONS

1. Division 8 Section "Glazing" for glass view panels in flush wood doors.
2. Division 9 Sections "Interior Painting" and "Wood Stains and Transparent Finishes" for field finishing doors.

#### 1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Product Data: For each type of door indicated. Include details of core and edge construction, and trim for openings.
- C. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data:
  1. Indicate dimensions and locations of mortises and holes for hardware.
  2. Indicate dimensions and locations of cutouts.
  3. Indicate requirements for veneer matching.
  4. Indicate fire-protection ratings for fire-rated doors.
- D. Samples for Verification.
  1. For each wood species and transparent finish, provide set of three samples showing typical range of color and grain to be expected in the finished work.
  2. Corner sections of doors, approximately 8 by 10 inches (200 by 250 mm), with door faces and edges representing actual materials to be used.
    - a. Provide samples for each species of veneer and solid lumber required.
    - b. Provide samples for each color, texture, and pattern of plastic laminate required.
    - c. Finish veneer-faced door samples with same materials proposed for factory-finished doors.
  3. Frames for light openings, 6 inches (150 mm) long, for each material, type, and finish required.
- E. Warranty: Sample of special warranty.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer that is certified for chain of custody by an FSC-accredited certification body.
- B. Forest Certification: Provide doors made with all wood products obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."
- C. Source Limitations: Obtain flush wood doors from single manufacturer:
- D. Quality Standard: In addition to requirements specified, comply with AWI's "Architectural Woodwork Quality Standards Illustrated."
  - 1. Provide AWI Quality Certification Labels or an AWI letter of licensing for Project indicating that doors comply with requirements of grades specified.
- E. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at as close to neutral pressure as possible according to NFPA 252.
  - 1. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
  - 2. Temperature-Rise Limit: At vertical exit enclosures and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire-test exposure.

#### 1.6 DELIVERY, STORAGE AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in cardboard cartons and wrap bundles of doors in plastic sheeting:
- C. Mark each door on top and bottom rail with opening number used on Shop Drawings.

#### 1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

#### 1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following.
    - a. Warping (bow, cup, or twist) more than 1/4 inch (6.4 mm) in a 42-by-84-inch (1067-by-2134-mm) section.
    - b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch (0.25 mm in a 76.2-mm) span.
  - 2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
  - 3. Warranty Period for Solid-Core Exterior Doors: Five years from date of Substantial Completion.
  - 4. Warranty Period for Solid-Core Interior Doors: Life of installation.

## PART 2 - MATERIALS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Algoma Hardwoods, Inc.
  2. Eggers Industries.
  3. Graham, an Assa Abloy Group company.
  4. VT Industries Inc.

2.2 DOOR CONSTRUCTION, GENERAL

- A. Low-Emitting Materials: Provide doors made with adhesives and composite wood products that do not contain urea formaldehyde.
- B. WDMA I.S.1-A Performance Grade: Heavy Duty.
- C. Particleboard-Core Doors.
1. Particleboard: ANSI A208.1, Grade LD-1.
  2. Blocking: Provide wood blocking in particleboard-core doors as follows:
    - a. 5-inch (125-mm) top-rail blocking, in doors indicated to have closers.
    - b. 5-inch (125-mm) bottom-rail blocking, in exterior doors and doors indicated to have kick, mop, or armor plates.
    - c. 5-inch (125-mm) midrail blocking, in doors indicated to have exit devices.
    - d. 4-1/2-by-10-inch (114-by-250-mm) lock blocks and 5-inch (125-mm) midrail blocking in doors indicated to have exit devices.
- D. Structural-Composite-Lumber-Core Doors.
1. Structural Composite Lumber: WDMA I.S.10.
    - a. Screw Withdrawal, Face: 700 lbf (3100 N).
- E. Fire-Protection-Rated Doors: Provide core specified or mineral core as needed to provide fire-protection rating indicated.
1. Edge Construction: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.
  2. Pairs: Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals. Comply with specified requirements for exposed edges.
- F. Mineral-Core Doors.
1. Core: Noncombustible mineral product complying with requirements of referenced quality standard and testing and inspecting agency for fire-protection rating indicated.
  2. Blocking: Provide composite blocking with improved screw-holding capability approved for use in doors of fire-protection ratings indicated as follows.
    - a. 5-inch (125-mm) top-rail blocking.
    - b. 5-inch (125-mm) bottom-rail blocking, in doors indicated to have protection plates.
    - c. 5-inch (125-mm) midrail blocking, in doors indicated to have armor plates.
    - d. 4-1/2-by-10-inch (114-by-250-mm) lock blocks and 5-inch (125-mm) midrail blocking in doors indicated to have exit devices.
  3. Edge Construction: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.

## 2.3 VENEER-FACED DOORS FOR TRANSPARENT FINISH

### A. Interior Solid-Core Doors:

1. Grade: Premium, with Grade AA faces.
2. Species: Select white birch.
3. Cut: Rotary cut.
4. Match between Veneer Leaves: Book match.
5. Assembly of Veneer Leaves on Door Faces: Center-balance match.
6. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.
7. Room Match: Match door faces within each separate room or area of building. Corridor-door faces do not need to match where they are separated by 10 feet (3 m) or more.
8. Room Match: Provide door faces of compatible color and grain within each separate room or area of building.
9. Exposed Vertical Edges: Applied wood-veneer edges of same species as faces and covering edges of faces.
10. Core: Particleboard.
11. Construction: Five plies. Stiles and rails are bonded to core, then entire unit abrasive planed before veneering. Faces are bonded to core using a hot press.
12. WDMA I.S.1-A Performance Grade: Heavy Duty.

## 2.4 LOUVERS AND LIGHT FRAMES

- A. Wood Beads for Light Openings in Wood Doors: Provide manufacturer's standard wood beads as follows unless otherwise indicated.
1. Wood Species: Same species as door faces.
  2. Profile: Flush rectangular beads.
  3. At wood-core doors with 20-minute fire-protection ratings, provide wood beads and metal glazing clips approved for such use.
- B. Metal Frames for Light Openings in Fire-Rated Doors: Manufacturer's standard frame formed of 0.048-inch- (1.2-mm-) thick, cold-rolled steel sheet factory powder-coated finish to be selected by Architect and approved for use in doors of fire-protection rating indicated.

## 2.5 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated:
1. Comply with requirements in NFPA 80 for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.
1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.
  2. Metal Astragals: Factory machine astragals and formed-steel edges for hardware for pairs of fire-rated doors.
- C. Openings: Cut and trim openings through doors in factory.
1. Light Openings: Trim openings with moldings of material and profile indicated.
  2. Glazing: Comply with applicable requirements in Division 8 Section "Glass Glazing."

## 2.6 SHOP PRIMING

- A. Doors for Transparent Finish: Shop prime doors with stain (if required), other required pretreatments, and first coat of finish as specified in Division 9 Section "Wood Stains and Transparent Finishes." Seal all four edges, edges of cutouts, and mortises with first coat of finish:

## 2.7 FACTORY FINISHING

- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing:
  - 1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.
- B. Transparent Finish:
  - 1. Grade: Premium.
  - 2. Finish: AWI conversion varnish system.
  - 3. Staining: As selected by Architect from manufacturer's full range.
  - 4. Effect: Filled finish an additional finish coat to partially fill the wood pores.
  - 5. Sheen: Satin.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine doors and installed door frames before hanging doors.
  - 1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
  - 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected:

### 3.2 INSTALLATION

- A. Hardware: For installation, see Division 8 Section "Door Hardware."
- B. Installation Instructions: Install doors to comply with manufacturer's written instructions and the referenced quality standard, and as indicated:
  - 1. Install fire-rated doors in corresponding fire-rated frames according to NFPA 80.
- C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
  - 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 unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4 inch (6.4 mm) from bottom of door to top of threshold unless otherwise indicated.
    - a. Comply with NFPA 80 for fire-rated doors.
  - 2. Bevel non-fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock and hinge edges.
  - 3. Bevel fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock edge; trim stiles and rails only to extent permitted by labeling agency.
- D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge:
- E. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing:

PART 4 - PROTECTION

- A. Protect doors from damage for the duration of the project, and during move - in activities if prior to Substantial Completion.

END OF SECTION 08 14 00

## SECTION 08 31 00 - ACCESS DOORS AND PANELS

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### **08 31 16 ACCESS PANELS AND FRAMES**

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

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

##### 1.2 SUMMARY

- A. This section includes access doors for installation in the following types of construction:
  - 1. Gypsum Board.
  - 2. Exterior Wall System.
- B. Provide fire rated access doors to match the rating of the assembly penetrated.

##### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Product Data in the form of manufacturer's technical data and installation instructions for each type of access door assembly, including setting drawings, templates, instructions and directions for installation of anchoring devices.
- C. Schedule chronicling quantity, size, rating and location of required access doors.

##### 1.4 QUALITY ASSURANCE

- A. Single source responsibility: Obtain access doors for entire project from one source from a single manufacturer.
- B. Fire Resistance Ratings: Wherever a fire resistance classification is indicated, provide access door assembly with panel door, frame, hinge, and latch from manufacturer listed in Underwriter's Laboratories, Inc.'s "Building Materials Directory" for rating shown.
  - 1. Provide "UL" label on each fire rated access door.
- C. Size Variations: Obtain Architect's acceptance of manufacturer's standard size units, which may vary slightly from sizes indicated on drawings.

##### 1.5 COORDINATION

- A. Furnish inserts and anchors that must be built into other work for installation of access doors. Coordinate delivery with other work to avoid delay.

#### PART 2 - MATERIALS

##### 2.1 MANUFACTURERS

- A. Subject to compliance with requirements, provide access doors by one of the following:
  - 1. Bar-Co. Inc.
  - 2. J.L. Industries.
  - 3. Milcor, Inc.
  - 4. Karp Associates, Inc.
  - 5. Williams Brothers Corp.
  - 6. or equal.



**2.2 MATERIAL AND FABRICATION**

- A. General: Furnish each access door assembly manufactured as an integral unit, complete with all parts and ready for installation.
- B. Steel Access Doors and Frames: Fabricate unites of continuous welded steel construction unless otherwise indicated. Grind welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access panels to types of support shown.
- C. Frames: Fabricated from minimum 18 Gauge steel for interior applications and minimum 18 Gauge Galvanized steel for exterior applications.
  - 1. For gypsum board or gypsum veneer plaster in non-public spaces, furnish perforated frames with drywall bead.
  - 2. For gypsum board or gypsum veneer plaster in public spaces exposed to view, furnish concealed, flush access doors which finishes of access door match finish of surrounding material.
  - 3. For cement plaster or exterior finish system, furnish flush doors with frames having plaster stops with thicknesses to match the system being installed in.
- D. Flush Panel Doors: Fabricate from not less than 14 Gauge sheet steel with concealed spring hinges or concealed continuous piano hinge set to open 175 degrees. Finish with manufacturer's factory-applied prime paint.
  - 1. For fire rated unites, provide manufacturer's standard insulated flush panel/doors, with continuous piano hinge and self-closing mechanism.
- E. Concealed Panel Doors: Fabricate door from not less than 18 Gauge sheet steel, recessed to receive panel to match adjacent ceiling finish with concealed pivot device or concealed tinge to allow 90 degree opening without damage to adjacent finishes.
- F. Locking Devices: Furnish flush, screwdriver-operated cam locks of number required to hold door in flush, smooth plane when closed.

**PART 3 - EXECUTION****3.1 INSTALLATION**

- A. Comply with manufacturer's instructions for installation of access doors.
- B. Coordinate installation with work of other trades.
- C. Set frames accurately in position and securely attach to supports with face panels plumb or level in relation to adjacent finish surfaces.

**3.2 ADJUST AND CLEAN**

- A. Adjust hardware and panels after installation for proper operation.
- B. Remove and replace panels or frames that are warped, bowed or otherwise damaged.

<b>END OF SECTION 08 31 00</b>
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## SECTION 08 36 00 -OVERHEAD SECTIONAL DOORS

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install overhead steel sectional doors at detached garage as specified herein.

#### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with the Conditions of Contract and Division 1 Specifications Sections.
- B. Product Data for each item specified, including details of construction relative to materials, dimensions, gages, profiles, method of mounting, specified options, and finishes.
- C. Manufacturer's full standard color palette on actual material samples for architect's selection.
- D. Shop Drawings: submit shop drawings for approval prior to fabrication. Include detailed plans, elevations, details of framing members, required clearances, anchors, and accessories. Include relationship with adjacent materials.

#### 1.4 QUALITY ASSURANCE

- A. Manufacturer shall have a minimum five (5) years experience in the fabrication and installation of coiling doors.
- B. Installation of sectional doors shall be performed by manufacturer authorized installer.
- C. Single source responsibility: Provide doors, tracks and all accessories from one supplier from a single manufacturer for each type of door.

#### 1.5 PROJECT CONDITIONS

- A. Coordinate accessory locations, installation, and sequencing with other work to avoid interference and to assure proper installation, operation, adjustment, cleaning, and servicing.

### PART 2 - MATERIALS

#### 2.1 MANUFACTURERS

- A. Subject to compliance with requirements, provide overhead doors by Overhead Door Corporation Dallas, Texas (1-800-887-3667).
  1. or approved equal.

#### 2.2 PRODUCTS

- A. Basis of design; **426 Series** Steel Door by Overhead Door Corp.
  1. Panel Thickness: 1 3/4".
  2. Exterior Surface: Ribbed.
  3. Steel: Nominal 24 gauge, galvanized.
  4. Center and End Stiles: 16 gauge.
  5. Standard Spring: 10,000 cycles.

- B. Finish and Color: Factory applied, baked on polyester.
  - 1. Color as chosen by Architect.
- C. Windload Design: ANSI/DASMA 102 standards and as required by code.
- D. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
- E. Lock: Interior mounted slide lock.
- F. Weatherstripping: Flexible PVC on bottom section.
- G. Track: Provide track as recommended by manufacturer to suit loading required and clearance available.
- H. Expanded polystyrene w 20 gage steel back cover

### 2.3 OPERATION

- A. **Manual** Operation: Manual pull rope - **see Door Schedule** for location(s).

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Take field dimensions and examine conditions of substrates, supports, and other conditions under which this work is to be performed. Do not proceed with work until unsatisfactory conditions are corrected.

### 3.2 INSTALLATION

- A. Strictly comply with manufacturer's installation instructions and recommendations. Coordinate installation with adjacent work to ensure proper clearances and allow for maintenance.
- B. Installation shall be by authorized Overhead Door Corporation representatives only.
- C. Instruct Owner's personnel in proper operating procedures and maintenance schedule.

### 3.3 ADJUSTING AND CLEANING

- A. Test rolling doors for proper operation and adjust as necessary to provide proper operation without binding or distortion.
- B. Touch-up damaged coatings and finishes and repair minor damage. Clean exposed surfaces using non-abrasive materials and methods recommended by manufacturer.

END OF SECTION 08 36 00
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## SECTION 08 41 00 - ALUMINUM FRAMED ENTRANCES

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### **08 41 13 ALUMINUM-FRAMED ENTRANCES**

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

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

##### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all Aluminum Entrances, and Aluminum Swing Doors as specified herein.

##### 1.3 RELATED SECTIONS

1. Division 7 Section "Building Insulation" for insulation materials field installed with aluminum-framed systems.
2. Division 7 Section "Joint Sealants" for installation of joint sealants installed with aluminum-framed systems and for sealants to the extent not specified in this Section.
3. Division 8 Section "Door Hardware" for hardware to the extent not specified in this Section.
4. Division 8 Section "Glazing" for glazing requirements to the extent not specified in this Section.

##### 1.4 PERFORMANCE REQUIREMENTS

- A. Performance Requirements: Aluminum swing doors shall meet all requirements of ASTM E 1886, ASTM E 1996 and South Florida Building Code Protocols TAS 201, TAS 202, and TAS 203 and comply with the following specific performance requirements indicated:
  1. Air Infiltration: Air infiltration shall be tested in accordance with ASTM E 283 at static pressure of 6.24 psf. Infiltration shall not exceed the following.
    - a. 0.065 cfm/linear foot of crack based on a door size of 3'6" x 8'.
  2. Water Infiltration: No uncontrolled water other than condensation on indoor face of any component tested in accordance with ASTM E 331 at a test pressure differential of 10 psf (479 Pa). Water test to be performed immediately after design pressure test. Standard 35H Entrances are intended for 1st floor applications.
  3. Structural: Door corner structural strength shall be tested per YKK AP's dual moment test procedure and certified by an independent testing laboratory to ensure corner integrity and weld compliance. Certified test procedures and results are available upon request.
  4. Structural Uniform Load Test; Doors:
    - a. Positive Pressure: 65 psf.
    - b. Negative Pressure: 65 psf.
  5. Forced Entry Resistance: Tests performed simultaneously with 300 lb. forces applied

- to the active door panel within 3" of the locks in the direction that would tend to open the door while 150 lb. forces are applied in both perpendicular directions to the 300 lb. force simultaneously:
- B. General: Provide aluminum storefront systems that comply with performance requirements indicated, as demonstrated by testing manufacturer's assemblies in accordance with **NOA 08-1224.14**, **NOA 09-0129.01** & **NOA 09-0218.07** and allow for the following conditions:
1. Structural loads.
  2. Thermal movements.
  3. Movements of supporting structure indicated on Drawings including, but not limited to, story drift and deflection from uniformly distributed and concentrated live loads.
  4. Dimensional tolerances of building frame and other adjacent construction.
  5. Failure includes the following:
    - a. Deflection exceeding specified limits.
    - b. Thermal stresses transferred to building structure.
    - c. Framing members transferring stresses, including those caused by thermal and structural movements, to glazing.
    - d. Glazing-to-glazing contact.
    - e. Noise or vibration created by wind and thermal and structural movements.
    - f. Loosening or weakening of fasteners, attachments, and other components.
    - g. Sealant failure.
    - h. Failure of operating units to function properly.
- C. Structural Sealant: Capable of withstanding tensile and shear stresses imposed by aluminum-framed systems without failing adhesively or cohesively. Provide sealant that fails cohesively before sealant releases from substrate when tested for adhesive compatibility with each substrate and joint condition required.
1. Adhesive failure occurs when sealant pulls away from substrate cleanly, leaving no sealant material behind.
  2. Cohesive failure occurs when sealant breaks or tears within itself but does not separate from each substrate because sealant-to-substrate bond strength exceeds sealant's internal stress.
- D. Structural Loads.
1. Wind Loads: As indicated on drawings.
- E. Deflection: Maximum allowable deflection in any member when tested in accordance with ASTM E-330-90 with allowable stress in accordance with AAMA Specifications for Aluminum Structures.
1. Without horizontals: L/175 or 3/4" maximum.
  2. With horizontals: L/175 or L/240 + 1/4" for spans greater than 13'6" but less than 40'0".
- F. Wind Loads: Completed storefront system shall withstand wind pressure loads normal to wall plane indicated.
1. Exterior walls with steel reinforcing:
    - a. Positive Pressure: 65 psf.
    - b. Negative Pressure: 65 psf.
  2. Exterior walls without steel reinforcing:
    - a. Positive Pressure: 65 psf.
    - b. Negative Pressure: 65 psf.

- G. Windborne-Debris-Impact-Resistance-Test Performance: Provide aluminum-framed systems that pass large and small missile-impact tests and cyclic-pressure tests according to South Florida Building Code Protocol PA 201-94, PA 202-94, and PA 203-94.
- H. Thermal Movement: Provide for thermal movement caused by 180 degrees F. surface temperature, without causing buckling stresses on glass, joint seal failure, undue stress on structural elements, damaging loads on fasteners, reduction of performance, or detrimental effects.

#### 1.5 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of product indicated.
- C. Shop Drawings: Submit shop drawings showing layout, profiles, and product components, including anchorage, accessories, and finish colors.
- D. Samples: Submit verification samples for colors. Minimum 2½ inch by 3 inch samples on actual aluminum substrates indicating full color range expected in installed system.
- E. Quality Assurance / Control Submittals:
  - 1. Test Reports: Submit certified test reports showing compliance with specified performance characteristics and physical properties.
  - 2. Installer Qualification Data: Submit installer qualification data.

#### 1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer certified installer with minimum 5 years experience performing work of this section who has specialized in the installation of work similar to that required for this project.
- B. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction process.
- C. Product Options: Information on Drawings and in Specifications establishes requirements for systems' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.
  - 1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's written approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.
- D. Preconstruction Sealant Testing: For structural-sealant-glazed systems, perform sealant manufacturer's standard tests for compatibility and adhesion of sealants with each material that will come in contact with sealants and each condition required by aluminum-framed systems.
  - 1. Test a minimum of five samples of each metal, glazing, and other material.
  - 2. Prepare samples using techniques and primers required for installed systems.
  - 3. For materials that fail tests, determine corrective measures required to prepare each material to ensure compatibility with and adhesion of sealants, including, but not limited to, specially formulated primers. After performing these corrective measures on the minimum number of samples required for each material, retest materials.
- E. Accessible Entrances: Comply with the "**Americans with Disabilities Act**" (ADA).

- F. Welding: Qualify procedures and personnel according to AWS D1.2, Structural Welding Code--Aluminum.
- G. Structural-Sealant Glazing: Comply with recommendations in ASTM C 1401, "Guide for Structural Sealant Glazing".
- H. Structural-Sealant Joints: Design reviewed and approved by structural-sealant manufacturer.

#### 1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of structural supports for aluminum-framed systems by field measurements before fabrication and indicate measurements on Shop Drawings.
  - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating aluminum-framed systems without field measurements. Coordinate construction to ensure that actual dimensions correspond to established dimensions.

#### 1.8 WARRANTY

- A. Special Assembly Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of aluminum-framed systems that do not comply with requirements or that deteriorate as defined in this Section within specified warranty period.
  - 1. Failures include, but are not limited to the following.
    - a. Structural failures including, but not limited to excessive deflection.
    - b. Noise or vibration caused by thermal movements.
    - c. Deterioration of metal finishes and other materials beyond normal weathering.
    - d. Adhesive or cohesive sealant failures.
    - e. Water leakage through fixed glazing and framing areas.
    - f. Failure of operating components to function properly.
  - 2. Warranty Period: Two years from date of Substantial Completion.

### PART 2 - MATERIALS

#### 2.1 MANUFACTURERS

- A. Manufacturers: Basis-of-Design Product for aluminum-framed systems and entrances is as follows. Subject to compliance with requirements, provide basis of design products or approved equal.
  - 1. Kawneer Company, Inc.
    - 555 Guthridge Ct.
    - Norcross, GA 30092
    - a. Impact Resistant Heavy Duty Swing Doors: Kawmeer 350 1R Medium Stile Impact Resistant Heavy Duty Swing Doors.
    - b. Corner Construction: Fabricate door corners joined by concealed reinforcement secured with screws and sigma deep penetration welding.
    - c. Glazing: Manufacturer's standard glazing stops with EPDM glazing gaskets to prevent water infiltration at the exterior and structural silicone sealant with fixed stops at the interior.
    - d. Weather-stripping: Manufacturer's standard elastomer type in replaceable rabbets for stiles and rails.
    - e. Muntins: Applied extruded aluminum muntins per drawing, applied to both sides of glass.



## B. STOREFRONT FRAMING: 1 R-501 Flush Glazed Aluminum Storefront.

## 2.2 MATERIALS

- A. Extrusions: ASTM B 221 (ASTM B 221M), 6063-T5 Aluminum Alloy.
- B. Aluminum Sheet.
  - 1. Painted Finish: ASTM B 209 (ASTM B 209M), 3003-H14 Aluminum Alloy, 0.080” (1.95 mm) minimum thickness.

## 2.3 FRAMING SYSTEMS

- A. Framing Members: Manufacturer's standard extruded-aluminum framing members of thickness required and reinforced as required to support imposed loads.
  - 1. Description: Center set, exterior flush glazed; jambs and vertical mullions continuous; head, sill, intermediate horizontal attached by screw spline joinery. Continuous and wept sill flashing.
- B. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- C. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123/A 123M or ASTM A 153/A 153M requirements.
- D. Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials. Form exposed flashing from sheet aluminum finished to match framing and of sufficient thickness to maintain a flat appearance without visible deflection.
- E. Framing System Gaskets and Sealants: Manufacturer's standard recommended by manufacturer for joint type.

## 2.4 DOOR HARDWARE

- A. General: Provide heavy-duty units in sizes and types recommended by entrance system and hardware manufacturers for entrances and uses indicated.
  - 1. Opening-Force Requirements.
    - a. Egress Doors: Not more than 30 lbf (133 N) required to set door in motion and not more than 15 lbf (67 N) required to open door to minimum required width.
    - b. Accessible Interior Doors: Not more than 5 lbf (22.2 N).
- B. Scheduled Door Hardware: Provide door hardware by storefront manufacturer in accordance with configuration in NOA approval.

C. Hardware Schedule:

1. Coordinate the following with Section 08 71 00 Door Hardware.
2. Hardware Group - **No. 2**
  - a. Provide each **SGL** door(s) with the following:

Quantity		Description	Model Number	Finish	Mfr
As req'd	EA	HINGE	By YKK	WHI	YKK
-		DEADLATCH	By Door Hardware	WHI	ADA
-		MORTISE CYLINDER	By Door Hardware	WHI	SCH
1	EA	OFFSET DOOR PULL	By YKK	WHI	YKK
-		SURFACE CLOSER	By Door Hardware	WHI	LCN
1	EA	GASKET	By YKK		YKK
1	EA	THRESHOLD	By YKK	AL	YKK

3. Hardware Group - **No. 3**

- a. Provide each **SGL** door(s) with the following:

Quantity		Description	Model Number	Finish	Mfr
As req'd	EA	CONTINUOUS HINGE	By YKK	WHI	YKK
1	EA	PANIC HARDWARE	1792NL-OP	WHI	DOP
-		RIM CYLINDER	By Door Hardware	WHI	SCH
1	EA	OFFSET DOOR PULL	By YKK	WHI	YKK
-		SURFACE CLOSER	By Door Hardware	WHI	LCN
-		MOUNTING PLATE	By Door Hardware	WHI	LCN
1	EA	GASKET	By YKK		YKK
1	EA	THRESHOLD	By YKK	AL	YKK

4. Hardware Group - **No. 4**

- a. Provide each **SGL** door(s) with the following:

Quantity		Description	Model Number	Finish	Mfr
As req'd	EA	CONTINUOUS HINGE	By YKK	WHI	IVE
-	-	DEADLATCH	By Door Hardware	WHI	ADA
-	-	MORTISE CYLINDER	By Door Hardware	WHI	SCH
1	EA	PULL/PUSHBAR	By YKK	WHI	YKK
1	EA	AUTO-EQUALIZER	By Door Hardware*	WHI	LCN
1	EA	GASKET	By YKK		YKK
1	EA	THRESHOLD	By YKK	AL	NGP
-	-	ACTUATOR, WALL MOUNT	By Door Hardware		LCN

\*Push-n-Go - ADA Operator

## 2.5 ACCESSORIES

### A. Manufacturer's Standard Accessories:

1. Fasteners: Zinc plated steel concealed fasteners; Hardened aluminum alloys or AISI 300 series stainless steel fasteners.
  - a. Where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration, use self-locking devices.
  - b. Reinforce members as required to receive fastener threads.
  - c. No exposed fasteners.

## 2.6 FABRICATION

### A. Shop Assembly: Fabricate and assemble units with joints only at intersection of aluminum members with uniform hairline joints; rigidly secure, and sealed in accordance with manufacturer's recommendations.

1. Hardware: Drill and cut to template for hardware. Reinforce frames and door stiles to receive hardware in accordance with manufacturer's recommendations.
2. Welding: Conceal welds on aluminum members in accordance with AWS recommendations or methods recommended by manufacturer. Members showing welding bloom or discoloration on finish or material distortion will be rejected.

## 2.7 ALUMINUM FINISHES

### A. High Performance Organic Coating Finish: **White**

1. Fluoropolymer Type: Factory applied two-coat 70% Kynar resin by Arkema or 70% Hylar resin by Solvay Solexis, fluoropolymer based coating system, Polyvinylidene Fluoride (PVF-2), applied in accordance with YKK AP procedures and meeting AAMA 2605 specifications.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

#### A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

#### A. General:

1. Comply with manufacturer's written instructions.
2. Do not install damaged components.
3. Fit joints to produce hairline joints free of burrs and distortion.
4. Rigidly secure non-movement joints.
5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration.
6. Seal joints watertight, unless otherwise indicated.

#### B. Metal Protection:

1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape or installing nonconductive spacers as recommended by manufacturer for this purpose.
2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

- C. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.
  - D. Set continuous sill members and flashing in full sealant bed as specified in Division 7 Section "Joint Sealants" and to produce weathertight installation.
  - E. Install components plumb and true in alignment with established lines and grades, without warp or rack.
  - F. Entrances: Install to produce smooth operation and tight fit at contact points.
    - 1. Exterior Entrances: Install to produce tight fit at weather stripping and weathertight closure.
    - 2. Field-Installed Hardware: Install surface-mounted hardware according to hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.
  - G. Install perimeter joint sealants as specified in Division 7 Section "Joint Sealants" and to produce weathertight installation.
  - H. Erection Tolerances: Install aluminum-framed systems to comply with the following maximum tolerances.
    - 1. Location and Plane: Limit variation from true location and plane to 1/8 inch in 12 feet (3 mm in 3.7 m); 1/4 inch (6 mm) over total length.
    - 2. Alignment:
      - a. Where surfaces abut in line, limit offset from true alignment to 1/16 inch (1.5 mm).
      - b. Where surfaces meet at corners, limit offset from true alignment to 1/32 inch (0.8 mm).
    - 3. Diagonal Measurements: Limit difference between diagonal measurement to 1/8 inch (3 mm)
- 3.3 ADJUSTING
- A. Entrances: Adjust operating hardware for smooth operation according to hardware manufacturers' written instructions.
    - 1. For doors accessible to people with disabilities, adjust closers to provide a 3-second closer sweep period for doors to move from a 70-degree open position to 3 inches (75 mm) from the latch measured to the leading door edge.

#### PART 4 - PROTECTION

- A. Protect from damage and soiling from subsequent construction activity; cover and protect as necessary.
- B. Clean all stickers, construction marks, etc. off glazing and frame material.
- C. Maintain in a clean state, free from excessive construction dust and dirt for remainder of construction activity.

<b>END OF SECTION 08 41 00</b>
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# SECTION 08 42 00 – AUTOMATIC SLIDING ENTRANCES

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## 08 42 29.23 Automatic Sliding Entrances

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all automatic entrance doors as specified herein of the following type:
  1. Exterior bi-parting impact rated sliding automatic entrance doors with panic release hardware.

#### 1.3 RELATED SECTIONS

1. Division 7 Sections for caulking to the extent not specified in this section.
2. Division 8 Section "Aluminum-Framed Entrances and Storefronts" for entrances furnished separately in Division 8 Section.
3. Division 8 Section "Door Hardware" for hardware to the extent not specified in this Section.
4. Division 8 Section Glazing for materials and installation requirements of glazing for impact rated sliding automatic entrance doors.
5. Division 26 Sections for electrical connections including conduit and wiring for impact rated sliding automatic entrance door operators.

#### 1.4 REFERENCES

- A. General: Standards listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.
  1. Florida Building Code, 2007.
  2. Miami-Dade County Building Code Compliance Office.
    - a. Product Control Division, Notice of Acceptance #08-0110.04.
  3. Florida Administrative Code (FAC).
    - a. 9B-72 – Product Approval.
  4. International Code Council (ICC):
    - a. IBC: International Building Code
  5. Underwriters Laboratories (UL).
    - a. UL 325 – Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.
  6. American National Standards Institute (ANSI) / Builders' Hardware Manufacturers Association (BHMA).
    - a. ANSI/BHMA A156.10: Standard for Power Operated Pedestrian Doors.
    - b. ANSI/BHMA A156.5: Standard for Auxiliary Locks and Associated Products.
  7. American Society for Testing and Materials (ASTM).

- a. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- b. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
8. American Welding Society (AWS).
  - a. AWS A5.10/A5.10M - Specification for Bare Aluminum and Aluminum-Alloy Welding Electrodes and Rods.
9. American Association of Automatic Door Manufacturers (AAADM).
10. National Fire Protection Association (NFPA).
  - a. NFPA 101 – Life Safety Code.
  - b. NFPA 70 – National Electric Code.
11. Building Officials and Code Administrators International (BOCA), 1999.
12. International Organization for Standardization (ISO).
  - a. ISO 9001 - Quality Management Systems.
13. National Association of Architectural Metal Manufacturers (NAAMM).
  - a. Metal Finishes Manual for Architectural and Metal Products.
14. American Architectural Manufacturers Association (AAMA).
  - a. AAMA 2605 – Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
  - b. AAMA 701 Voluntary Specification for Pile Weatherstripping and Replaceable Fenestration Weatherseals.

#### 1.5 DEFINITIONS

- A. Activation Device: Device that, when actuated, sends an electrical signal to the door operator to open the door.
- B. Safety Device: Device that prevents a door from opening or closing, as appropriate.

#### 1.6 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Shop Drawings: Include plans, elevations, sections, details, hardware mounting heights, and attachments to other work.
- C. Closeout Submittals.
  1. Owner’s Manual in accordance with Specification Section 00 78 00.
  2. Warranties in accordance with Specification Section 00 78 00.
- D. Design Certifications.
  1. Product Control Division, Notice of Acceptance from Miami-Dade County Building Code Compliance Office.
  2. Product Approval in accordance with FAC 9B-72.

#### 1.7 PERFORMANCE REQUIREMENTS

- A. General: Provide automatic entrance door assemblies capable of withstanding structural loads and thermal movements based on testing manufacturer's standard units in assemblies similar to those indicated for this Project.
- B. Thermal Movements: Provide automatic entrance doors that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces to 10 deg F.
  - C. Operating Range: Minus 30 deg F (Minus 34 deg C) to 130 deg F (54 deg C).
  - D. Opening-Force Requirements for Egress Doors: Not more than 50 lbf (222 N) required to manually set door in motion if power fails, and not more than 15 lbf (67 N) required to open door to minimum required width.
  - E. Closing-Force Requirements: Not more than 30 lbf (133 N) required to prevent door from closing.
  - F. Design Pressures: Impact rated sliding automatic entrance door systems shall be designed to withstand up to +/- 70 psf.
- 1.8 QUALITY ASSURANCE
- A. Installer Qualifications: Manufacturer's authorized representative who is trained for installation and maintenance of units required for this Project.
  - B. Manufacturer Qualifications: A qualified manufacturer with a manufacturing facility certified under ISO 9001 and with company certificate issued by AAADM.
  - C. Certifications: Automatic sliding door systems shall be certified by the manufacturer to meet performance design criteria in accordance with the following standards.
    1. Florida Building Code, 2007.
    2. Miami-Dade County Building Code Compliance Office.
    3. IBC.
    4. ANSI/BHMA A156.10.
    5. NFPA 101.
  - D. Source Limitations: Obtain automatic entrance door assemblies through one source from a single manufacturer.
  - E. Product Options: Drawings indicate sizes, profiles, and dimensional requirements of automatic entrance door assemblies and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."
  - F. 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.
  - G. Emergency-Exit Door Requirements: Comply with requirements of authorities having jurisdiction for automatic entrance doors serving as a required means of egress.
- 1.9 PROJECT CONDITIONS
- A. Field Measurements: General Contractor shall verify openings to receive automatic entrance door assemblies by field measurements before fabrication and indicate measurements on Shop Drawings.
  - B. Mounting Surfaces: General Contractor shall verify all surfaces to be plumb, straight and secure; substrates to be of proper dimension and material.
  - C. Other trades: General Contract shall advise of any inadequate conditions or equipment.
- 1.10 COORDINATION
- A. Coordinate size and location of recesses in concrete floors for recessed sliding tracks. Concrete, reinforcement, and formwork requirements are specified in Division 3, as required.
  - B. Templates: Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing automatic entrance doors to comply with indicated requirements.
  - C. Electrical System Roughing-in: Coordinate layout and installation of automatic entrance



door assemblies with connections to power supplies and security access control system.

#### 1.11 WARRANTY

- A. Automatic Entrance Doors shall be free of defects in material and workmanship for a period of one (1) year from the date of substantial completion.
- B. During the warranty period the Owner shall engage a factory-trained technician to perform service and affect repairs. A safety inspection shall be performed after each adjustment or repair and a completed inspection form shall be submitted to the Owner.
- C. During the warranty period all warranty work, including but not limited to emergency service, shall be performed during normal working hours.

### PART 2 - MATERIALS

#### 2.1 PRODUCTS

- A. Manufacturer: Stanley Access Technologies; Dura-Storm™ 3000 Series impact rated sliding automatic entrance doors with panic release hardware.
  1. Contact: Stanley Access Technologies, 6015 Benjamin Road, Suite 321, Tampa FL 33634; Attn: George Oertel; Phone: (813) 901-5177, Fax: (727) 522-2093, Email: GOertel@stanleyworks.com.
- B. Substitutions: Subject to compliance with requirements of the contract documents, the following named products may be substituted on this project.
  1. Approved substitutes for Dura-Storm™ 3000 with Panic Release Hardware:
    - a. Horton ProfilerStorm (Large & Small Missile) with panic release hardware.
    - b. Besam Unislide Resilience Full Break-out with panic release hardware.

#### 2.2 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
  1. Headers, stiles, rails, and frames 6063-T6.
  2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
  3. Sheet and Plate: ASTM B 209.
  4. Welding Rods and Bare Electrodes: AWS A5.10/A5.10M.

#### 2.3 IMPACT RATED AUTOMATIC ENTRANCE DOOR ASSEMBLIES

- A. General: Provide manufacturer's standard automatic entrance door assemblies including doors, sidelites, framing, headers, carrier assemblies, roller tracks, door operators, activation and safety devices, and accessories required for a complete installation.
- B. Impact Rated Sliding Automatic Entrance Doors.
  1. Bi-Parting sliding doors:
    - a. Configuration: Two sliding leaves and two sidelites.
    - b. Traffic Pattern: Two-way.
    - c. Emergency Breakaway Capability: Sliding leaves and sidelites.
    - d. Mounting: Between jambs.
    - e. Maximum Width: Not to exceed width specified in Miami-Dade County Building Code, Notice of Acceptance.

#### 2.4 COMPONENTS

- A. Framing Members: Manufacturer's standard extruded aluminum reinforced as required to support imposed loads.
  1. Nominal Size: 1 ¾ inch by 4 ½ inch (45 by 115 mm).
  2. Extruded Glazing Stops and Applied Trim: Minimum 0.062-inch (1.6-mm) wall

thickness.

- B. Stile and Rail Doors and Sidelites: Manufacturer's standard 1 ¾ inch (45 mm) thick glazed doors with extruded-aluminum tubular stile and rail members. All door corners, including intersections of stiles and rails or stiles and muntin bars, shall be welded secure.
  - 1. Glazing Stops: Impact security glass stops for use with 9/16 inch (14-mm) impact glass.
  - 2. Stile Design: Medium stile; 3 1/2 inch (89-mm) nominal width.
  - 3. Bottom Rail Design: Minimum 10-inch (254-mm) nominal height.
  - 4. Muntin Bars: Minimum one, maximum two, 4 1/2-inch (114-mm) nominal height horizontal tubular rail member for each door.
- C. Glazing: As specified in Division 8 Section Glazing.
  - 1. Glass: 9/16-inch (14-mm) laminated impact rated glass as specified in the Miami-Dade County Building Code, Notice of Acceptance.
  - 2. Glazing: Double wet glaze.
- D. Headers: Fabricated from extruded aluminum and extending full width of automatic entrance door units to conceal door operators, carrier assemblies, and roller tracks. Provide hinged or removable access panels for service and adjustment of door operators and controls. Secure panels to prevent unauthorized access.
  - 1. Mounting: Concealed, with one side of header flush with framing.
  - 2. Capacity: Capable of supporting doors up to 220 lb (99 kg) per leaf over spans up to 14 feet (4.3 m) without intermediate supports.
- E. Carrier Assemblies and Overhead Roller Tracks: Manufacturer's standard carrier assembly that allows vertical adjustment of at least 1/8 inch; consisting of minimum 2 ½ inch diameter urethane with precision steel lubricated ball-bearing wheels, operating on a continuous roller track. Support doors from carrier assembly by 2 inch diameter anti-riser wheels with factory adjusted cantilever and pivot assembly. Minimum two ball-bearing roller wheels and two anti-rise rollers for each active leaf.
- F. Thresholds: Manufacturer's standard saddle type thresholds as indicated below:
  - 1. Continuous standard tapered extrusion double bevel.
  - 2. All thresholds to conform to details and requirements for code compliance.
- G. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories compatible with adjacent materials.
- H. Signage: Provide signage in accordance with ANSI/BHMA A156.10.

## 2.5 DOOR OPERATORS

- A. General: Provide door operators of size recommended by manufacturer for door size, weight, and movement; for condition of exposure; and for long-term, operation under normal traffic load for type of occupancy indicated.
- B. Electromechanical Operators: Self-contained overhead unit powered by a minimum of 1/4 horsepower, permanent-magnet DC motor with gear reduction drive, microprocessor controller; and encoder.
  - 1. Operation: Power opening and power closing.
  - 2. Features:
    - a. Adjustable opening and closing speeds.
    - b. Adjustable back-check and latching.
    - c. Adjustable braking.
    - d. Adjustable hold-open time between 0 and 30 seconds.
    - e. Obstruction recycle.
    - f. On-off/hold-open switch to control electric power to operator.

- g. Energy conservation switch that reduces door-opening width.
  - h. Separate power switch required.
3. Mounting: Concealed.
- C. Electrical service to door operators shall be provided under Division 16 Electrical. Minimum service to be 120 VAC, 5 amps.

## 2.6 ELECTRIC CONTROLS

- A. Electrical Control System: Electrical control system shall include a microprocessor controller and position encoder. The encoder shall monitor revolutions of the operator shaft and send signals to microprocessor controller to define door position. Systems utilizing external magnets and magnetic switches are not acceptable. A single controller shall be capable of controlling up to 2 operators.
- B. Life Cycle Data Counter (LCD): The microprocessor control shall incorporate a non-resettable counter to track door operation cycles.
- C. Controller Protection: The microprocessor controller shall incorporate the following features to ensure trouble free operation.
  - 1. Automatic Reset Upon Power Up.
  - 2. Fuse Protection.
  - 3. Electronic Surge Protection.
  - 4. Internal Power Supply Protection.
- D. Soft Start/Stop: A “soft-start” “soft-stop” motor driving circuit shall be provided for smooth normal opening and recycling.
- E. Safety Search Circuitry: Provide system to recycle the doors when an obstruction is encountered during the closing cycle. If an obstruction is detected the system shall search for that object on the next closing cycle by reducing door closing speed at the position that was previously encountered, and will continue to close in check speed until doors are fully closed, at which time the doors will reset to normal speed. If obstruction is encountered again, the door will come to a full stop. The doors shall remain stopped until obstruction is removed and operate signal is given, resetting the door to normal operation.

## 2.7 ACTIVATION AND SAFETY DEVICES

- A. Motion Sensors: Motion sensors shall be mounted on each side of door header to detect pedestrians in the activating zone, and to provide a signal to open doors in accordance with ANSI/BHMA A156.10. Units shall be programmable for bi-directional or uni-directional operation and shall incorporate K-band microwave frequency to detect all motion in both directions.
- B. Presence Sensors: Presence sensors shall be provided to sense people or objects in the threshold safety zone in accordance with ANSI/BHMA A156.10. Units shall be self-contained, fully adjustable, and shall function accordingly with motion sensors provided. The sensor shall be energized simultaneously with the door-opening signal and shall emit an elliptical shaped infrared presence zone, centered on the doorway threshold line. Presence sensors shall be capable of selectively retuning to adjust for objects which may enter the safety zone; tuning out, or disregarding, the presence of small nuisance objects and not tuning out large objects regardless of the time the object is present in the safety zone. The door shall close only after all sensors detect a clear surveillance field.
- C. Photoelectric Beams: In addition to the threshold sensor include a minimum of two (2) doorway holding beams. Photoelectric beams shall be pulsed infrared type, including sender receiver assemblies for recessed mounting.

## 2.8 HARDWARE

1. Hardware Group - **No. 1** - Auto Sliding
  - a. Provide each **SL** door(s) with the following:

Quantity		Description	Model Number	Finish	Mfr
As req'd			ALL HARDWARE BY DOOR SUPPLIER		
-	-	RIM CYLINDER	By Door Hardware	WHI	SCH

- A. General: Provide units in sizes and types recommended by automatic entrance door and hardware manufacturers for entrances and uses indicated.
- B. Emergency Breakaway Feature: Provide release hardware that allows panel(s) to swing out in direction of egress to full 90 degrees from any position in sliding mode. Maximum force to open panel shall be 50 lbf (222 N) according to ANSI/BHMA A156.10. Interrupt powered operation of panel operator while in breakaway mode.
  1. Emergency breakaway feature shall include at least two adjustable detent devices mounted in each breakaway panel; one top mounted and one bottom mounted, to control panel breakaway force.
  2. Wind Resistant Damper: Provide factory installed concealed gas dampers in each breakaway panel to protect door panels from wind damage. Dampers shall be designed to slow panel movement after breakout.
- C. Panic Release Locking: Manufacturer's approved multi-point locking system with panic release hardware as follows.
  1. Four-Point Locking: Provide locking components, integrated with panic release hardware, that extend flush bolts into overhead carrier assembly and threshold of both the inactive leaf and active leaf. Flush bolts shall be manually dogged, or disengaged, for normal operation. Lock cylinders shall be provided to allow for disengagement of flush bolts from the exterior.
  2. Cylinders: As specified in Division 8 Section "Door Hardware."
  3. Panic release hardware shall be equal to or better than, Adams Rite G86-11-36.
- D. Control Switch: Provide manufacturer's standard rotary switch located 66-inch (1676-mm) above finish floor on the interior jamb and door position switch to allow for full control of the automatic entrance door. Controls to include, but are not limited to:
  1. Manual or Automatic Mode.
  2. On-Off-Hold Open.
  3. Reduced Opening.
  4. Open/Closed.
- E. Sliding Weather Stripping: Manufacturer's standard replaceable components complying with AAMA 701; made of wool, polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing.
  1. Provide double pile weather stripping on lead stiles of sliding panels.
  2. Provide single pile weather stripping between carrier and header, lead stiles of sidelites, and on pivot stiles of sliding panels.
- F. Weather Sweeps: Minimum of 2 adjustable nylon brush sweep mounted to underside of door bottom.

2.9 FABRICATION

- A. General: Factory fabricates automatic entrance door assembly components to designs, sizes, and thickness indicated and to comply with indicated standards.
  1. Form aluminum shapes before finishing.

2. Use concealed fasteners to greatest extent possible:
    - a. Where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration, use self-locking devices.
    - b. Reinforce members as required to receive fastener threads.
  - B. Framing: Provide automatic entrance doors as prefabricated assemblies.
    1. Fabricate tubular and channel frame assemblies with manufacturer's standard mechanical or welded joints. Provide sub-frames and reinforcement as required for a complete system to support required loads.
    2. Perform fabrication operations in manner that prevents damage to exposed finish surfaces.
    3. Form profiles that are sharp, straight, and free of defects or deformations.
    4. Prepare components to receive concealed fasteners and anchor and connection devices.
    5. Fabricate components with accurately fitted joints with ends coped or mitered to produce hairline joints free of burrs and distortion.
  - C. Doors: Factory fabricated and assembled in profiles indicated. Reinforce as required to support imposed loads and for installing hardware.
  - D. Door Operators: Factory fabricated and installed in headers, including adjusting and testing.
  - E. Glazing: Fabricate framing with minimum glazing edge clearances for thickness and type of glazing indicated.
  - F. Hardware: Factory install hardware to the greatest extent possible; remove only as required for final finishing operation and for delivery to and installation at Project site.
- 2.10 ALUMINUM FINISHES
- A. General: Comply with NAAMM Metal Finishes Manual for Architectural and Metal Products for recommendations for applying and designing finishes. Finish designations prefixed by AA comply with system established by Aluminum Association for designing finishes.
  - B. Superior-Performance Organic Finish: AA-C12C40R1x Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating.
    1. Fluoropolymer Two-Coat System: Manufacturer's standard two-coat, thermocured system, non-mica, non-metallic, non-bright white, consisting of inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight.
    2. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with AAMA 2605 and with coating and resin manufacturers' written instructions.
    3. Minimum dry film thickness shall be 1.2 mils.
    4. Color and Gloss: As selected by Architect from manufacturer's standard colors and gloss for paint system specified.

## PART 3 - EXECUTION

### 3.1 INSPECTION

- A. Examine conditions for compliance with requirements for installation tolerances, header support, and other conditions affecting performance of automatic entrance doors. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. General: Do not install damaged components. Fit frame joints to produce joints free of burrs and distortion. Rigidly secure non-movement joints.
  - B. Entrances: Install automatic entrance doors plumb and true in alignment with established lines and grades without warp or rack of framing members and doors. Anchor securely in place.
    - 1. Install surface-mounted hardware using concealed fasteners to greatest extent possible.
    - 2. Set headers, carrier assemblies, tracks, operating brackets, and guides level and true to location with anchorage for permanent support.
  - C. Door Operators: Connect door operators to electrical power distribution system as specified in Division 26 Sections.
  - D. Glazing: Install glazing as specified in Division 8 Section "Glazing."
  - E. Sealants: Comply with requirements specified in Division 7 Section "Joint Sealants" to provide weather tight installation.
- 3.3 FIELD QUALITY CONTROL
- A. Testing Services: Factory Trained Installer shall test and inspect each automatic entrance door to determine compliance of installed systems with applicable ANSI standards.
- 3.4 ADJUSTMENTS
- A. Adjust door operators, controls, and hardware for smooth and safe operation, for weather-tight closure, and for complying with requirements in ANSI/BHMA A156.10.
- 3.5 CLEANING AND PROTECTION
- A. Clean glass and aluminum surfaces promptly after installation. Remove excess glazing and sealant compounds, dirt, and other substances. Repair damaged finish to match original finish. Comply with requirements in Division 8 Section "Glazing", for cleaning and maintaining glass.

END OF SECTION 08 42 00
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## SECTION 08 45 00 INSULATED TRANSLUCENT SKYLIGHT CANOPY

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### PART 1 – GENERAL

#### 1.01. RELATED DOCUMENTS

- A. The General Conditions of the Contract, including Supplementary Conditions and Division 1 - General Requirements, apply to the work of this Section.

#### 1.02. WORK INCLUDED

- A. Design, manufacture and installation of translucent insulating system. An assembly of extruded tight-cell polycarbonate glazing panels incorporated into a complete aluminum framed system that has been tested and warranted by the manufacturer as a single source system.
- B. All anchors, brackets, and hardware attachments necessary to complete the specified structural assembly, weatherability and water-tightness performance requirements. All flashing up to but not penetrating adjoining work are also required as part of the system and shall be included.
- C. Trained and factory authorized labor with supervision to complete the entire panel installation.

#### 1.03. RELATED WORK SPECIFIED ELSEWHERE

- A. Division 3 – Concrete
- B. Division 5 – Metals
- C. Division 7 – Thermal & Moisture Protection

#### 1.04. QUALITY ASSURANCE

- A. Skylight system must be evaluated and listed by recognized building code authorities: International Council Evaluation Service Inc (ICC-ES) and SBCCI - Public Safety Testing and Evaluation Services Inc.
- B. Materials and Products shall be manufactured by a company continuously and regularly employed in the manufacture of skylights using polycarbonate (not glass) panel systems for a period of at least ten (10) years. Manufacturers shall provide a list of at least ten (10) projects having been in place a minimum of ten (10) years, with similar size, scope, climate and type.
- C. Erection shall be by a factory-approved installer which has been in the business of erecting similar material for at least five (5) consecutive years and can show evidence of satisfactory completion of projects of similar size, scope and type.
- D. The manufacturer shall be responsible for the configuration and fabrication of the



complete panel system, and will ensure that it fully meets all requirements of this specification.

E. APPROVED MANUFACTURERS:

All manufacturers acceptable for use on this project under this section must be approved prior to bid. Manufacturers must submit evidence of compliance with all performance criteria specified herein. This evidence must include proof of conformance and test reports as specified below. Any exceptions taken from this specification must be noted on the approval request. If no exceptions are noted and approval is given, product performance will be as specified. Should non-compliance be subsequently discovered, the previously given approval will be invalidated and use of the product on the project will be disallowed. Requests for approval, with all appropriate submittal data and samples must be received no less than 15 days prior to bid date. A list of all approved manufacturers and products will be issued by addendum. No other manufacturers will be acceptable. No verbal approval will be given.

1.05. SUBMITTALS

- A. Submit shop drawings and color samples in accordance with Section 01-33-00
- B. The manufacturer shall submit written guarantee accompanied by substantiating data, stating that the products to be furnished are in accordance with or exceed these specifications.
- C. The manufacturer shall submit certified test reports made by an independent organization for each type and class of panel system. Reports shall verify that the material will meet all performance requirements of this specification. Previously completed test reports will be acceptable if they are current and indicative of products used on this project. Test reports required are:
- 1) Self Ignition Temperature (ASTM 1929-3)
  - 2) Smoke Density (ASTM D-2843)
  - 3) Burning Extent (ASTM D-635)
  - 4) Interior Flame Spread (ASTM E-84)
  - 5) Color Difference (ASTM D-2244-85)
  - 6) Weathering (ASTM D-4364)
  - 7) Yellowing Index (ASTM D-1925)
  - 8) Weathering Evaluation before and after exposure to 300°F, 25 minutes include Light Transmission, Color Change, and Yellowing Index, per ASTM E-1175, ASTM D-2244 and ASTM D-1925 respectively.
  - 9) Shatter Resistance (ASTM D-3841/SPI Method B)
  - 10) Large Missile Test - Impact Resistance per SFBC PA 201-94
  - 11) Insulation "U" Factor per ASTM C-236 configured for/or NFRC100 test conditions of 15mph
  - 12) Air Infiltration (ASTM E-283)
  - 13) Water Penetration (ASTM E-331)
  - 14) Load Bearing Capability (ASTM E-330-90)

- 15) OSHA Life Safety Fall and Walk Through Protection for 300 lb. point load per STD 29 CFR 1910.23 (e)(8)
- 16) OSHA Life Safety STD 29 CFR - Impact loading by blunt object of 500 ft. lbs. per ASTM E-695-03
- 17) Performance of exterior windows, curtain walls when impacted by wind-borne debris per ASTM E 1996-02, Level D
- 18) IES LM-44-90 Testing for Total and Diffused Reflectometry (Diffused Light Transmission)
- 19) High wind load conditions / hurricane endurance design – Dade County Acceptance per local codes per SFBC, PA 201, PA 202, PA 203

D. MAINTENANCE DATA: The manufacturer shall provide recommended maintenance procedures, schedule of maintenance and materials required or recommended for maintenance.

#### 1.06. WARRANTY

- A. Provide a single source skylight / wall light / walkway / canopy system manufacturer warranty for glazing panels and framing system – third party warranty for glazing panels shall not be acceptable.
- B. Provide manufacturer 10 year warranty to include:
  - 1) Change in light transmission of no more than 6% per ASTM D-1003
  - 2) No delamination of panel affecting appearance, performance or structural integrity of the panel or the system.
  - 3) Thermal aging - the light transmission and the color shall not change after exposure to heat of 300°F for 25 minutes. (When measured per ASTM D-1003 and ASTM D-2244 respectively).

## PART 2 – PRODUCTS

### 2.01 TRANSLUCENT INSULATING INTERLOCKING TIGHT CELL GLAZING TECHNOLOGY:

- A. The design and performance criteria of this job are based on products manufactured by CPI Daylighting, Inc., P: 800.759.6985, F:847.816.0425; And as locally represented by:

**Logsdon & Associates, Inc.**

**P.O. Box 440**

**Gotha, FL 34786**

[logsdoninc@cfl.rr.com](mailto:logsdoninc@cfl.rr.com)

**P: 407.292.0084**

**F: 407.292.5901**

Substitute products must be proven equal and approved by addenda prior to the published bid date per specification section 1.04 E. Fiberglass skins are unacceptable.

- B. The support frame system/s will be designed and fabricated by either CPI Daylighting, Inc. or Logsdon & Associates, Inc. Shop drawings for the support structure will be signed and sealed by a licensed Florida engineer.

## 2.02 TRANSLUCENT PANEL PERFORMANCE

- A. Tight Cell Panel Technology – Longevity and Resistance to Buckling & Pressure
- 1) Translucent Panels must be of Tight-Cell technology. Wide Cell technology (cell size exceeding 0.18”) shall not be acceptable.
  - 2) The translucent panel shall include an integral extruded Tight-Cell structural core. The panel’s exterior skins shall be connected with supporting continuous ribs, perpendicular to the skins, at a spacing not to exceed 0.18” (truss-like construction). In addition, the space between the two exterior skins shall be divided by multiple parallel horizontal surfaces, at a spacing not to exceed 0.18”.
- B. Appearance:
- 1) Panel assembly thickness shall be a minimum .63” (16mm) single panel with exposed interlocking 1.25” wide U battens.
  - 2) Panel Width: Shall not exceed 2’ to ensure best performance for wind uplift, vibration, oil canning and visual appearance. Panels over 2’ wide will not be approved.
  - 3) The panels shall be uniform in color with an integral Tight-Cell core. In a cross section, the core shall be constructed of tight square cells not to exceed 0.18” x 0.18”. The appearance should be equal to CPI’s Pentaglas 16 Panel. Wide cell panel configurations greater than 0.18” by .018” shall not be accepted.
- C. Thermal And Solar Performance:
- 1) Insulation Value (“U”) per ASTM C236 configured for/or NFRC 100 test conditions - 0.38
  - 2) Light Transmission (L.T.%) per ASTM E1175 or E972 OR D-1003
  - 3) Solar Transmission (S.T.) per ASTM E1084 at “normal” (90°) incidence angle.
  - 4) Color: To be selected by architect from complete line of standard colors for Penta 16mm
- D. Translucent Panel Joint System:
- 1) Panel shall be extruded in one single formable length. Maximum panel width shall not exceed 2’. Transverse connections are not acceptable.
  - 2) The panels should be manufactured with grip-lock double tooth upstands that are integral to the unit. The upstands shall be 90 degrees to the panel

face (standing seam dry glazed concept). Welding or gluing of upstands or standing seam is not acceptable.

- 3) The U or H battens shall have a grip-lock double tooth locking mechanism to ensure maximum uplift capability.
- 4) The metal retention clip shall be configured with a 0.4" wide top flange that extends continuously across the web from end to end and from side to side. To allow a safety factor, the clip must be tested to meet a wind uplift standard of 90 psf per ASTM E330-97.
- 5) The panel system U connection shall meet wind load performance requirements without deterioration after 100 months of Florida outdoor exposure. This performance must be demonstrated by providing independent lab comparison test reports for a weathered vs. a new panel assembly. As a standard for all systems, provide test reports for a 16mm panel assembly, 6' wide x 12' long with connectors that have been exposed to Florida weather conditions for 100 months per ASTM E-330-97 for loading, ASTM E 1886-97 for cycling and ASTM E-1996-02 for missile impact at design load of 70 PSF.
- 6) Air Infiltration: Must meet standard of ASTM D-283 at test pressures of 12.0 PSF - 0.06 SCFM per linear ft. of panel U / H joint connection length.
- 7) Water Penetration: No water penetration of the panel U / H joint connection length at test pressure of 12.0 PSF per ASTM E-331
- 8) Free movement of the panels shall be allowed to occur without damage to the weather tightness of the completed system.

#### E. Flammability

- 1) The exterior and interior faces shall be an approved light transmitting panel with a CC1 fire rating classification per ASTM D-635. Flame spread no greater than 25 per ASTM E-84. Smoke density no greater than 75 per ASTM D2843 and a minimum self-ignition temperature of 1000°F per ASTM 1929. The panel shall be self-extinguishing.
- 2) Interior flame spread classification of Class I per ASTM E84.

#### F. Impact Resistance - the panels shall pass the following tests:

- 1) ASTM D-3841/SPI - Impact and Shatter Resistance of 200 ft. lbs.
- 2) SFBC – PA 201-94, impact resistance of 350 ft. lbs.
- 3) ASTM E-1996-02 - Must comply with standard specification for performance of exterior windows or curtain walls when impacted by windborne debris at level D and after cyclic wind loading at the specified design load.

- G. OSHA Life Safety Standards 29 CFR 1926.502 (i)(2) and 29 CFR 1910.23 (e)(8)
- 1) Panel assembly shall withstand impact loading by blunt object of 500 ft. lbs. per ASTM E695-03
  - 2) Panel assembly shall withstand a 300 lb. point load at 4' span
- H. [Extreme Wind Loading - panel system shall meet wind uplift resistance requirements of 100 PSF per SFBC, PA 201, PA 202, PA 203]
- I. Cyclic Wind Load – Translucent Panels shall be tested for cyclic wind loads and impact resistance per ASTM E 1886-97 and ASTM E 1996-02 at test load to verify the positive and negative design loads and level D impact.
- J. Weatherability:
- 1) The light transmission as measured by ASTM D1003, shall not decrease more than 6% over 10 years, or after exposure to temperature of 300°F for 25 minutes (thermal aging).
  - 2) The panel shall be tested by recognized laboratory for weathering evaluation per ASTM D4364-84 (EMMAQUA, UNBACKED), after exposure to minimum concentrated natural sunlight radiation of 56000 MJ/M (1540 MJ/M of UV, 200 – 385 N.M). The panel shall not change in color more than 5.0 units Delta E, 5.0 units Delta L and Delta B.
  - 3) The panel shall not change color more than 5.0 units (DELTA-E by ASTM D2244) after 60 months outdoor weathering in Arizona determined by an average of at least two samples.
  - 4) Thermal aging - the interior and exterior faces shall not change color in excess of 0.75 Delta E by ASTM D2244 and shall not darken more than 0.3 units (Delta L by ASTM D2244) and 0.2 units Delta Y (YI) by ASTM D1925 and shall not show cracking or crazing when exposed to 300°F for 25 minutes.
  - 5) The faces shall not become readily detached when exposed to temp of 300°F and 0°F for 25 minutes.
  - 6) Panels shall consist of a polycarbonate resin with a permanent, co-extruded, ultra-violet protective layer. Post-applied coating or films of dissimilar materials are unacceptable. Fiberglass skins are unacceptable.
  - 7) UV Maintenance: The system shall require no scheduled re-coating to maintain its performance or for UV protection.

8) Panel shall be factory sealed at the sill to restrict dirt ingress.

K. Diffused Light Transmission:

As a reference for measuring the quality of the diffused light through the panel assembly, the IES (Illuminating Engineering Societies) LM-44-1990 Approved Method for Total and Diffuse Reflectometry procedure shall be used. Results for a Clear Pentaglas / Single Glazed panel assembly shall be provided as a base standard for comparison.

For Pentaglas / Single Glazed systems with total illuminator flux output at 60 lumens, diffused light transmission requirements are:

Zonal Zone	% of transmittance from the maximum total lumens transmitted through the panels
0-30	66.0
0-40	78.5
0-60	94.0
0-90	100.0

L. The minimum ratio of the panel weight to the panel thickness should be: For 0.63” thick Pentaglas 16 panel, 0.68 LB. per S.F.

2.03 METAL FRAME STRUCTURE

A. To meet ANSI/ASCE 7-95 building design load, design criteria shall be:

- 1) Wind Load: 100 MPR
- 2) Live Load: 20 PSF

B. The Skylight framing is designed to be self-supporting between the support constructions. The deflection of the Structural framing members in a direction normal to the plane of the glazing, when subjected to a uniform load deflection, shall not exceed L/60 for the unsupported span. The skylights will impose reactions to the support construction. All adjacent and support construction must support the transfer of all loads including horizontal and vertical, exerted by the skylights. Design or structural engineering services for the supporting structure or building components not included in the skylight scope are not included under this section.

C. Water Penetration: The Metal Framed Skylight shall allow no water penetration at a minimum differential static pressure of 6.24 lbs. per sq. ft. per AAMA 501-94 Pressure Difference Recommendations and as demonstrated by prior testing of typical framing sample per ASTM E-331

D. Water test of Metal Frame Structure shall be conducted according to procedures in AAMA 501.2

2.04 METAL MATERIALS

A. Extruded Aluminum shall be ANSI/ASTM B221; 6063-T6; 6063-T5 or 6005-T5.

## B. Flashing:

1) 5005 H34 aluminum 0.04" minimum thickness.

2) Sheet metal flashings/closures/claddings are to be furnished shop formed to profile - when lengths exceed 10 ft. in nominal 10-ft lengths. Field trimming of the flashing and field forming the ends is necessary to suit as-built conditions. Sheet metal ends are to overlap at least 6-in. to 8-in., set in a full bed of sealant and riveted if required.

C. All Fasteners for aluminum framing to be stainless steel or cadmium plated steel, excluding the final fasteners to the building.

D. All exposed ALUMINUM FINISH shall be standard color 2-coat Kynar 500 70% paint finish.

## PART 3 EXECUTION

## 3.01 EXAMINATION

A. General Contractor to verify when structural support is ready to receive all work in this section and to convene a Pre-Installation Conference at least one week prior to commencing work of this Section. Attendance required of General Contractor, skylight installer and all parties directly affecting and effected by the work of this section.

B. All submitted opening sizes, dimensions and tolerances are to be field verified by general contractor unless otherwise stipulated.

C. Installer to examine area of installation to verify readiness of site conditions. Notify general contractor about any defects requiring correction. Do not work until conditions are satisfactory.

## 3.02 INSTALLATION

A. Install components in strict accordance with manufacturer's instructions and approved shop drawings. Use proper fasteners and hardware for material attachments as specified.

B. Use methods of attachment to structure allowing sufficient adjustment to accommodate tolerances.

C. Remove all protective coverings on panels immediately after installation.

## 3.03 CLEANING

A. Follow manufacturer's instructions when washing down exposed panel surfaces using a solution of mild detergent in warm water that is applied with soft, clean wiping cloths.

B. Follow strict panel manufacturer guidelines when removing foreign substances



from panel surfaces requiring mineral spirits or any solvents that are acceptable for use.

- C. Installers shall leave panel system clean at completion of installation. Final cleaning is by others upon completion of project, following manufacturer's cleaning instructions.

**END OF SECTION 10 77 00**

## SECTION 08 50 00 - SCREEN ENCLOSURES

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This section includes all labor, material, equipment and related services to furnish and install all bug screen and framing required to provide screen enclosure at lanai.

#### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Condition of Contract and Division 1 Specification Sections.
- B. Product data for each type of product specified to include:
  - 1. Aluminum frame cross-sections and finishes.
  - 2. Screen types.
- C. Review and Resubmittal:
  - 1. After initial review by Owner and Architect, revise and resubmit if required.
  - 2. Revise and resubmit along with next Application for Payment when a Change Order is issued. List each Change Order as a new line item.
  - 3. Submit Product Test Reports from and based on tests performed by qualified independent testing laboratory evidencing compliance of structure with wind speed ratings, etc. Provide Notice of Acceptance (NOA) from Miami-Dade County where appropriate.

#### 1.4 QUALITY ASSURANCE

- A. Ensure there are no burrs or sharp edges on aluminum framing apparatus that could cause injury to building occupants.

### PART 2 - MATERIALS

#### 2.1 PRODUCTS

- A. Insect Screen - Standard fiberglass 18 x 14 mesh.
- B. Framing - Frame members and doors shall be extruded aluminum of 6063-T5 alloy and shall not be less than .044 thickness. Minimum size of framing section shall be min. 1-1/2" x 2-1/2" all connections of framing members shall be mechanical. Provide weep holes in base frame for water runoff. Doors shall be provided with lockable latchsets, hinges and standard screen door closers.
- C. Finish - The finish coating shall be electrolytically deposited Duranar paint in compliance to AAMA 603. Color to be selected by Architect from paint manufacturer standard color charts.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Install sub-framing members and finish frame members plumb and level making sure sub-framing is securely fastened to substrate materials using fastening devices approved by framing manufacturer.

**PART 4 - PROTECTION**

- A. Protect screen enclosures and framing members from damage and soiling from subsequent construction and move-in activities.

**END OF SECTION 08 50 00**

## SECTION 08 51 00 - METAL WINDOWS

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### **08 51 13 ALUMINUM WINDOWS**

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

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

##### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all aluminum architectural windows complete with hardware and all related components as shown on drawings and specified in this section.
- B. All windows shall be PGT large missile impact resistant in accordance with this specification section. Other manufacturers requesting approval to bid their product as an equal must submit the following information fifteen days prior to close bidding.
  - 1. A sample window (size and configuration) as per requirements of architect.
  - 2. Detail cuts and product data.
  - 3. Miami-Dade Building Code Compliance Office's (BCCO) Notice of Acceptance (NOA) for large and small missile impact testing.
  - 4. Must meet all other performance criteria herein.
- C. Glass and Glazing: all units shall be factory glazed.

##### 1.3 RELATED SECTIONS

- 1. Section 07 91 00 Preformed Joint Sealants.
- 2. Section 07 92 00 Elastomeric Sealants.

##### 1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Contractor shall submit shop drawings, finish samples, test reports, and warranties.
  - 1. Shop Drawings: Include typical unit elevations, full- or half-scaled detail sections, and typical installation details. Include type of glazing, screening, and window finish.
  - 2. Product Data: Manufacturer's specifications, recommendations and standard details for window units.
  - 3. Samples for Selection Purposes: Submit manufacturer's full range color palette including finish type and pattern.
  - 4. Samples of materials may be requested without cost to owner, i.e. frame sections, corner samples, mullions, extrusions, anchors, and glass.
  - 5. Submit copies of test reports required in paragraph 1.6 Quality Assurance.

##### 1.5 REFERENCES

- A. AAMA - American Architectural Manufacturers Association.
  - 1. AAMA 103.3-93 "Procedural Guide for Aluminum and Vinyl Prime Windows and Glass Doors, Insulating Storm Products for Windows and Glass Doors and Thermal Performance of Windows and Glass Doors."

2. AAMA 1302.5-76, paragraph 3.1.1 Test A through 3.1.5 Test B "Voluntary Specifications for Forced-Entry Resistant Aluminum Prime Windows."
- B. ANSI - American National Standards Institute.
  1. ANSI/AAMA/NWWDA 101/I.S.2-97 "Voluntary Specification for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors."
- C. ASTM - American Society for Testing and Materials.
  1. ASTM C 1036-91 "Standard Specification for Flat Glass."
  2. ASTM E 283-96 "Standard Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors."
  3. ASTM E 330-96 "Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference."
  4. ASTM E 331-96 "Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference."
  5. ASTM E 547-96 "Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential."
- D. Florida Building Code.
  1. Protocol TAS-201 "Impact Test."
  2. Protocol TAS -202 "Air, Water, Structural Test."
  3. Protocol TAS -203 "Cyclic Wind Load Test."

#### 1.6 QUALITY ASSURANCE

- A. Provide test reports from AAMA accredited laboratory certifying the performance as specified.
- B. Provide certified test reports showing compliance with TAS 201, 202, and 203 from an accredited test lab.
- C. Test reports shall be accompanied by the window manufacturer's letter of certification stating that the tested window meets or exceeds the aforementioned criteria for the appropriate ANSI/AAMA/NWWDA 101/I.S.2-97 and TAS 201,202 and 203.
- D. Manufacturer Qualifications: minimum five (5) years documented experience in the manufacture of aluminum windows as required for this project.
- E. Installer Qualifications: workmen properly trained and skilled in the installation and handling of aluminum windows as required for this project.

#### 1.7 DELIVERY STORAGE AND HANDLING

- A. Store and handle windows and other components in strict compliance with manufacturer's instructions.
- B. Protect units against damage from the elements, construction activities and other hazards before, during, and after installation.

#### 1.8 WARRANTIES

- A. Total Window System
  1. The contractor shall assume full responsibility and warrant in accordance with Section 00 70 00 the satisfactory performance of the total window installation, which includes that of the window's hardware, glass (including insulated units), glazing, anchorage and setting system, sealing, flashing, etc. as it relates to air, water and structural adequacy as called for in the specifications and shop drawings.

2. Any deficiencies due to such elements not meeting the specifications shall be corrected by the contractor at contractor's expense during the warranty period.
3. Manufacturer: warrant material and workmanship on all products for a period of three (3) years. Glass only to be warranted for five (5) years against materially obstructed vision or delamination.

## PART 2 - MATERIALS

### 2.1 PRODUCTS

#### A. General:

1. Main frame members: extruded from 6063-T6 aluminum alloy, nominal 0.0062" wall thickness. One stainless corner key in each corner.
2. Sash members: extruded from 6063-T6 aluminum alloy, nominal 0.062" wall thickness. One stainless steel corner key in each corner.
3. Glazing attachment with silicone adhesive.
4. Hardware: concealed egress stainless steel hinges. One lever-activated multi-point lock on each vent locking into steel keepers in the main frame. Steel and tin-lead-zinc alloy rotary crank operator.
5. Monolithic glass shall be 7/16" clear laminated glass made from 3/16" heat strengthened glass .090 PVB interlayer and 3/16" heat strengthened glass factory furnished and installed.
6. Screens: tubular aluminum frame with fiberglass screen cloth, vinyl spline, two plastic screen pull tabs and two compression retention springs per screen.

### 2.2 MANUFACTURER

#### A. Basis of design is PGT Industries at 1070 Technology Drive Nokomis, FL 34275:

1. **Series "PW-701" Aluminum Fixed Window - LMI [NOA No. 08-1112.10].**
  - a. PGT Industries, Inc. Series F-701 WinGuard fixed glass aluminum window.
  - b. Configuration: Integral fin construction fixed glass aluminum window.
  - c. Frame: 2.784" frame depth.
2. **Series "C-740" Aluminum Single Hung Window - Impact [NOA No. 07-0322.06].**
  - a. PGT Industries, Inc. Series SH-700 WinGuard single hung aluminum window.
  - b. Configuration: flange construction aluminum single hung.
  - c. Frame: 2.784" frame depth.

#### B. Performance Requirements:

1. When tested according to Miami-Dade County test protocols, meets the design pressures stated in the Miami-Dade County Notice(s) of Acceptance for this product.
2. Air Infiltration: 0.3(ft<sup>3</sup>)/min/ft maximum when tested per ASTM E 283 at a 1.57 psf static air pressure difference.
3. Water Resistance: no water leakage when tested per ASTM E 547 at a static air pressure difference of 15% of the positive design pressure.
4. Uniform Load Structural: after testing per ASTM E 330 with a load equal to 150% of the positive design pressure, the unit must be operable, with a maximum permanent deformation in any member of 0.4% of the member's length.

## 2.3 FABRICATION

### A. General:

1. All hardware factory installed.
2. Bug screens constructed and installed in unit prior to shipment.

## 2.4 FINISHES

- A. Paint: Unless otherwise noted on the drawing and with the exception of "PGT's paint thickness specification range of 2.4 - 5.0 mils for exposed surfaces and 1.0 mil minimum on all other surfaces, AAMA 2603 coating specification applies.

## PART 3 - EXECUTION

### 3.1 INSPECTION

#### A. Job Conditions:

1. Verify that openings are dimensionally correct and within allowable tolerances. Openings must be plumb, level, and clean. Provide a solid anchoring surface that is in accordance with approved shop drawings.
2. Correct or have corrected, unacceptable conditions prior to installation.

### 3.2 INSTALLATION

- A. Install windows and accessories in accordance with approved shop drawings and manufacturer's recommendations.
- B. Set square and level aligning window faces in a single plane for each opening. Windows and materials must be set square and level. Adequately anchor window so when subjected to normal thermal movement, specified building movement, and specified wind loads, so windows will maintain a permanent position.
- C. Place insulation materials around shim spaces as required to ensure continuity of the thermal barrier of the structure.
- D. Adjust Windows for proper ease of operation after installation has been completed.
- E. Contractor furnish and apply sealant, per manufacturers recommendations, to provide a weather tight installation at all opening perimeters. Wipe off excess material and leave all exposed surfaces and joints clean and smooth.

### 3.3 PROTECTING AND CLEANING

- A. After completion of window installation, windows shall be inspected, adjusted, and left in working order. Windows shall be left clean, free of labels, dirt, etc.

**END OF SECTION 08 51 00**



## SECTION 08 71 00 - DOOR HARDWARE

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all door hardware as specified herein.

#### 1.3 RELATED SECTIONS

- A. 08 11 00 Metal Doors and Frames.
- B. 08 14 00 Wood Doors.
- C. 08 41 00 Entrances & Storefronts.
- D. 08 42 00 Entrances, Automatic.

#### 1.4 SUBMITTALS

- A. General: Submit the following in accordance with the Conditions of Contract and Division 1 Specifications Sections.
- B. Submit six (6) copies of a complete schedule identifying each door and each set number, following the numbering system on the drawings and in this Specification Section and not creating any separate system.
- C. No manufacturing orders shall be placed until detailed schedule has been submitted to the architect in accordance with Specification Section 01 33 00.

#### 1.5 DESCRIPTION OF WORK

- A. Furnish labor and material to complete hardware work indicated, as specified herein, or as may be required by actual conditions at building.
- B. Include all necessary screws, bolts, expansion shields, other devices, if necessary, as required for proper hardware application. The hardware supplier shall assume all responsibility for correct quantities.
- C. All hardware shall meet the requirements of Federal, State and Local codes having jurisdiction over this project, notwithstanding any real or apparent conflict therewith in these specifications.
- D. Furnish templates required by manufacturing contractors for accurate fitting, finishing hardware setting. Furnish templates in time to facilitate progress of work.
- E. Fire Rated Openings:
  1. Provide hardware for fire-rated openings in compliance with A.I.A. (NBFU) Pamphlet No. 80, NFPA Standards NO. 101, UBC 702 (1997) and UL10C. This requirement takes precedence over other requirements for such hardware. Provide only hardware that has been tested and listed by UL for the types and sizes of doors required, and complies with the requirements of the door and door frame labels.
  2. Where panic exit devices are required on fire-rated doors, provide supplementary marking on door UL label indicating Fire Door to be equipped with fire exit hardware and provide UL label on exit device indicating "Fire Exit Hardware."
- F. Fasteners:
  1. Hardware as furnished shall conform to published templates generally prepared for

- machine screw installation.
- 2. Furnish each item complete with all screws required for installation. Typically, all exposed screws installation.
- 3. Insofar as practical, furnished concealed type fasteners for hardware units which have exposed screws shall be furnished with Phillips flat heads screws, finished to match adjacent hardware.
- 4. Door closers and exit devices to be installed on wood or composite fire doors shall be attached with closed head through bolts (sex bolts).
- G. Florida Building Code, 2007 Edition:
  - 1. Provide Miami-Dade Notice of Authorization (NOA) if required by authority having jurisdiction require.
  - 2. Provide Engineering Reports that openings meet requirements for wind load, water infiltration and impact as required.

#### 1.6 QUALITY ASSURANCE

- A. The supplier shall be a directly franchised distributor of the products to be furnished and have in their employment an AHC (Architectural Hardware Consultant). This person is to be available for consultation to the architect, owner and the general contractor at reasonable times during the course of work.
- B. Hardware supplier shall have an office and warehouse facilities to accommodate the materials used on this project. The supplier must be an authorized distributor of the products specified.
- C. The hardware manufacturer is to supply both a pre-installation class as well as a post-installation walk-thru. This is to ensure proper installation and provide for any adjustments or replacements of hardware as required.
- D. Single Source Requirement: To the greatest extent possible, obtain each kind of hardware from one supplier, from a single manufacturer for quality, consistency, uniformity of finish and function/operation and maintenance.

#### 1.7 DELIVERY, STORAGE AND HANDLING

- A. Wrap, protect finishing hardware items for shipment. Deliver appropriate hardware to manufacturing contractor for application; deliver balance of hardware to job; store in designated location. Each item shall be clearly marked with its intended location.

#### 1.8 WARRANTY

- A. The material furnished shall be warranted for one year after installation or longer as the individual manufacturer's warranty permits.
- B. Door closers shall be warranted in writing by the manufacturer against failure due to defective materials and workmanship for a period of ten (10) years commencing on the Date of Substantial Completion, and in the event of failure, the manufacture is to promptly repair or replace the defective with no additional cost to the Owner.

### PART 2 - MATERIALS

#### 2.1 MANUFACTURERS

- A. All numbers and symbols used herein have been taken from the current catalogues of the following manufacturers.

	PRODUCT	ACCEPTABLE MANUFACTURER	ACCEPTABLE SUBSTITUTE
1	Hinges	Ives	Hager, Stanley
2	Locks & Latches	Falcon Lock	Schlage Lock
3	Cylinders, Keys, Keying	Falcon Lock	Schlage Lock
4	Exit Devices	Falcon Hardware	Von Duprin
5	Door Closers	Falcon Closers	LCN
6	OH Stops/ HOLDERS	Glynn Johnson	Rixson
7	Wall Stops/Floor Stops, Flushbolts	Ives	Rockwood, Hager
8	Kick Plates	Ives	Rockwood, Hager
9	Threshold/Weather Strip	Zero	Pemko, National Guard
10	Silencers	Ives	Rockwood, Hager
11	Key Cabinet	Lund	Key Control

## 2.2 HARDWARE FINISH

- A. **Hinges to be Bright Brass (605) and Interior hinges to be Bright Brass (605). Door Closers to be Gold Painted, Locks to be Bright Brass (605). Exit Devices to be Bright Brass (605). Overhead Holders to be Bright Brass (605), Kickplates Bright Brass (605) and the Thresholds to be Gold Aluminum. Bright Brass (605) at Resident Suites.**

## 2.3 HINGES AND PIVOTS

- A. Exterior butts shall be Stainless Steel. Butts on all out swinging doors shall be furnished with non-removable pins (NRP).
- B. Interior butts shall be as listed.
- C. Doors 5' or less in height shall have two (2) butts. Furnish one (1) additional butt for each 2'6" in height or fraction thereof. Dutch door shall have two (2) butts per leaf.

## 2.4 KEYING

- A. Locks and cylinders shall be Schlage Lock Company. All bittings shall be issued by lock manufacturer in order to create a grand master key system.
- B. Locks and cylinders to be construction master keyed in a manner that does not require the cylinders to be removed.
- C. Provide Two (2) each **change keys per lock** and Six (6) each **construction master keys**.

## 2.5 LOCKSETS

- A. Locksets shall be Heavy Duty Cylindrical type, unless specified otherwise, in "ND" and "AL" series, lever design as manufactured by Schlage.
1. Acceptable Substitutions:
- a. Falcon Lock T and W Series.

## 2.6 EXIT DEVICES

- A. All devices shall be Von Duprin 98 Series in types and functions specified. All devices must be listed under "Panic Hardware" in accident equipment list of Underwriters Laboratories. All labeled doors with "Fire Exit Hardware" must have labels attached and be in strict accordance with Underwriters Laboratories.
- B. All exit devices shall be tested to ANSI/BHMA A156.3 test requirements by a BHMA certified testing laboratory. A written certification showing successful completion of a

minimum of 1,000,000 cycles must be provided.

- C. All surface strikes shall be roller type and come complete with a plate underneath to prevent movement. Provide dead-latching feature to prevent latchbolt tampering.
  - 1. Acceptable Substitutions:
    - a. Falcon Hardware 25 Series.

## 2.7 DOOR CLOSERS

- A. All closers shall be LCN 1461 Series having non-ferrous covers, forged steel arms separate valves for adjusting backcheck, closing and latching cycles and adjustable spring to provide up to 50% increase in spring power. Closers shall be furnished with parallel arm mounted on all doors opening into corridors or other public spaces and shall be mounted to permit 180 degrees door swing wherever wall conditions permit. Furnish with non-hold open arms unless otherwise indicated.
- B. Door closer cylinders shall be of high strength cast iron construction to provide low wear operating capabilities of internal parts throughout the life of the installation. All door closers shall be tested to ANSI/BHMA A156.4 test requirements by a BHMA certified testing laboratory.
- C. Door closers shall utilize temperature stable fluid capable of withstanding temperature ranges of 120 degrees Fahrenheit to -30 degrees Fahrenheit, without requiring seasonal adjustment of closer speed to properly close the door. Closers for fire-rated doors shall be provided with temperature stabilizing fluid that complies with the standards UBC 7-2 (1997) and UL 10C.
- D. Door closers shall incorporate tamper resistant non-critical screw valves of V-slot design to reduce possible clogging from particles within the closer. Closers shall have separate and independent screw valve adjustments for latch speed, general speed, and hydraulic backcheck. Backcheck shall be properly located so as to effectively slow the swing of the door at a minimum of 10 degrees in advance of the dead stop location to protect the door frame and hardware from damage. Pressure relief valves (PRV) are not acceptable.
  - 1. Acceptable Substitutions:
    - a. Falcon SC60 with cover.

## 2.8 TRIM AND PLATES

- A. Kick plates, mop plates, and armor plates, shall be .050 gauge with 32D finish. Kick plates to be 10" high, mop plates to be 4" high. All plates shall be two (2) inches less full width of door.
- B. Push plates, pull plates, door pulls, and miscellaneous door trim shall be shown in the hardware schedule.

## 2.9 DOOR STOPS

- A. Door stops shall be furnished for all door to prevent damage to doors or hardware from striking adjacent walls or fixtures. Wall bumpers equal to Ives WS407 Series are preferred, but where not practical furnish floor stops equal to Ives FS436 or FS438 series. Where conditions prohibit the use of either wall or floor type stops, furnish surface mounted overhead stops equal to Glynn Johnson, 450 Series.

## 2.10 THRESHOLDS AND WEATHERSTRIP

- A. Thresholds and weatherstrip shall be as listed in the hardware schedule.

## 2.11 DOOR SILENCERS

- A. Furnish rubber door silencers equal to Ives SR64 for all new interior hollow metal

frames, (2) per pair and (3) per single door frame.

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

- A. All hardware shall be applied and installed in accordance with the Finish Hardware schedule. Care shall be exercised not to mar or damage adjacent work.
- B. Contractor to provide a secure lock-up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items that are not immediately replaceable, so that the completion of the work will not be delayed by hardware losses both before and after installation.
- C. No hardware is to be installed until the hardware manufacturer has provided a pre-installation class to ensure proper installation of the specified products.

**3.2 ADJUSTING AND CLEANING**

- A. Contractor shall adjust all hardware in strict compliance with manufacturer’s instructions. Prior to turning project to owner, contractor shall clean and make any final adjustments to the finish hardware.

**3.3 KEY CABINET**

- A. Set up and index one (1) Key Cabinet that allows room for expansion for 150% of the number of keys for the project.

**PART 4 - PROTECTION**

- A. Protect from pre and post installation damage for the duration of the project.

**PART 5 - SCHEDULE**

**5.1 GENERAL**

- A. **Contractor to Verify all door hardware.**
- B. Quantities listed are for each pair of doors; or for each single door.
- C. This hardware schedule prepared by:
  - 1. Ingersoll Rand (IR) - Security Technology
    - 735 West State Road 434 Suite H
    - Longwood, FL 32750
    - p. (407) 571-2000
    - f. (407) 571-2006

**5.2 DOOR INDEX**

- A.

Door No	HwSet	Door No	HwSet	Door No	HwSet
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121	04	314B	19	420	13
123	15	315	27	421	13
124	13	316A	21	423	13
125	18	316B	04	424	13
126	13	316C	15	426	13
127	13	317A	15	427	13
128A	20	317B	04	428	18
129A	13	317C	04	430	13
129B	13	318	21	431	13
131	13	319	21	432	13
132	13	320	22	433	04
134	22	322	21	434	13
135	13	324	23	435	13
136	13	325	23	436A	15
138	13	326	16	517	15
139	13	327A	17	519	04
140	13	327B	17	520	14
141	04	328	21	521	13
142	13	329	17	523A	13
143	13	330	13	523B	13
220	13	331	19	524A	20
221	13	332	18	525	18
222	13	333	17	526	13
223A	20	334	13	527	13
224A	13	335	13	529	13
224B	13	336	17	530	13
226	13	337	17	532	22
227	13	338	17	533	13
229	22	339A	17	534	13
230	13	339B	17	536	13
231	13	340	22	537	13
233	13	341A	14	538	13
234	13	341B	04	539	04
235	13	341C	12	540	13
236	04	342	17	541	13
237	13	343	17	600A	06
238	13	343A	22	600B	06
239A	15	344	18	600C	
300	01	345	18	601	21
304	21	346	19	D-01	24
305	21	347	04	D-01A	24
306	21	348	09	D-02	25
307	21	349	08	D-03	26
308	21	350	07	D-04	26
308A	13	351	22	D-05	23
309A	19	351A	22	D-06	23
309B	04	352	06	D-07	29
310A	19	353	07	D-08	02
310B	27	417A	13	D-08A	04
312	18	417B	13	D-09	10
313	18	418A	20	D-10	03
314A	27	419	18	D-11	04

Door No	HwSet	Door No	HwSet	Door No	HwSet
D-12	03				
D-13	11				
D-14	23				
D-15	12				
D-16	04				
D-17	05				
D-18	28				

Hardware Group No. 01

Provide each SL door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
1	EA BALANCE	HARDWARE TO REMAIN		B/O

Hardware Group No. 02

Provide each SGL door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
3	EA HINGE	5BB1 4.5 X 4.5 NRP	605	IVE
1	EA PANIC HARDWARE	1692NL-OP	696	FAL
1	EA RIM CYLINDER	951 6 PIN	605	FAL
1	EA ELECTROMAGNETIC LOCK	M420-ATS/LED	603	SCE
1	EA OFFSET DOOR PULL	8190-0	605	IVE
1	EA SURFACE CLOSER	SC81 DS	696	FAL
1	EA THRESHOLD	65A	GLD	ZER
1	WIRING DIAGRAM	BY HARDWARE SUPPLIER		B/O
1	KEYPAD	BY SECURITY SUPPLIER		B/O
1	EA BALANCE	HARDWARE TO REMAIN		B/O
1	EA PUSHBUTTON	621AL EX	630	SCE
1	EA SCANNER	SCAN II-B	BLK	SCE

MAGNETIC LOCKS TO RELEASE ON FIRE ALARM, SCANNER AND PUSH BUTTON. KEY PAD ON EXTERIOR. KEYPAD BY OTHERS

Hardware Group No. 03

Provide each PR door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
6	EA HINGE	5BB1 4.5 X 4.5 NRP	605	IVE
2	EA MANUAL FLUSH BOLT	FB458	605	IVE
1	EA LOCK	4511-36-202-4590	696	ADA
1	EA MORTISE CYLINDER	985 1 1/4	605	FAL
2	EA PULL/PUSHBAR	9190-0-NO	605	IVE
2	EA SURFACE CLOSER	SC81 DS	696	FAL
1	EA THRESHOLD	65A	GLD	ZER
1	EA BALANCE	HARDWARE TO REMAIN		B/O

Hardware Group No. 04

Provide each SGL door(s) with the following:



VILLAGES REHABILITATION CENTER

OPA #0939

Quantity	Description	Model Number	Finish	Mfr
3	EA HINGE	5BB1 4.5 X 4.5	605	IVE
1	EA LOCK	4511-36-202-4590	696	ADA
1	EA MORTISE CYLINDER	985 1 1/4	605	FAL
1	EA PULL/PUSHBAR	9190-0-NO	605	IVE
1	EA SURFACE CLOSER	SC81 DS	696	FAL
1	EA THRESHOLD	65A	GLD	ZER
1	EA BALANCE	HARDWARE TO REMAIN		B/O

Hardware Group No. 05

Provide each PR door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
6	EA HINGE	5BB1 4.5 X 4.5 NRP	605	IVE
2	EA MANUAL FLUSH BOLT	FB458	605	IVE
1	EA STOREROOM LOCK	T581P6D Q	605	FAL
2	EA SURFACE CLOSER	SC81 DS	696	FAL
2	EA KICK PLATE	8400 10" X 1" LDW	605	IVE
1	SET SEALS	188S	BLK	ZER
1	EA RAIN DRIP	142A	GLD	ZER
1	EA THRESHOLD	65A	GLD	ZER
1	EA METAL Z-ASTRAGAL	BY DOOR SUPPLIER	GRY	B/O

Hardware Group No. 06

Provide each SGL door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
3	EA HINGE	5BB1 4.5 X 4.5 NRP	605	IVE
1	EA STOREROOM LOCK	T581P6D Q	605	FAL
1	EA SURFACE CLOSER	SC81 DS	696	FAL
1	EA KICK PLATE	8400 10" X 2" LDW	605	IVE
1	SET SEALS	188S	BLK	ZER
1	EA RAIN DRIP	142A	GLD	ZER
1	EA THRESHOLD	65A	GLD	ZER

Hardware Group No. 07

Provide each SGL door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
3	EA HINGE	5BB1HW 4.5 X 4.5	605	IVE
1	EA STOREROOM LOCK	T581P6D Q	605	FAL
1	EA SURFACE CLOSER	SC81 DS	696	FAL
1	EA KICK PLATE	8400 10" X 2" LDW	605	IVE
1	SET SEALS	188S	BLK	ZER
1	EA RAIN DRIP	142A	GLD	ZER
1	EA THRESHOLD	65A	GLD	ZER

Hardware Group No. 08

Provide each SGL door(s) with the following:

VILLAGES REHABILITATION CENTER

OPA #0939

Quantity	Description	Model Number	Finish	Mfr
3	EA HINGE	5BB1HW 4.5 X 4.5 NRP	605	IVE
1	EA PANIC DEVICE	25-R-L-Q	605	FAL
1	EA RIM CYLINDER	951 6 PIN	605	FAL
1	EA SURFACE CLOSER	SC81 DS	696	FAL
1	EA KICK PLATE	8400 10" X 2" LDW	605	IVE
1	SET SEALS	188S	BLK	ZER
1	EA RAIN DRIP	142A	GLD	ZER
1	EA THRESHOLD	65A	GLD	ZER

Hardware Group No. 09

Provide each SGL door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
3	EA HINGE	5BB1 4.5 X 4.5 NRP	605	IVE
1	EA PANIC DEVICE	25-R-L-Q	605	FAL
1	EA RIM CYLINDER	951 6 PIN	605	FAL
1	EA SURFACE CLOSER	SC81 DS	696	FAL
1	EA KICK PLATE	8400 10" X 2" LDW	605	IVE
1	SET SEALS	188S	BLK	ZER
1	EA RAIN DRIP	142A	GLD	ZER
1	EA THRESHOLD	65A	GLD	ZER

Hardware Group No. 10

Provide each DE door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
6	EA HINGE	5BB1HW 4.5 X 4.5	605	IVE
2	EA PUSH PLATE	8200 4" X 16"	605	IVE
2	EA SURFACE CLOSER	SC61 RW/PA	696	FAL
2	EA KICK PLATE	8400 10" X 1" LDW	605	IVE
2	EA WALL STOP	WS407CVX	605	IVE
2	EA MAGNETIC HOLD-OPEN	SEM 1960	696	LCN
1	SET SEALS	188S	BLK	ZER

Hardware Group No. 11

Provide each DE door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
6	EA HINGE	5BB1HW 4.5 X 4.5	605	IVE
2	EA FIRE EXIT DEVICE	F-25-V-EO-LBR	605	FAL
2	EA SURFACE CLOSER	SC61 RW/PA	696	FAL
2	EA KICK PLATE	8400 10" X 1" LDW	605	IVE
2	EA WALL STOP	WS407CVX	605	IVE
2	EA MAGNETIC HOLD-OPEN	SEM 1960	696	LCN
1	SET SEALS	188S	BLK	ZER
1	EA METAL Z-ASTRAGAL	BY DOOR SUPPLIER	GRY	B/O

Hardware Group No. 12

Provide each DE door(s) with the following:

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Quantity	Description	Model Number	Finish	Mfr
6	EA HINGE	5BB1HW 4.5 X 4.5	605	IVE
2	EA ELECTROMAGNETIC LOCK	M420-ATS/LED	603	SCE
2	EA PUSH PLATE	8200 4" X 16"	605	IVE
2	EA SURFACE CLOSER	SC61 RW/PA	696	FAL
2	EA KICK PLATE	8400 10" X 1" LDW	605	IVE
2	EA WALL STOP	WS407CVX	605	IVE
2	EA MAGNETIC HOLD-OPEN	SEM 1960	696	LCN
1	SET SEALS	188S	BLK	ZER
1	EA POWER SUPPLY	PS902		SCE
1	WIRING DIAGRAM	BY HARDWARE SUPPLIER		B/O
2	KEYPAD	BY SECURITY SUPPLIER		B/O
1	EA PUSHBUTTON	621AL EX	630	SCE
1	EA SCANNER	SCAN II-B	BLK	SCE

MAGNETIC LOCKS TO RELEASE ON FIRE ALARM, SCANNER AND PUSH BUTTON. KEY PAD ON EXTERIOR. KEYPAD BY OTHERS

Hardware Group No. 13

Provide each SGL door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
3	EA HINGE	5BB1 4.5 X 4.5	605	IVE
1	EA STOREROOM LOCK	W581PD Q	605	FAL
1	EA SURFACE CLOSER	SC61 RW/PA	696	FAL
1	EA KICK PLATE	8400 10" X 2" LDW	605	IVE
1	EA WALL STOP	WS407CVX	605	IVE
1	SET SEALS	188S	BLK	ZER

Hardware Group No. 14

Provide each SGL door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
3	EA HINGE	5BB1 4.5 X 4.5	605	IVE
1	EA ENTRY LOCK	W511PD Q	605	FAL
1	EA SURFACE CLOSER	SC61 RW/PA	696	FAL
1	EA KICK PLATE	8400 10" X 2" LDW	605	IVE
1	EA WALL STOP	WS407CVX	605	IVE
1	SET SEALS	188S	BLK	ZER

Hardware Group No. 15

Provide each SGL door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
3	EA HINGE	5BB1HW 4.5 X 4.5	605	IVE
1	EA ENTRY LOCK	W511PD Q	605	FAL
1	EA SURFACE CLOSER	SC61 RW/PA	696	FAL
1	EA KICK PLATE	8400 10" X 2" LDW	605	IVE
1	EA WALL STOP	WS407CVX	605	IVE
1	SET SEALS	188S	BLK	ZER

Hardware Group No. 16

VILLAGES REHABILITATION CENTER

OPA #0939

Provide each SGL door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
3	EA HINGE	5BB1 4.5 X 4.5	605	IVE
1	EA CLASSROOM LOCK	T561P6D Q	605	FAL
1	EA SURFACE CLOSER	SC61 RW/PA	696	FAL
1	EA KICK PLATE	8400 10" X 2" LDW	605	IVE
1	EA WALL STOP	WS407CVX	605	IVE
1	SET SEALS	188S	BLK	ZER

Hardware Group No. 17

Provide each SGL door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
3	EA HINGE	5BB1HW 4.5 X 4.5	605	IVE
1	EA CLASSROOM LOCK	T561P6D Q	605	FAL
1	EA SURFACE CLOSER	SC61 RW/PA	696	FAL
1	EA KICK PLATE	8400 10" X 2" LDW	605	IVE
1	EA WALL STOP	WS407CVX	605	IVE
1	SET SEALS	188S	BLK	ZER

Hardware Group No. 18

Provide each SGL door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
3	EA HINGE	5BB1 4.5 X 4.5	605	IVE
1	EA PRIVACY LOCK	W301S Q	605	FAL
1	EA SURFACE CLOSER	SC61 RW/PA	696	FAL
1	EA KICK PLATE	8400 10" X 2" LDW	605	IVE
1	EA WALL STOP	WS407CVX	605	IVE
1	SET SEALS	188S	BLK	ZER

Hardware Group No. 19

Provide each SGL door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
3	EA HINGE	5BB1 4.5 X 4.5	605	IVE
1	EA PASSAGE SET	W101S Q	605	FAL
1	EA SURFACE CLOSER	SC61 RW/PA	696	FAL
1	EA KICK PLATE	8400 10" X 2" LDW	605	IVE
1	EA WALL STOP	WS407CVX	605	IVE
1	SET SEALS	188S	BLK	ZER

Hardware Group No. 20

Provide each PR door(s) with the following:

VILLAGES REHABILITATION CENTER

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Quantity	Description	Model Number	Finish	Mfr
6	EA HINGE	5PB1 4.5 X 4.5	605	IVE
1	EA MANUAL FLUSH BOLT	FB458 (TOP)	605	IVE
1	EA ENTRY LOCK	W511PD Q	605	FAL
2	EA OVERHEAD STOP	450S	605	GLY
2	EA SILENCER	SR64	GRY	IVE
1	EA METAL Z-ASTRAGAL	BY DOOR SUPPLIER	GRY	B/O

Hardware Group No. 21

Provide each SGL door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
3	EA HINGE	5PB1 4.5 X 4.5	605	IVE
1	EA ENTRY LOCK	W511PD Q	605	FAL
1	EA WALL STOP	WS407CVX	605	IVE
3	EA SILENCER	SR64	GRY	IVE

Hardware Group No. 22

Provide each SGL door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
3	EA HINGE	5PB1 4.5 X 4.5	605	IVE
1	EA PRIVACY LOCK	W301S Q	605	FAL
1	EA OVERHEAD STOP	450S	605	GLY
3	EA SILENCER	SR64	GRY	IVE

Hardware Group No. 23

Provide each SGL door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
3	EA HINGE	5PB1 4.5 X 4.5	605	IVE
1	EA PASSAGE SET	W101S Q	605	FAL
1	EA WALL STOP	WS407CVX	605	IVE
3	EA SILENCER	SR64	GRY	IVE

Hardware Group No. 24 UNIT ENTRY

Provide each SGL door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
3	EA HINGE	5BB1HW 4.5 X 4.5	605	IVE
1	EA ENTRY LOCK	W511PD Q	605	FAL
1	EA SURFACE CLOSER	SC61 RW/PA	696	FAL
1	EA WALL STOP	WS407CVX	605	IVE
1	SET SEALS	188S	BLK	ZER

Hardware Group No. 25

Provide each SGL door(s) with the following:

VILLAGES REHABILITATION CENTER

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Quantity	Description	Model Number	Finish	Mfr
3	EA HINGE	5PB1 4.5 X 4.5	605	IVE
1	EA PRIVACY LOCK	W301S Q	605	FAL
1	EA WALL STOP	WS407CVX	605	IVE
3	EA SILENCER	SR64	GRY	IVE

Hardware Group No. 26

Provide each PR door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
6	EA HINGE	5PB1 4.5 X 4.5	605	IVE
2	EA BALL CATCH	347	605	IVE
2	EA DUMMY TRIM	W12 D	605	FAL
2	EA SILENCER	SR64	GRY	IVE

Hardware Group No. 27

Provide each SGL door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
3	EA HINGE	5BB1 4.5 X 4.5	605	IVE
1	EA STOREROOM LOCK	T581P6D Q	605	FAL
1	EA ELECTRIC STRIKE	6211 12VDC	630	VON
1	EA SURFACE CLOSER	SC61 RW/PA	696	FAL
1	EA KICK PLATE	8400 10" X 2" LDW	605	IVE
1	EA WALL STOP	WS407CVX	605	IVE
1	SET SEALS	188S	BLK	ZER
1	WIRING DIAGRAM	BY HARDWARE SUPPLIER		B/O
1	KEYPAD	BY SECURITY SUPPLIER		B/O

Hardware Group No. 28

Provide each SGL door(s) with the following:

Quantity	Description	Model Number	Finish	Mfr
3	EA HINGE	5BB1HW 4.5 X 4.5	605	IVE
1	EA ELECTRIC HINGE	5BB1HW 4.5 X 4.5 TW8	605	IVE
1	EA EU STOREROOM LOCK	T881P6D-RX 24VDC	605	FAL
1	EA SURFACE CLOSER	SC81 DS	696	FAL
1	EA KICK PLATE	8400 10" X 2" LDW	605	IVE
1	SET SEALS	188S	BLK	ZER
1	EA RAIN DRIP	142A	GLD	ZER
1	EA THRESHOLD	65A	GLD	ZER
1	WIRING DIAGRAM	BY HARDWARE SUPPLIER		B/O
1	KEYPAD	BY SECURITY SUPPLIER		B/O

Hardware Group No. 29

Provide each PR door(s) with the following:

VILLAGES REHABILITATION CENTER

OPA #0939

Quantity		Description	Model Number	Finish	Mfr
6	EA	HINGE	5BB1 4.5 X 4.5 NRP	605	IVE
1	EA	PANIC HARDWARE	1690EO	696	FAL
1	EA	PANIC HARDWARE	1692NL-OP	696	FAL
1	EA	RIM CYLINDER	951 6 PIN	605	FAL
2	EA	ELECTROMAGNETIC LOCK	M420-ATS/LED	603	SCE
1	EA	OFFSET DOOR PULL	8190-0	605	IVE
2	EA	SURFACE CLOSER	SC81 DS	696	FAL
1	EA	THRESHOLD	65A	GLD	ZER
1		WIRING DIAGRAM	BY HARDWARE SUPPLIER		B/O
1		KEYPAD	BY SECURITY SUPPLIER		B/O
1	EA	BALANCE	HARDWARE TO REMAIN		B/O
1	EA	PUSHBUTTON	621AL EX	630	SCE
1	EA	SCANNER	SCAN II-B	BLK	SCE

MAGNETIC LOCKS TO RELEASE ON FIRE ALARM, SCANNER AND PUSH BUTTON. KEY PAD ON EXTERIOR. KEYPAD BY OTHERS

**END OF SECTION 08 71 00**



## SECTION 08 81 00 - GLASS GLAZING

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

#### 1.2 SUMMARY:

- A. Extent of glass and glazing work is indicated on drawings and schedules.
- B. Types of work in this section include glass and glazing for:
  - 1. Window units, not indicated as "preglazed".
  - 2. Entrances and other doors, not indicated as "preglazed".

#### 1.3 SYSTEM DESCRIPTION:

- A. Provide glass and glazing that has been produced, fabricated and installed to withstand normal thermal movement, wind loading and impact loading (where applicable), without failure including loss or breakage of glass, failure of sealants or gaskets to remain watertight and airtight, deterioration of glass and glazing materials and other defects in the work.

#### 1.4 SUBMITTALS:

- A. Product Data: Submit manufacturer's technical data for each glazing material and fabricated glass product required, including installation and maintenance instructions.

#### 1.5 QUALITY ASSURANCE:

- A. Glazing Standards: Comply with recommendations of Flat Glass Marketing Association (FGMA) "Glazing Manual" and "Sealant Manual" except where more stringent requirements are indicated. Refer to those publications for definitions of glass and glazing terms not otherwise defined in this section or other referenced standards.
- B. Safety Glazing Standard: Where safety glass is indicated or required by authorities having jurisdiction, provide type of products indicated which comply with ANSI Z97.1 and testing requirements of 16 CFR Part 1201 for category II materials.
- C. Fire Resistance Rated Wire Glass: Provide wire glass products that are identical to those tested per ASTM E 163 (UL 9) and are labeled and listed by UL or other testing and inspecting agency acceptable to authorities having jurisdiction.
- D. Single Source Responsibility for Glass: To ensure consistent quality of appearance and performance, provide materials produced by a single manufacturer or fabricator for each kind and condition of glass indicated and composed of primary glass obtained from a single source for each type and class required.

#### 1.6 DELIVERY, STORAGE, AND HANDLING:

- A. Protect glass and glazing materials during delivery, storage and handling to comply with manufacturer's directions and as required to prevent edge damage to glass, and damage to glass and glazing materials from effects of moisture including condensation, of temperature changes, of direct exposure to sun, and from other causes.

#### 1.7 PROJECT CONDITIONS:

- A. Environmental Conditions: Do not proceed with glazing when ambient and substrate temperature conditions are outside the limits permitted by glazing material

manufacturer or when joint substrates are wet due to rain, frost, condensation or other causes.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS:

- A. Manufacturers: Subject to compliance with requirements, provide products of one of the following:
  - 1. Manufacturers of Clear and Tinted Float Glass:
    - a. Viracon
    - b. AFG Industries, Inc.
    - c. Guardian Industries Corp.
    - d. LOF Glass, Inc.
    - e. PPG Industries, Inc.
  - 2. Manufacturers of Wire Glass:
    - a. Viracon
    - b. AFG Industries, Inc.
    - c. Guardian Industries Corp.
    - d. Hordis Brothers, Inc.
    - e. Pilkington Sales (North America) Limited.
  - 3. Manufacturers of Heat-Treated Glass:
    - a. Viracon
    - b. AFG Industries, Inc.
    - c. Guardian Industries Corp.
    - d. Hordis Brothers, Inc.
    - e. LOF Glass, Inc.
    - f. PPG Industries, Inc.
  - 4. Manufacturers of Clear Fire-Rated Glass:
    - a. Technical Glass Products.

### 2.2 GLASS PRODUCTS, GENERAL:

- A. Primary Glass Standard: Provide primary glass which complies with ASTM C 1036 requirements, including those indicated by reference to type, class, quality, and, if applicable, form, finish, mesh and pattern.
- B. Heat-Treated Glass Standard: Provide heat-treated glass which complies with ASTM C 1048 requirements, including those indicated by reference to kind, condition, type, quality, class, and, if applicable, form, finish, and pattern.
- C. Sizes: Fabricate glass to sizes required for glazing openings indicated, with edge clearances and tolerances complying with recommendations of glass manufacturer. Provide thicknesses indicated or, if not otherwise indicated, as recommended by glass manufacturer for application indicated.

### 2.3 PRIMARY GLASS PRODUCTS:

- A. Clear Float Glass: Type I (transparent glass, flat), Class 1 (clear), Quality q3 (glazing select).
- B. Wired Glass: Type II (patterned and wired glass, flat), Class 1 (translucent), Quality q8 (glazing); complying with ANSI Z97.1; 1/4" thick; of form and mesh pattern indicated below:
  - 1. Polished Wire Glass: Form 1 (wired, polished both sides), Mesh m1 (diamond).

- C. Clear fire rated glass - Firelite, by Technical Glass Products, 5525 Lakeview Drive, Kirkland, WA 98033. 1-(800) 426-0279. (Where indicated on Door and Borrow Light Elevation Details).
- D. Exterior insulated glazing units for architectural windows and storefront windows and doors.
1. Glass Requirements
    - a. Exterior Ply- (1/4") Tinted heat-strengthened.
    - b. Interior Ply—(9/16") Clear heat-strengthened.
    - c. ASTM C 1036 Type 1, Class 1 Clear or Class 2 Tint, Quality Q3.
    - d. ASTM C 1048 Condition C, Kind HS or FT.
    - e. ASTM C 1172, Kind LHS.
    - f. Heat treated flat glass to be by horizontal (roller hearth) process with inherent roller wave distortion parallel to the bottom edge of the glass as installed.
    - g. Maximum peak to valley roll wave .003" measured at the center of lite.
    - h. Maximum peak to valley roll wave .008" measured at 10.5" from the leading and trailing edge.
  2. Unit Makeup
    - a. (15/16") nominal thickness VE3-2M insulated, tinted, laminated glass unit as manufactured by Viracon. Tint as selected by Architect from Viracon's standard selection.
    - b. Outboard lite is 1/4" Grey tinted heat-strengthened with solar, neutral Low E coating applied # 2 surface.
    - c. 1/2" mill finish air-spacer dual sealed construction.
    - d. Inboard lite is 9/16" thick Clear laminated glass.
    - e. 1/4" Clear heat-strengthened.
    - f. 0.090" minimum thick clear PVB interlayer but not less than required to meet the 2001 F.B.C. missile impact performance requirements of the tested assembly for large windborne debris.
    - g. 1/4" Clear heat-strengthened.
    - h. For spandrel applications add Viracon ceramic paint applied full coverage # 4 surface.
  3. Unit Requirements
    - a. Visible light transmission of 33 %
    - b. Exterior reflection of 6%
    - c. Winter nighttime U-Value of .29 BTU/(hr\*ft<sup>2</sup>\*°F)
    - d. Summer daytime U-Value of .26 BTU/(hr\*ft<sup>2</sup>\*°F)
    - e. Shading coefficient of .27
    - f. SGHC of .24
    - g. Light to Solar Heat Gain of 1.38
- E. Exterior Glazing for Impact Resistant Sliding Doors
1. Glass Requirements
    - a. Exterior Ply- (1/4") Tinted heat-strengthened
    - b. Interior Ply—(1/4") Clear heat-strengthened

- c. ASTM C 1036 Type 1, Class 1 Clear or Class 2 Tint, Quality Q3
  - d. ASTM C 1048 Condition C, Kind HS or FT
  - e. ASTM C 1172, Kind LHS
  - f. Heat treated flat glass to be by horizontal (roller hearth) process with inherent roller wave distortion parallel to the bottom edge of the glass as installed.
  - g. Maximum peak to valley roll wave .003" measured at the center of lite
  - h. Maximum peak to valley roll wave .008" measured at 10.5" from the leading and trailing edges.
2. Unit Makeup
- a. (9/16") nominal tinted, laminated glass unit as manufactured by Viracon. Tint as selected by Architect from Viracon's standard selection.
  - b. (1/4") Clear or Tinted heat-strengthened.
  - c. 0.090" minimum thick clear PVB or SGP interlayer but not less than required to meet the 2001 F.B.C. missile impact performance requirements of the tested assembly for large windborne debris.
  - d. (1/4") Clear heat-strengthened.

#### 2.4 HEAT-TREATED GLASS PRODUCTS:

- A. Manufacturing Process: Manufacture heat-treated glass as follows:
  - 1. By vertical (tong-held) or horizontal (roller hearth) process, at manufacturer's option, except provide horizontal process where indicated as "tongless" or "free of tong marks".
- B. Uncoated Clear Heat-Treated Float Glass: Condition A (uncoated surfaces), Type I (transparent glass, flat), Class 1 (clear), Quality q3 (glazing select), kind as indicated below.
  - 1. Kind FT (fully tempered) where indicated.
- C. Uncoated Tinted Heat-Treated Float Glass: Condition A (uncoated surfaces), Type I (transparent glass, flat), Class 2 (tinted heat absorbing and light reducing), Quality q3 (glazing select), with tint color and performance characteristics for 1/4" thick glass matching those indicated for non-heat-treated tinted float glass; kind as indicated below:
  - 1. Kind FT (fully tempered) where indicated.
- D. Mirrors: Clark float glass. Quality g2 (Mirror), Class I Colear), 1/4" thickness, as manufactured by Binswanger Mirror Products, Carolina Mirror Corporation or Messer Industries.

#### 2.5 GLAZING SEALANTS:

- A. General: Provide products of type indicated and complying with the following requirements:
  - 1. Compatibility: Select glazing sealants and tapes of proven compatibility with other materials with which they will come into contact, including glass products, seals of insulating glass units, and glazing channel substrates, under conditions of installation and service, as demonstrated by testing and field experience.
  - 2. Suitability: Comply with recommendations of sealant and glass manufacturers for selection of glazing sealants and tapes which have performance characteristics suitable for applications indicated and conditions at time of installation.
- 1. Elastomeric Sealant Standard: Provide manufacturer's standard chemically

- curing, elastomeric sealant of base polymer indicated which complies with ASTM C 920 requirements, including those for Type, Grade, Class and Uses.
2. Colors: Provide color of exposed sealants indicated or, if not otherwise indicated, as selected by Architect from manufacturer's standard colors.
- B. One-Part Acid-Curing Silicone Glazing Sealant: Type S; Grade NS; Class 25; Uses NT, G, A, and, as applicable to uses indicated, O.
  - C. Products: Subject to compliance with requirements, provide one of the following:
    1. One-Part Acid-Curing Silicone Glazing Sealant:
      - a. "Chem-Calk 1200"; Bostik Construction Products Div.
      - b. "Dow Corning 999"; Dow Corning Corp.
      - c. "SCS 1200"; General Electric Corp.
      - d. "863"; Pecora Corp.
      - e. "OmniGlaze"; Sonneborn Building Products Div.; Rexnord Chemical Products Inc.
      - f. "Proglaze"; Tremco,

## 2.6 MISCELLANEOUS GLAZING MATERIALS:

- A. Compatibility: Provide materials with proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Neoprene, EPDM or silicone blocks as required for compatibility with glazing sealants, 80 to 90 Shore A durometer hardness.
- D. Spacers: Neoprene, EPDM or silicone blocks, or continuous extrusions, as required for compatibility with glazing sealant, of size, shape and hardness recommended by glass and sealant manufacturers for application indicated.
- E. Edge Blocks: Neoprene, EPDM or silicone blocks as required for compatibility with glazing sealant, of size and hardness required to limit lateral movement (side-walking) of glass.

## PART 3 - EXECUTION

### 3.1 EXAMINATION:

- A. Require Glazier to inspect work of glass framing erector for compliance with manufacturing and installation tolerances, including those for size, squareness, offsets at corners; for presence and functioning of weep system; for existence of minimum required face or edge clearances; and for effective sealing of joinery. Obtain Glazier's written report listing conditions detrimental to performance of glazing work. Do not allow glazing work to proceed until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION:

- A. Clean glazing channels and other framing members to receive glass, immediately before glazing. Remove coatings which are not firmly bonded to substrates. Remove lacquer from metal surfaces where elastomeric sealants are indicated for use.

### 3.3 GLAZING, GENERAL:

- A. Comply with combined printed recommendations of glass manufacturers, of manufacturers of sealants, gaskets and other glazing materials, except where more stringent requirements are indicated, including those of referenced glazing standards.
- B. Glazing channel dimensions as indicated in details are intended to provide for necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by job conditions at time of

installation.

- C. Protect glass from edge damage during handling and installation; use a rolling block in rotating glass units to prevent damage to glass corners. Do not impact glass with metal framing. Use suction cups to shift glass units within openings; do not raise or drift glass with a pry bar. Rotate glass with flares or bevels along one horizontal edge which would occur in vicinity of setting blocks so that these are located at top of opening. Remove from project and dispose of glass units with edge damage or other imperfections of kind that, when installed, weakens glass and impairs performance and appearance.
- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.

### 3.4 GLAZING:

- A. Install setting blocks of proper size in sill rabbet, located one quarter of glass width from each corner, but with edge nearest corner not closer than 6" from corner, unless otherwise required. Set blocks in thin course of sealant which is acceptable for heel bead use.
- B.. Provide spacers inside and out, of correct size and spacing to preserve required face clearances, for glass sizes larger than 50 united inches (length plus height), except where gaskets or glazing tapes with continuous spacer rods are used for glazing. Provide 1/8" minimum bite of spacers on glass and use thickness equal to sealant width, except with sealant tape use thickness slightly less than final compressed thickness of tape.
- C. Provide edge blocking to comply with requirements of referenced glazing standard, except where otherwise required by glass unit manufacturer.
- D. Set units of glass in each series with uniformity of pattern, draw, bow and similar characteristics.
- E. Provide compressible filler rods or equivalent back-up material, as recommended by sealant and glass manufacturers, to prevent sealant from extruding into glass channel weep systems and from adhering to joints back surface as well as to control depth of sealant for optimum performance, unless otherwise indicated.
- F. Force sealants into glazing channels to eliminate voids and to ensure complete "wetting" or bond of sealant to glass and channel surfaces.
- G. Tool exposed surfaces of sealants to provide a substantial "wash" away from glass. Install pressurized tapes and gaskets to protrude slightly out of channel, so as to eliminate dirt and moisture pockets.
- H. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage to ensure that gasket will not "walk" out when installation is subjected to movement.
- I. Miter cut wedge-shaped gaskets at corners and install gaskets in manner recommended by gasket manufacturer to prevent pull away at corners; seal corner joints and butt joints with sealant recommended by gasket manufacturer.
- J. Mirrors shall be installed to gypsum wallboard with mirror clips #268 at 3'-0" on center maximum and 6" maximum from all four corners, as manufactured by Knappe & Vogt Manufacturing Company, Grand Rapids, Michigan or equal.

### 3.5 PROTECTION AND CLEANING:

- A. Protect exterior glass from breakage immediately upon installation by use of crossed streamers attached to framing and held away from glass. Do not apply markers to

- surfaces of glass. Remove nonpermanent labels and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contaminating substances do come into contact with glass, remove immediately by method recommended by glass manufacturer.
  - C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less often than once a month, for build-up of dirt, scum, alkali deposits or staining. When examination reveals presence of these forms of residue, remove by method recommended by glass manufacturer.
  - D. Remove and replace glass which is broken, chipped, cracked, abraded or damaged in other ways during construction period, including natural causes, accidents and vandalism.
  - E. Wash glass on both faces not more than 4 days prior to date scheduled for inspections intended to establish date of substantial completion in each area of project. Wash glass by method recommended by glass manufacturer.

END OF SECTION 08 81 00
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# SECTION 09 21 00 - PLASTER AND GYPSUM BOARD ASSEMBLIES

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## **09 21 16 GYPSUM BOARD ASSEMBLIES**

### **09 21 16.23 GYPSUM BOARD SHAFT WALL ASSEMBLIES**

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

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

##### 1.2 SUMMARY

- A. This section includes the following applications for gypsum board shaft wall systems:
  - 1. Service shaft enclosures (for piping, ductwork, air plenums, electrical, and similar services).
- B. Gypsum drywall construction for applications other than shaft walls is specified in Division 9 Section "Gypsum Board."
- C. Application and finishing of gypsum wallboard is specified by reference to Division 9 Section "Gypsum Board."

##### 1.3 DEFINITIONS

- A. Gypsum board shaft wall systems are pretested assemblies of gypsum boards and metal components designed for erection from room-side of shaft.
- B. Gypsum Board Construction Terminology: Refer to ASTM C 11 and GA 505 for definitions of terms for gypsum board construction not otherwise defined in this section or other referenced standards.

##### 1.4 SYSTEM DESCRIPTION

- A. Performance Requirements, General: Provide gypsum board shaft wall systems complying with performance requirements specified, as demonstrated by pretesting manufacturer's corresponding stock systems.
- B. Fire-Resistance Ratings: Where indicated, provide materials and construction which are identical to those of assemblies, whose fire resistance has been determined per ASTM E 119 by a testing and inspecting organization acceptable to authorities having jurisdiction.
- C. Structural Performance Characteristics: Provide gypsum board shaft wall systems engineered within the following deflection limits, verified by pretesting for deflection characteristics:
  - 1. Deflection Limit: 1/360 of partition height.

##### 1.5 SUBMITTALS

- A. Product data from manufacturers for each type of gypsum board shaft wall system specified.
- B. Product test reports indicating and interpreting test results relative to compliance of gypsum board shaft wall systems with fire resistance, structural performance and acoustical performance requirements.

- C. Research reports or evaluation reports of the model code organization acceptable to authorities having jurisdiction which evidence system's compliance with requirements and with building code in effect for Project.

#### 1.6 QUALITY ASSURANCE

- A. Single Source Responsibility: Obtain products for gypsum board shaft wall systems from a single manufacturer for each type of system indicated.
- B. Pre-Installation Conference: Conduct conference at Project Site to comply with requirements of Division 1 Section "Project Management and Coordination."

#### 1.7 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. Neatly stack gypsum boards flat to prevent sagging.
- C. Handle gypsum boards to prevent damage to edges, ends and surfaces. Do not bend or otherwise damage metal corner beads, trim, track, and studs.

#### 1.8 PROJECT CONDITIONS

- A. Comply with requirements for environmental conditions, room temperatures and ventilation specified in the following Division 9 Section:
  - 1. "Gypsum Drywall."

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Domtar Gypsum Co.
  - 2. Georgia Pacific Corporation.
  - 3. Gold Bond Building Products Div., National Gypsum Co.
  - 4. United States Gypsum Co.

#### 2.2 BASIC SYSTEM MATERIALS

- A. General: Provide standard materials and components listed in manufacturer's published product literature for gypsum board shaft wall systems of type and application indicated.
  - 1. Provide gypsum boards in maximum lengths available to eliminate or minimize end-to-end butt joints and in thickness required to produce assemblies complying with structural and other performance requirements.
- B. Steel Framing: ASTM C 645, of profile, size, and base metal thickness required to produce assemblies complying with structural performance requirements, with sectional properties computed to conform with the American Iron and Steel Institute (AISI) "Specification for Design of Cold-Formed Steel Structural Members."
- C. Gypsum Shaftwall Board: ASTM C 442, Type X liner panel or coreboard designed for shaft wall construction, with moisture-resistant paper facings.
- D. Gypsum Wallboard: ASTM C 36, Type X, and as follows:
  - 1. Edges: Tapered.
- E. Gypsum Base for Veneer Plaster: ASTM C 588, Type X, with square or tapered edges as standard with manufacturer.

- F. Gypsum Backing Board for Multi-Layer Applications: ASTM C 442 or, where backing board is not available from manufacturer, gypsum wallboard, ASTM C 36, Type X, edge configuration as standard with manufacturer.
- G. Water-Resistant Gypsum Backing Board: ASTM C 630, Type X; in maximum lengths available to minimize end-to-end butt joints.
- H. Trim Accessories: Provide cornerbeads, edge trim and control joints of material and, for edge trim, shapes specified in Division 9 section referenced below and complying with ASTM C 1047 and gypsum board shaft wall manufacturer's recommendation for application indicated.
  - 1. "Gypsum Drywall."
- I. Gypsum Wallboard Joint Treatment Materials: Provide materials complying with ASTM C 475, ASTM C 840, recommendations of gypsum board shaft wall manufacturer for the application indicated, and as specified in Division 9 Section "Gypsum Drywall."
- J. Miscellaneous Materials: Provide auxiliary materials for gypsum board shaft wall systems of the type and grade recommended by the manufacturer of the system and as follows:
  - 1. Laminating Adhesive: Special adhesive or joint compound recommended for laminating gypsum boards of type indicated.
  - 2. Gypsum Board Screws: ASTM C 1002.
  - 3. Runner Fasteners: Low-velocity tool-driven fasteners of type, size and material required to withstand loading conditions imposed on shaft wall system without exceeding allowable design stress of runner, fastener or structural substrate in which anchor is embedded.
  - 4. Concealed Acoustical Sealant: Nondrying, nonhardening, nonskinning, nonstaining, gunnable synthetic rubber sealant complying with requirements specified in Division 7 Section "Joint Sealers."
  - 5. Spot Grout: ASTM C 475, setting-type joint compound of type recommended for spot grouting hollow metal door frames.

### 2.3 BASIC SYSTEM DESCRIPTION

- A. General: Characteristics of selected components are described below for purposes of indicating discrete gypsum board shaft wall systems which are manufacturers' standard assemblies. Provide complete shaft wall systems which comply with requirements indicated.
- B. Cavity Shaft Wall Systems: Provide assemblies consisting of gypsum shaft wall boards inserted between J-shaped metal floor and ceiling tracks; with specially shaped studs engaged in tracks and fitted between shaftwall boards; and gypsum boards on finished side or sides applied to studs in number of layers, thicknesses and arrangement indicated.
  - 1. Shaftwall Board Thickness: Not less than 1 inch.
  - 2. Stud Shape: C-H.
  - 3. Stud Depth: Not less than 2-1/2 inch.
  - 4. Room-side Finish: Two layers 1/2 inch thick gypsum board.
  - 5. Shaft-Side Finish: One layer of gypsum board of thickness indicated below; provide only where finish is indicated on shaft side as well as room side, otherwise leave exposed.
    - a. Thickness: 1 inch.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates to which gypsum board shaft wall construction attach or abut, including preset hollow metal frames, elevator hoist way door frames, cast-in-anchors, and structural framing, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of shaft wall construction. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION OF GYPSUM BOARD SHAFT WALL SYSTEMS

- A. General: Install gypsum board shaft wall systems to comply with performance and other requirements indicated as well as with manufacturer's installation instructions and the following:
  - 1. ASTM C 754 for installation of steel framing.
  - 2. Division 9 Section "Gypsum Drywall" for application and finishing of gypsum wallboard .
- B. Install supplementary framing, blocking and bracing to support gravity and pullout loads of fixtures, equipment, services, heavy trim, furnishings and similar work which cannot be adequately supported directly by regular framing of gypsum board shaft wall system.
  - 1. Where handrails are indicated for direct attachment to gypsum board shaft wall system, provide not less than a 0.0341 inch thick by 4 inch wide galvanized steel reinforcement strip, accurately positioned and secured behind not less than one gypsum board face layer of 1/2 inch or 5/8 inch thickness.
- C. Isolate shaft wall system from transfer of structural loading to system, both horizontally and vertically. Provide slip or cushioned type joints to attain lateral support and avoid axial loading. Comply with details shown and with manufacturer's instructions.
- D. Seal gypsum board shaft walls at perimeter of each section which abuts other work and at joints and penetrations within each section. Install acoustical sealant to withstand dislocation by air pressure differential between shaft and external spaces; comply with manufacturer's instructions and ASTM C 919.

### 3.3 PROTECTION

- A. Provide final protection and maintain conditions in a manner acceptable to Installer, which ensures gypsum board shaft wall system construction being without damage or deterioration at time of Substantial Completion.

END OF SECTION 09 21 00

# SECTION 09 22 00 - SUPPORTS FOR PLASTER AND GYPSUM BOARD

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## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

- A. This Section Includes the Following:
  - 1. Metal Furring.
  - 2. Non Structural Metal Framing.
  - 3. Metal Lath.

### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Product data and installation instructions for each type of cold formed metal framing product, accessory and metal lath specified.
- C. Installer qualifications in accordance with section 1.4 QUALITY ASSURANCE.

### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed cold-formed metal framing similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Provide non-load bearing steel stud partitions with deflections conforming to L/360 at 15 PSF for veneer plaster walls and L/240 at 5 PSF typical for gypsum board walls.
- C. 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 and inspecting 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 recognized testing and inspecting agency.
  - 2. Meet or exceed flame/fuel/smoke requirements of ASTM E84 surface burning characteristics for finish materials.
- D. Sound Transmission Characteristics: For gypsum board assemblies with STC ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E90 and classified according to ASTM E413 by a qualified independent testing agency.
- E. Single-Source Responsibility: Obtain metal lath and furring materials, including steel studs, from a single manufacturer.
- F. **MOCK-UP:** Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
  - 1. Construct areas designated by Architect.
  - 2. Do not proceed with remaining work until material, details and workmanship are

approved by Architect.

3. Refinish mock-up area as required to produce acceptable work.

#### 1.5 DELIVERY, STORAGE AND HANDLING

- A. Protect cold-formed metal framing from corrosion, deformation, and other damage during delivery, storage, and handling.
- B. Store cold-formed metal framing, protect with a waterproof covering, and ventilate to avoid condensation.

#### 1.6 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Coordination: Coordinate layout accessory locations, installation, and sequencing with other work to avoid interference and to assure proper installation of all work and systems.

### PART 2 - MATERIALS

## **09 22 13 METAL FURRING**

### **09 22 13.13 METAL CHANNEL FURRING**

#### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. Marino/WARE.
  2. Chicago Metallic Corp.
  3. Gold Bond Building Products Div., National Gypsum Co.
  4. United States Gypsum Co.

#### 2.2 METAL SUPPORTS FOR SUSPENDED AND FURRED CEILINGS

- A. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper.
- B. Channels: Cold-rolled steel, 0.0598-inch minimum thickness of base metal (uncoated), allowable bending stress of 18,000 psi, protected with rust-inhibitive paint or galvanizing complying with ASTM A 525 for G60 coating designation, and as follows.
  1. Carrying Channels: 1-1/2 -inch deep by 7/16"-inch-wide flanges, 475 lbs. per 1000 feet painted, 508 lbs. per 1000 feet galvanized.
  2. Furring Channels: 3/4-inch-deep by 7/16-inch wide flanges, 300 lbs. per 1000 feet painted, 316 lbs. per 1000 feet galvanized.
  3. Provide galvanized channels for exterior installations.
- C. Steel Studs for Furring Channels: ASTM C 645, with flange edges bent back 90 deg. And doubled over to form 3/16" minimum lip (return) minimum thickness of base (uncoated) metal and minimum depth as follows:
  1. Thickness: 0.0179 inch, unless otherwise indicated.
  2. Depth: As Indicated.
- D. Steel Rigid Furring Channels: ASTM C 645, hat-shaped, depth of 7/8", and minimum thickness of base (uncoated) metal as follows.
  1. Thickness: 0.0179 inch, unless otherwise indicated.



- E. Hanger Anchorage Devices: Screws, cast-in-place concrete inserts, or other devices appropriate for anchorage to the form of structural framing indicated and whose suitability for use intended have been proven through standard construction practices or certified test data.
  - 1. Size devices to develop full strength of hanger but not less than 3 times calculated hanger loading, except size direct pullout concrete inserts for 5 times calculated hanger loading.

## **09 22 16 NON STRUCTURAL METAL FRAMING**

### 2.1 STEEL STUDS, RUNNERS AND TRACKS

- A. Non-load (Axial) Bearing Studs and Runners: ASTM C 645 and ASTM C 754 and complying with following requirements for minimum thickness of base metal (uncoated) and other characteristics.
  - 1. Stud Thickness: 0.0179 inch, unless otherwise indicated.
  - 2. Stud Depth: As indicated.
  - 3. Protective coating: ASTM A653, G60 hot-dip galvanized.

### 2.2 STEEL FRAMING FOR WALLS AND PARTITIONS

- A. Steel Studs and Runners: ASTM C 645, with flange edges of studs bent back 90 deg and doubled over to form 3/16" minimum lip (return) and complying with the following requirements for minimum thickness of base (uncoated) metal and for depth.
  - 1. Thickness: 0.0179 inch, unless otherwise indicated.
  - 2. Depth: As indicated.
- B. Steel Rigid Furring Channels: ASTM C 645, hat-shaped, depth and minimum thickness of base (uncoated) metal as follows.
  - 1. Depth: 7/8 inch.
  - 2. Thickness: 0.0179 inch, unless otherwise indicated.
- C. Furring Brackets: Serrated-arm type, adjustable, fabricated from corrosion-resistant steel sheet complying with ASTM C 645, minimum thickness of base (uncoated) metal of 0.0329 inch, designed for screw attachment to steel studs and steel rigid furring channels used for furring.
- D. Fasteners: Provide fasteners of type, material, size, corrosion resistance, holding power and other properties required to fasten steel framing and furring members securely to substrates involved; complying with the recommendations of gypsum drywall manufacturers for applications indicated.

### 2.3 VERTICAL METAL FURRING

- A. General: Size vertical metal furring members to comply with ML/SFA "Specifications for Metal Lath and Furring," unless otherwise indicated.
- B. Channels: Cold-rolled steel, 0.0598-inch min. thickness of base (uncoated) metal, allowable bending stress of 18,000 psi, protected with rust-inhibitive paint or galvanizing complying with ASTM A 525 for G60 coating designation, and as follows.
  - 1. Furring Channels: Sizes and weight as indicated below.
    - a. 1-1/2-inch, 475 lbs. per 1000 feet painted, 508 lbs. galvanized.
  - 2. Hat Channels: Hat-shaped screwable furring channels, 7/8" deep formed from zinc-coated (galvanized) steel sheet minimum 0.0179-inch thick complying with ASTM A 446, Coating Designation G 60, grade A (33,000 psi yield point).
    - a. Provide galvanized channels for exterior installations.



3. Wire for Ties: ASTM A 641, Class 1 zinc coating, soft temper.
4. Furring Brackets: Serrated-arm type, 0.0329-inch min. thickness of base (uncoated) metal, adjustable from 1/4-inch to 2-1/4-inches wall clearance for channel furring.

## **09 22 36 LATH**

### 2.4 METAL LATH

- A. Expanded Metal Lath: Fabricate expanded metal lath from uncoated or zinc-coated (galvanized) steel sheet to produce lath complying with ASTM C 847 and ASTM C 1063 for type, configuration, and other characteristics indicated below, with uncoated steel sheet painted after fabrication into lath.
  1. Diamond Mesh Lath: Comply with the following requirements.
    - a. Configuration: Self-furring.
    - b. For Gypsum Plaster: USG Junior Diamond Mesh Lath, 2.5 lbs.
  2. Paper Backing: Where paper-backed diamond mesh lath is required, provide following material: factory-bonded to back of lath, Type I, and grade and style as indicated below.
    - a. Vapor-Permeable Paper: Grade D, Style 2.
- B. Lath Attachment Devices: Materials and type required by referenced standard for installations indicated.

### 2.5 PLASTER ACCESSORIES FOR PORTLAND CEMENT PLASTER

- A. General: Comply with material provisions of ASTM C-1063; coordinate depth of accessories with thicknesses and number of coats required.
- B. Rigid Vinyl Beads: Perforated Flanges (2-3/4" x 2-3/4") formed to reinforce external corners of Portland Cement Plaster on exterior exposures while allowing full plaster encasement.
- C. Rigid Vinyl Casing Beads: Square-edge style, with expanded flanges.
- D. Rigid Vinyl Control Joints: Prefabricated, of type indicated below:
  1. One-Piece Type: Folded pair of nonperforated screeds in M-shaped configuration, with expanded flanges.
- E. Rigid Vinyl Foundation Sill (Weep) Screed: Manufacturer's standard profile designed to form plaster stop and prevent plaster from contacting damp earth.
- F. Rigid Vinyl Drip Screed: Manufacturer's standard profile designed for use at roof soffits with expansion feature to form deep screed.
- G. Rigid Vinyl Channel Screed: Manufacturer's standard profile with removable top to keep channel free from plaster during application. Provide channel screed as indicated with perforated flanges. Provide manufacturer's standard inside and outside corners channel screed accessories.
- H. Rigid Vinyl Soffit Vent: Manufacturer's standard 3" wide vent, one piece construction with 5" overall width and perforated flanges:

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and conditions under which Work of this Section will be performed. Correct conditions detrimental to timely and proper completion of Work. Do not proceed until unsatisfactory conditions are corrected.
- B. Examine substrates to which metal framed construction attaches or abuts. Verify pre-set hollow metal frames, cast-in anchors, and structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of wall framing.
- C. If substrate preparation is the responsibility of another installer, notify General Contractor of unsatisfactory preparation before proceeding.

### 3.2 INSTALLATION, GENERAL

- A. Metal Lathing and Furring Standards: Comply with ML/SFA "Specifications for Metal Lathing and Furring" and with requirements of the following:
  - 1. Lathing and Furring Installation for Portland Cement Plaster: ASTM C 1063.
- B. Install supplementary framing, blocking, and bracing at terminations in the work and for support of fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, and similar work to comply with details indicated or, if not otherwise indicated, to comply with applicable published recommendations of lathing and furring manufacturer or, if not available, of "Gypsum Construction Handbook" published by United States Gypsum Co.
- C. Isolation: Where lathing and metal supports system abuts building structure horizontally and where partitions/wall work abuts overhead structure, isolate the work from structural movement sufficiently to prevent transfer of loading into the work from the building structure. Install slip or cushion-type joints to absorb deflections but maintain lateral support from both sides of control and expansion joints independently, and do not bridge joints with furring and lathing or accessories.
- D. Install additional framing, furring, runners, lath, and beads, as required to form openings and frames for other work as indicated. Coordinate support system for proper support of framed work that is not indicated to be supported independently of metal furring and lathing system.
- E. Contractor to provide blocking as required for mounting all accessories as needed throughout.

### 3.3 INSTALLATION OF STEEL FRAMING, GENERAL

- A. Steel Framing Installation Standard: Install steel framing to comply with ASTM C 754 and with ASTM C 840 requirements that apply to framing installation:
- B. Install supplementary framing, blocking and bracing at terminations in the work and for support of fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, and similar construction to comply with details indicated and with recommendations of gypsum board manufacturer, or if none available, with "Gypsum Construction Handbook" published by United States Gypsum Co.
- C. Isolate steel framing from building structure to prevent transfer of loading imposed by structural movement, at locations indicated below to comply with details shown on Drawings.
  - 1. Where edges of suspended ceilings abut building structure horizontally at ceiling perimeters or penetration of structural elements.
  - 2. Where partition and wall framing abuts overhead structure.

- D. Do not bridge building expansion and control joints with steel framing or furring members; independently frame both sides of joints with framing or furring members or as indicated.
- E. Install runners (track) at floors, ceilings, and structural walls and columns where gypsum board stud system abuts other construction.
  - 1. Where studs are installed directly against exterior walls, install asphalt felt strips between studs and wall.
- F. Metal Stud Spacing: Maximum 16 inches on center unless noted otherwise. Use gage and depth of stud required to meet maximum deflection requirements.
- G. Installation tolerances: Install each steel framing and furring member so that fastening surfaces do not vary more than 1/8 inch from plane of faces of adjacent framing.
- H. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
- I. Install steel studs so that flanges point the same direction and gypsum boards can be installed in the direction opposite to that of the flanges.
- J. Frame door openings to comply with details indicated on drawings, with GA-219, and with applicable published recommendations of gypsum board manufacturer. Attach vertical studs at jambs with screws either directly to frames or to jamb anchor clips on door frames. Install runner track section (for cripple studs) at head and secure to jamb studs.
  - 1. Extend vertical jamb studs through suspended ceilings and attach to underside of floor or roof structure above.
- K. Frame openings other than door openings to comply with details indicated on drawings, or if none is indicated, in same manner as required for door openings; and install framing below sills of openings to match framing required above door heads.

### 3.4 INSTALLATION OF STEEL FRAMING FOR SUSPENDED AND FURRED CEILINGS

- A. Secure hangers to structural support by connecting directly to structure where possible, otherwise connect to cast-in concrete inserts or other anchorage devices or fasteners as indicated or required.
- B. Do not connect or suspend steel framing from ducts, pipes or conduit. Do not suspend from gypsum board fire-rated membrane.
- C. Keep hangers and braces 2 inches clear of ducts, pipes and conduits.
- D. Sway-brace suspended steel framing with hangers used for support.
- E. Install suspended steel framing components in sizes and at spacings indicated but not less than that required by referenced steel framing installation standard.
  - 1. Wire Hangers: 0.1620 inch diameter (8 gage), 4 ft. on center.
  - 2. Carrying Channels (Main Runners): 1-1/2 inch, 4 ft. on center.
  - 3. Rigid Furring Channels (Furring Members): 16 inches on center.
- F. Installation Tolerances: Install steel framing components for suspended ceilings so that cross furring members or grid suspension members are level to within 1/8 inch in 12 ft. as measured both lengthwise on each member and transversely between parallel members.
- G. Wire-tie or clip furring members to main runners and to other structural supports as indicated.

### 3.5 INSTALLATION OF STEEL FRAMING FOR WALLS AND PARTITIONS

- A. Installation Tolerances: Install each steel framing and furring member so that fastening surface does not vary more than 1/8 inch from plane of faces of adjacent framing.
- B. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
- C. Install steel studs and furring in sizes and at spacings indicated but not less than that required by referenced steel framing installation standard.
  - 1. For single layer construction: 16 inches on center.
- D. Install steel studs so that flanges point in the same direction and gypsum boards can be installed in the direction opposite to that of the flange.
- E. Frame door openings to comply with details indicated, with GA-219 and with applicable published recommendations of gypsum board manufacturer. Attach vertical studs at jambs with screws either directly to frames or to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
- F. Frame openings other than door openings to comply with details indicated, or if none indicated, in same manner as required for door openings; and install framing below sills of openings to match framing required above door heads.

### 3.6 INSTALLATION OF CEILING SUSPENSION SYSTEMS

- A. Preparation and Coordination: Coordinate installation of ceiling suspension system with installation of overhead structural systems to ensure that inserts and other structural anchorage provisions have been installed to receive ceiling hangers in a manner that will develop their full strength and at spacings required to support ceiling.
- B. Hanger Installation: Secure hangers to structural support by connecting directly to structure where possible, otherwise connect to cast-in concrete inserts or other anchorage devices or fasteners as indicated on drawings.
  - 1. Do not attach hangers to gypsum board fire-rated membrane.
  - 2. Do not attach hangers to metal deck or metal deck tabs.
  - 3. Do not attach hangers to underside of concrete slabs with powder-actuated fasteners.
- C. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- D. Install ceiling suspension system components of sizes and spacings indicated but not in smaller sizes or greater spacings than that required by referenced lathing and furring installation standards.
  - 1. Wire Hangers: Space 8-gage (0.16-inch-diameter) wire hangers not over 4'-0" o.c. parallel with and not over 3'-0" perpendicular to direction of carrying channels, unless otherwise indicated, and within 6 inches of carrying channel ends.
  - 2. Carrying Channels: Space carrying channels not over 3'-0" o.c. with 4'-0" o.c. hanger spacing.
  - 3. Furring Channels to Receive Metal Lath: Space furring channels not over 16 inches o.c. for 3.4-lb. diamond mesh lath or 24 inches o.c. for 3.4 flat rib lath.

### 3.7 INSTALLATION OF VERTICAL METAL FURRING

- A. Install vertical metal furring components of sizes and spacings indicated but not in smaller sizes or greater spacings than those required by referenced ML/SFA standard.

### 3.8 LATHING

- A. Install expanded metal lath for the following application where plaster base coats are required. Provide appropriate type, configuration, and weight of metal lath selected from materials indicated that comply with referenced ML/SFA specifications and ASTM C 847 lathing installation standards.
1. Suspended and furring ceilings using 3.4 lbs. per sq. yd. minimum weight self-furring diamond mesh lath.
  2. Exterior sheathed wall surfaces using 3.4 lbs. per sq. yd. minimum weight self-furring diamond mesh lath.

### 3.9 INSTALLATION OF PLASTERING ACCESSORIES

- A. General: Comply with referenced lathing and furring installation standard for provision and location of plaster accessories of type indicated. Miter or cope accessories at corners; install with tight joints and in alignment. Attach accessories securely to plaster bases to hold accessories in place and alignment during plastering.
- B. Accessories for Portland Cement Plaster: Provide the following to comply with requirements indicated for location.
1. Corner Bead: Install at external corners.
  2. Casing Beads: Install at terminations of plaster work unless otherwise indicated.
  3. Control Joints: Install control joints at locations indicated or, if not indicated, at locations complying with the following criteria and approved by Architect.
    - a. Where an expansion or control joint occurs in surface of construction directly behind plaster membrane.
    - b. Where plaster panel sizes or dimensions change, extend joints full width or height of plaster membrane.
    - c. For Portland Cement Plaster: Where, in surfaces of ceilings and walls, distances between and areas within control joints exceed, respectively, the following measurements: 18 feet in either direction and 144 sq. ft.

END OF SECTION 09 22 00

# SECTION 09 24 00 - PORTLAND CEMENT PLASTERING

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## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all Exterior Portland Cement Plaster (Stucco) as specified herein:

### 1.3 RELATED SECTIONS

- A. Division 9 Section "Supports for Plaster and Gypsum Board" for lath, furring and metal stud support systems suitable for lath attachment.

### 1.4 QUALITY ASSURANCE

- A. Single-Source Responsibility: Obtain materials for Portland cement plaster from a single source for each type of material required to ensure consistency in quality of performance and appearance.

### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver cementitious materials in original packages, containers, or bundles bearing brand name and identification of manufacturer.
- B. Store materials inside, under cover, and in manner to keep them dry, protected from weather, direct sunlight, surface contamination, aging, corrosion, and damage from construction traffic and other causes.

### 1.6 PROJECT CONDITIONS

- A. Protect contiguous work from moisture deterioration and soiling that might result from plastering operations. Provide temporary covering and whatever other provisions may be necessary to minimize harmful spattering of plaster on other work.
- B. Cold Weather Requirements: Provide heat and protection (temporary or permanent) as required to protect each coat of plaster from freezing for a period of not less than 24 hours after application.
- C. Distribute heat uniformly to prevent concentration of heat on plaster near heat sources; provide deflection or protective screens.
  - 1. Exterior Plaster Work: Do not apply plaster when ambient temperature is less than 32 deg F (0 deg C) or when 40 deg F (4 deg C) or less and falling.
- D. Warm Weather Requirements: Protect plaster against uneven and excessive evaporation and from strong flows of dry air, both natural and artificial. Apply and cure plaster as required by climatic and job conditions to prevent dryout during cure period. Provide suitable coverings, moist curing, barriers to deflect sunlight and wind, or combinations of these, as required.

## PART 2 - PRODUCTS

### **09 24 23 PORTLAND CEMENT STUCCO**



## 2.1 PORTLAND CEMENT PLASTER MATERIALS

- A. Base Coat Cements: Type as indicated below:
  - 1. Portland cement, ASTM C 150, type as follows:
    - a. Type I or III.
- B. Finish Coat Cement: Material and color as indicated below:
  - 1. Portland cement, ASTM C 150, type as follows:
    - a. Type I.
  - 2. Cement Color: White
- C. Lime: Special hydrated lime for finishing purposes, ASTM C 206, Type S, or special hydrated lime for masonry purposes, ASTM C 207, Type S.
- D. Sand Aggregate for Base Coats: ASTM C 897.
- E. Aggregate for Finish Coats: ASTM C 897 and as indicated below:
  - 1. Manufactured or natural sand, white in color.
- F. Water for Mixing and Finishing Plaster: Use Potable water only.

## 2.2 MISCELLANEOUS MATERIALS

- A. Bonding Agent: ASTM C 932.
- B. Acid Etch Solution: Muriatic acid (10 percent solution of commercial hydrochloric acid) mixed one part to not less than 6, or more than 10 parts of water.
- C. Dash-Coat Material: Two parts Portland cement to 3 parts fine sand, mixed with water to a mushy-paste consistency.
- D. Asphalt-Saturated Felt: ASTM D 226, Type I (No. 15), nonperforated.

## 2.3 PORTLAND CEMENT PLASTER MIXES AND COMPOSITIONS

- A. General: Comply with ASTM C 926 for base and finish coat mixes as applicable to plaster bases, materials, and other requirements indicated.
- B. Base Coat Mixes and Compositions: Proportion materials for respective base coats in parts by volume per sum of cementitious materials for aggregates to comply with the following requirements for each method of application and plaster base indicated. Adjust mix proportions below within limits specified to attain workability.
  - 1. Three-Coat Work Over Metal Lath: Base coats as indicated below:
    - a. Scratch Coat: 1 part Portland cement, 3/4 to 1-1/2 parts lime, 2-1/2 to 4 parts aggregate.
    - b. Brown Coat: 1 part Portland cement, 3/4 to 1-1/2 parts lime, 3 to 5 parts aggregate.
  - 2. Two-Coat Work Over Concrete Unit Masonry: Base coats as indicated below:
    - a. Base Coats: 1 part Portland cement, 3/4 to 1-1/2 parts lime, 3 to 4 parts aggregate.
- C. Job-Mixed Finish Coats: Proportion materials for finish coats in parts by volume for cementitious materials and parts by volume per sum of cementitious materials to comply with the following requirements:
  - 1. 1 part Portland cement, 3/4 to 1-1/2 parts lime, 3 parts sand.

## 2.4 MIXING

- A. Mechanically mix cement and aggregate materials for plasters to comply with applicable referenced application standard and with recommendations of plaster manufacturer.

# PART 3 - EXECUTION

## 3.1 PREPARATIONS FOR PLASTERING



- A. Clean plaster bases and substrates for direct application of Portland cement plaster, removing loose material and substances that might impair the work.
- B. Etch concrete and masonry surfaces indicated for direct Portland cement plaster application. Scrub with acid etch solution on previously wetted surface and rinse thoroughly with clean water. Repeat the application if necessary to obtain adequate suction and mechanical bond of plaster (where dash coat or bonding agent or additive is not used).
- C. Apply dash coat on concrete surfaces indicated for direct Portland cement plaster application. Moisture-cure dash coat for at least 24 hours after application before plastering.
- D. Install temporary grounds and screeds as necessary to ensure accurate rodding of plaster to true surfaces; coordinate with scratch-coat work.
  - 1. Refer to Division 6 sections for the installation of permanent wood grounds (if any).
- E. Flashing: Refer to the Division 7 sections for the installation of flashing as indicated under exterior portland cement plastering.
- F. Surface Conditioning: Immediately before plastering, dampen the surfaces of concrete and masonry that are indicated for direct application of plaster, except where a bonding agent has been applied. Experiment with moisture application to determine degree of saturation that will result in optimum suction for plastering.

### 3.2 PLASTER APPLICATION

- A. Portland Cement Application Standard: Apply portland cement plaster materials, compositions, and mixes to comply with ASTM C 926.
- B. Sequence plaster application with the installation and protection of other work so that neither will be damaged by the installation of the other.
- C. Do not use materials that are frozen, caked, lumpy, dirty, or contaminated by foreign materials.
- D. Do not use excessive water in the mixing and application of plaster materials.
- E. Tolerances: Do not deviate more than 1/8 inch in 10'-0" from a true plane in finished plaster surfaces, as measured by a 10'-0" straightedge placed at any location on surface.
- F. Plaster flush with metal frames and other built-in metal items or accessories that act as a plaster ground, unless otherwise indicated. Where interior plaster is not terminated at metal by casing beads, cut basecoat free from metal before plaster sets and groove finish coat at the junctures with metal.
- G. Corners: Make internal corners and angles square; finish external corners flush with corner beads on interior work, square and true with plaster faces on exterior work.
- H. Number of Coats: Apply portland cement plaster, of composition indicated, to comply with the following requirements:
  - 1. Use three-coat work over the following plaster bases:
    - a. Metal lath.
  - 2. Use two-coat work over the following bases:
    - a. Concrete unit masonry.
    - b. Concrete, cast-in-place or precast when surface condition complies with ASTM C 26 for plaster bonded direct to solid base.
- I. Finish Coats: Apply finish coats to comply with the following requirements:
  - 1. Float Finish: Apply finish coat to a minimum thickness of 1/8 inch to completely cover base coat, uniformly floated to a true even plane with a

fine-textured sand finish matching Architect's sample.

- J. Moist-cure plaster base and finish coats to comply with ASTM C 926, including recommendations for time between coats and curing in "Annex A2 Design Consideration."

### 3.3 CUTTING AND PATCHING

- A. Cut, patch, repair, and point-up Portland cement plaster as necessary to accommodate other work. Repair cracks and indented surfaces. Seal finish plaster surfaces around items that are built into or penetrate plaster surfaces. Repair or replace the work to eliminate blisters, buckles, check cracking, dry outs, efflorescence, excessive pinholes, and similar imperfections. Repair or replace the work as necessary to comply with required visual effects.

### 3.4 CLEANING AND PROTECTION

- A. Remove temporary covering and whatever other provisions were made to minimize spattering of plaster on other work. Promptly remove plaster from door frames, windows, and other surfaces that are not to be plastered. Repair surfaces that have been stained, marred or otherwise damaged during the plastering work. When plastering work is completed, remove unused materials, containers, equipment, and plaster debris.
- B. Provide final protection and maintain conditions in a manner suitable to Installer that ensures plaster work's being without damage or deterioration at time of Substantial Completion.

END OF SECTION 09 24 00
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## SECTION 09 29 00 - GYPSUM BOARD

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS:

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

#### 1.2 SUMMARY:

- A. Extent of each type of gypsum drywall construction required is indicated on Drawings.
- B. This Section includes the following types of gypsum board construction:
  - 1. Gypsum board screw-attached to steel framing and furring members.
  - 2. Gypsum board bonded adhesively to interior concrete and masonry substrates.
  - 3. Glass mesh mortar units for application of tile. Glass mesh mortar units and tile backer board are interchangeable terms, for purpose of these specifications.

#### 1.3 RELATED SECTIONS:

- A. Specification Section 09 99 00 Painting

#### 1.4 DEFINITIONS:

- A. Gypsum Board Construction Terminology:
  - 1. ASTM C 11 - Standard Terminology Relating to Gypsum and Related building Materials and Systems.
  - 2. ASTM C 804 - Standard Specification for Application and Finishing of Gypsum Board.
  - 3. GA 214 - Recommended Specifications: Levels of Gypsum Board Finish.
  - 4. GA 216 - Specification for the Application and Finishing of Gypsum Board.
  - 5. GA 505 - Gypsum Board Terminology.

#### 1.5 SUBMITTALS:

- A. Product data from manufacturers for each type of product specified.

#### 1.6 QUALITY ASSURANCE:

- A. Fire-Resistance Ratings:
  - 1. Provide materials and construction which are identical to those of assemblies whose fire resistance rating has been determined per ASTM E 119 by a testing and inspecting organization acceptable to authorities having jurisdiction.
  - 2. Provide fire-resistance-rated assemblies identical to those indicated by reference to GA File No's. in GA-600 "Fire Resistance Design Manual" or to design designations in U.L. "Fire Resistance Directory" or in listing of other testing and agencies acceptable to authorities having jurisdiction.
- B. Single Source Responsibility: Obtain each type of gypsum board and related joint treatment materials from a single manufacturer.

#### 1.7 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. Neatly stack gypsum boards flat to prevent sagging.
- C. Handle gypsum boards to prevent damage to edges, ends, and surfaces. Do not bend or

otherwise damage corner beads and trim.

#### 1.8 PROJECT CONDITIONS:

- A. Environmental Conditions, General: Establish and maintain environmental conditions for application and finishing gypsum board to comply with ASTM C 840 and with gypsum board manufacturer's recommendations.
- B. Minimum Room Temperatures: For nonadhesive attachment of gypsum board to framing, maintain not less than 40 deg F (4 deg C). For adhesive attachment and finishing of gypsum board maintain not less than 50 deg F (10 deg C) for 48 hours prior to application and continuously thereafter until drying is complete.
- C. Ventilate building spaces to remove water not required for drying joint treatment materials. Avoid drafts during dry, hot weather to prevent materials from drying too rapidly.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS:

- A. 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:
- B. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
  - 1. Steel Framing and Furring:
    - a. Gold Bond Building Products Div., National Gypsum Co.
    - b. United States Gypsum Co.
    - c. Wheeling Corrugating Co.
  - 2. Gypsum Boards and Related Products:
    - a. Georgia-Pacific Corp.
    - b. Gold Bond Building Products Div., National Gypsum Co.
    - c. United States Gypsum Co.

#### 2.2 GYPSUM BOARD:

- A. General: Provide gypsum board of types indicated in maximum lengths available to minimize end-to-end joints.
- B. Gypsum Wallboard: ASTM C 36, and as follows:
  - 1. Type: Regular, unless otherwise indicated.
  - 2. Type: Type X for fire-resistance-rated assemblies.
  - 3. Edges: Tapered.
  - 4. Thickness: 1/2 inch, unless otherwise indicated.
  - 5. Thickness: 5/8 inch, where indicated.
  - 6. Products: Subject to compliance with requirements, provide one of the following products where Type X gypsum wallboard is indicated:
    - a. "Toughrock FireGuard"; Georgia-Pacific
    - b. "Fire-Shield"; Gold Bond Building Products Div., National Gypsum Co.
    - c. "SHEETROCK Brand FIRECODE 'Core' Gypsum Board"; United States Gypsum Co.
- C. Water-Resistant Gypsum Backing Board: ASTM C 1396, and as follows:
  - 1. Type: Regular, unless otherwise indicated.
  - 2. Type: Type X for fire-resistance-rated assemblies.
  - 3. Thickness: 5/8 inch, unless otherwise indicated.
  - 4. Thickness: 1/2 inch, where indicated.

## 2.3 GLASS MESH MORTAR UNITS:

- A. Proprietary backing units with glass mesh fiber mesh reinforcing and water resistant coating on both faces, complying with the following requirements:
  - 1. Vinyl-Coated Portland Cement Panels: Core formed in a continuous process from aggregated portland cement slurry and reinforced with vinyl-coated woven glass fiber mesh embedded in both surfaces, with one face smooth and other textured; fabricated in panels 1/2 inch thick and by 36 inches wide by 48, 60, and 72 inches long; and weighing 3 lbs per sq. ft.
- B. Products: Subject to compliance with requirements, provide one of the following products:
  - 1. "Dens-Shield Tile Backer Board"; as manufactured by Georgia-Pacific Commercial.

## 2.4 TRIM ACCESSORIES:

- A. Cornerbead and Edge Trim for Interior Installation: Provide corner beads, edge trim and control joints which comply with ASTM C 1047 and requirements indicated below:
  - 1. Material: Formed metal, plastic or metal combined with paper, with metal complying with the following requirement:
    - a. Sheet steel zinc-coated by hot-dip process.
  - 2. Edge trim shapes indicated below by reference to designations of Fig. 1 in ASTM C 1047:
    - a. "L" Bead where indicated.
  - 3. One-Piece Control Joint: Formed with vee-shaped slot per Fig. 1 in ASTM C 1047, with slot opening covered with removable strip.

## 2.5 GYPSUM BOARD JOINT TREATMENT MATERIALS:

- A. General: Provide materials complying with ASTM C 475, ASTM C 840, and recommendations of manufacturer of both gypsum board and joint treatment materials for the application indicated.
- B. Joint Tape: Paper reinforcing tape, unless otherwise indicated.
- C. Drying-Type Joint Compounds: Factory-prepackaged vinyl-based products complying with the following requirements for formulation and intended use.
  - 1. Ready-Mix Formulation: Factory-premixed product.
  - 2. Taping compound formulated for embedding tape and for first coat over fasteners and flanges of corner beads and edge trim.
  - 3. All-purpose compound formulated for use as both taping and topping compound.

## 2.6 MISCELLANEOUS MATERIALS:

- A. General: Provide auxiliary materials for gypsum drywall construction which comply with referenced standards and the recommendations of the manufacturer of the gypsum board.
- B. Laminating Adhesive: Special adhesive or joint compound recommended for laminating gypsum boards.
- C. Spot Grout: ASTM C 475, setting-type joint compound of type recommended for spot grouting hollow metal door frames.
- D. Gypsum Board Screws: ASTM C 1002.
- E. Asphalt Felt: ASTM D 226, Type I (No. 15).
- F. Concealed Acoustical Sealant: Nondrying, nonhardening, nonskinning, nonstaining, nonbleeding, gunnable sealant complying with requirement specified in Division-7 section "Joint Sealers."
- G. Sound Attenuation Blankets: Unfaced mineral fiber blanket insulation produced by combining mineral fibers of type described below with thermosetting resins to comply

with ASTM C 665 for Type I (blankets without membrane facing); and as follows:

- H. Glass Mesh Mortar Unit Finishing Materials: Tape and joint compounds as recommended by glass mesh mortar unit manufacturer.

## 2.9 TEXTURE FINISH MATERIALS:

- A. Primer: Of type recommended by manufacturer of texture finish.
- B. Texture material shall be joint compound thinned to workable consistency with ceiling white latex paint tinting.
- C. See subsequent specification sections for type of textures required for ceiling and wall surfaces scheduled.

## PART 3 - EXECUTION

### 3.1 EXAMINATION:

- A. Examine substrates to which drywall construction attaches or abuts, preset hollow metal frames, cast-in-anchors, and structural framing, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of drywall construction. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION:

- A. Ceiling Anchorages: Coordinate installation of ceiling suspension system with installation of overhead structural systems to ensure that inserts and other structural anchorage provisions have been installed to receive ceiling anchors in a manner that will develop their full strength and at spacing required to support ceiling.

### 3.3 APPLICATION AND FINISHING OF GYPSUM BOARD, GENERAL:

- A. Gypsum Board Application and Finishing Standard: Install and finish gypsum board to comply with ASTM C 840.
- B. Install sound attenuation blankets where indicated, prior to gypsum board unless readily installed after board has been installed.
- C. Locate exposed end-butt joints as far from center of walls and ceilings as possible, and stagger not less than 24 inches in alternate courses of board.
- D. Install ceiling boards across framing in the manner which minimizes the number of end-butt joints, and which avoids end joints in the central area of each ceiling. Stagger end joints at least 24 inches.
- E. Install wall/partition boards in manner which minimizes the number of end-butt joints or avoids them entirely where possible. At stairwells and similar high walls, install boards horizontally with end joints staggered over studs.
- F. Install exposed gypsum board with face side out. Do not install imperfect, damaged or damp boards. Butt boards together for a light contact at edges and ends with not more than 1/16 inch open space between boards. Do not force into place.
- G. Locate either edge or end joints over supports, except in horizontal applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Position boards so that like edges abut, tapered edges against tapered edges and mill-cut or field-cut ends against mill-cut or field-cut ends. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions.
- H. Attach gypsum board to steel studs so that leading edge or end of each board is attached to open (unsupported) edge of stud flange first.
- I. Attach gypsum board to supplementary framing and blocking provided for additional



support at openings and cutouts.

- J. Spot grout hollow metal door frames for solid core wood doors, hollow metal doors and doors over 32 inches wide. Apply spot grout at each jamb anchor clip just before inserting board into frame.
- K. Form control joints and expansion joints at locations indicated, with space between edges of boards, prepared to receive trim accessories.
- L. Cover both faces of steel stud partition framing with gypsum board in concealed spaces (above ceilings, etc.), except in chase walls which are braced internally.
  - 1. Except where concealed application is indicated or required for sound, fire, air or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. area, and may be limited to not less than 75 percent of full coverage.
  - 2. Fit gypsum board around ducts, pipes, and conduits.
  - 3. Where partitions intersect open concrete coffers, cut gypsum board to fit profile of coffers and allow 1/4 to 1/2 inch wide joint for sealant.
- M. Isolate perimeter of non-load-bearing drywall partitions at structural abutments. Provide 1/4 inch to 1/2 inch space and trim edge with "U" bead edge trim. Seal joints with acoustical sealant.
- N. Where sound-rated drywall construction is indicated, seal construction at perimeters, control and expansion joints, openings and penetrations with a continuous bead of acoustical sealant including a bead at both faces of partitions. Comply with ASTM C 919 and manufacturer's recommendations for location of edge trim, and close off sound-flanking paths around or through construction, including sealing of partitions above acoustical ceilings.
- O. Space fasteners in gypsum boards in accordance with referenced gypsum board application and finishing standard and manufacturer's recommendations.
- P. Gypsum board incorporated into fire rated assemblies in single and double thickness applications shall have joints staggered horizontally and vertically in relationship to joints on opposite sides of partitions. Gypsum board attachment shall be screw @ 8" on center throughout field of board as well as 8" on center at edge, top and bottom tracks, typical.

#### 3.4 METHODS OF GYPSUM BOARD APPLICATION:

- A. Single-Layer Application: Install gypsum wallboard as follows:
  - 1. On ceilings apply gypsum board prior to wall/partition board application to the greatest extent possible.
  - 2. On partitions/walls apply gypsum board vertically (parallel to framing), unless otherwise indicated, and provide sheet lengths which will minimize end joints.
- B. Wall Tile Base: Where drywall is base for thin-set ceramic tile and similar rigid applied wall finishes, install gypsum backing board.
  - 1. In "dry" areas install gypsum backing board or wallboard with tapered edges taped and finished to produce a flat surface.
- C. At showers, tubs and similar "wet areas" install glass mesh mortar units and treat joints to comply with manufacturer's recommendations for type of application indicated.
- D. Single-Layer Fastening Methods: Apply gypsum boards to supports as follows:
  - 1. Fasten with screws.
- E. Direct Bonding to Substrate: Where gypsum board is indicated to be directly adhered to a substrate (other than studs, joists, furring members or base layer of gypsum board), comply with gypsum board manufacturer's recommendations, and temporarily brace or



fasten gypsum board until fastening adhesive has set.

### 3.5 INSTALLATION OF DRYWALL TRIM ACCESSORIES:

- A. General: Where feasible, use the same fasteners to anchor trim accessory flanges as required to fasten gypsum board to the supports. Otherwise, fasten flanges to comply with manufacturer's recommendations.
- B. Install corner beads at external corners.
- C. Install metal edge trim whenever edge of gypsum board would otherwise be exposed or semi-exposed, and except where plastic trim is indicated. Provide type with face flange to receive joint compound except where "U" bead (semi-finishing type) is indicated.
  - 1. Install "L" bead where edge trim can only be installed after gypsum board is installed.
- D. Install control joints at locations indicated, or if not indicated, at spacings and locations required by referenced gypsum board application and finish standard, and approved by the Architect for visual effect.

### 3.6 FINISHING OF DRYWALL:

- A. General: Apply joint treatment at gypsum board joints (both directions); flanges of corner bead, edge trim, and control joints; penetrations; fastener heads, surface defects and elsewhere as required to prepare work for decoration.
- B. Prefill open joints and rounded or beveled edges, if any, using setting-type joint compound.
- C. Apply joint tape at joints between gypsum boards, except where trim accessories are indicated.
- D. Finish interior gypsum wallboard by applying the following joint compounds in 3 coats (not including prefill of openings in base), and sand between coats and after last coat:
  - 1. Embedding and First Coat: Ready-mix drying-type all-purpose or taping compound.
  - 2. Fill (Second) Coat: Ready-mix drying-type all-purpose or topping compound.
  - 3. Finish (Third) Coat: Ready-mix drying-type all-purpose or topping compound.
- E. Water Resistant Backing Board Base for Ceramic Tile: Finish joints between water-resistant backing board with tape and setting-type joint compound to comply with gypsum board manufacturer's recommendations and installation standards referenced in Division-9 Section "Tile."
- F. Partial Finishing: Omit third coat and sanding on concealed drywall construction which is indicated for drywall finishing or which requires finishing to achieve fire-resistance rating, sound rating or to act as air or smoke barrier.

### 3.7 LEVELS OF GYPSUM BOARD FINISH:

**Level 0** - No taping, finishing, or accessories required.

**Level 1** - All joints and interior angles shall have tape set in joint compound. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable.

**Level 2** - All joints and interior angles shall have tape embedded in joint compound and wiped with a joint knife leaving a thin coating of joint compound over all joints and interior angles. Fastener heads and accessories shall be covered with a coat of joint compound. Surface shall be free of excess joint compound tool marks and ridges are acceptable. Joint compound applied over the body of the tape at the time of tape

embedment shall be considered a separate coat of joint compound and shall satisfy the conditions of this level.

**Level 3** - All joints and interior angles shall have tape embedded in joint compound and one additional coat of joint compound applied over all joints and interior angles. Fastener heads and accessories shall be covered with two separate coats of joint compound. All joint compound shall be covered with two separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges. NOTE: It is recommended that the prepared surface be coated with a drywall primer prior to the application of final finishes. (See painting/ wall covering specification in this regard.)

**Level 4** - All joints and interior angles shall have tape embedded in joint compound and two separate coats of joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges. NOTE: It is recommended that the prepared surface be coated with a drywall primer prior to the application of final finishes. (See painting/ wall covering specification in this regard.)

**Level 5** - All joints and interior angles shall have tape embedded in joint compound and two separate coats of joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. A thin skim coat of joint compound or a material manufactured especially for this purpose, shall be applied to the entire surface. The surface shall be smooth and free of tool marks and ridges. NOTE: It is recommended that the prepared surface be coated with a drywall primer prior to the application of finish paint. See painting specification in this regard.

### 3.8 APPLICATION OF TEXTURE FINISH:

- A. Surface Preparation and Primer: Prepare and prime drywall and other surfaces in strict accordance with texture finish manufacturer's instructions. Apply primer to all surfaces to achieve texture finish.
- B. Finish Application: Mix and apply finish to drywall and other surfaces indicated to receive finish in strict accordance with manufacturer's instructions to produce a uniform texture matching Architect's sample without starved spots or other evidence of thin application, and free of application patterns.
- C. Textured ceilings shall require painting. The following are suggested methods of application:
  1. Blown on texture
  2. Rolled on texture
  3. Daubed on texture
- D. The methods shall not be limited to the above, but shall be approved by the Architect.
- E. "Pop-Corn" ceiling texture is not an approved material.

### 3.11 TEXTURED DESIGNATED DWT

- A. Texture material shall be joint compound thinned to workable consistency with ceiling white latex paint tinting. Tinted off-white texture shall have knock-down lace

appearance. Seal ceiling board as required to provide complete coverage of gypsum board as recommended by Manufacturer. Apply texture heavy enough to conceal moderate imperfections of ceiling and in accordance with manufacturer's recommendations. A sample of knock-down finish shall be submitted to Architect for approval.

- B. Exposed concrete to receive texture shall have imperfections treated as follows:
- C. Projections beyond bottom of concrete shall be knocked off level. Depressions shall be filled with STA-Smooth 90 plaster, as manufactured by Gold Bond. Allow to dry. Skim plaster second coat imbedding nylon tape. Skim coat joint compound to cover all plaster. Steel connection plate opening in bottom of plank shall be brought flush to bottom of concrete with grout, prior to skim coat operation.
  - 1. Seal concrete as required by texture manufacturer prior to texturing.

### 3.12 TEXTURE DESIGNATED DWP

- A. All finished gypsum board walls designated DWP on Room Finish Schedule to receive light uniform spackle spray "orange peel", prior to painting, but after all joint and nail treatments are complete and sanded. A sample of "orange peel" texture shall be submitted to Architect for approval.
- B. Remove any texture droppings or overspray from door frames, windows and other adjoining construction.

### 3.9 PROTECTION:

- A. Provide final protection and maintain conditions, in a manner suitable to Installer, which ensures gypsum drywall construction being without damage or deterioration at time of Substantial Completion.

END OF SECTION 09 29 00
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## SECTION 09 31 00 - THIN-SET TILING

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install the following:
  - 1. Unglazed ceramic tile.
  - 2. Glazed wall tile.
  - 3. Marble thresholds.
  - 4. Marble Window Sills.
  - 5. Quarry Tile.
  - 6. Porcelain Tile

#### 1.3 RELATED SECTIONS

- 1. Division 3 Section "Concrete Work" for monolithic slab finishes specified for tile substrates.
- 2. Division 9 Section "Gypsum Board" for backer units installed as part of gypsum wallboard system.

#### 1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of product specified.
- C. Samples for verification purposes of each item listed below, prepared on samples of size and construction indicated, products involve color and texture variations, in sets showing full range of variations expected.
  - 1. Each type and composition of tile and for each color and texture required, at least 12 inches square, mounted on plywood or hardboard backing and grouted.
  - 2. Full-size units of each type of trim and accessory for each color required.
- D. Master grade certificates for each shipment, type, and composition of tile, signed by tile manufacturer and Installer.

#### 1.5 QUALITY ASSURANCE

- A. Single-Source Responsibility for Tile: Obtain each color, grade, finish, type, composition, and variety of tile from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- B. Single-Source Responsibility for Setting and Grouting Materials: Obtain ingredients of a uniform quality from one manufacturer for each cementitious and admixture component and from one source or producer for each aggregate.
- C. Installer Qualifications: Engage an experienced Installer who has successfully completed tile installations similar in material, design, and extent to that indicated for Project.

#### 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 of 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. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.
- B. Vent temporary heaters to exterior to prevent damage to tile work from carbon dioxide buildup.
- C. Maintain temperatures at 50 deg F (10 deg C) 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. Deliver extra materials to Owner. Furnish extra materials that match products installed as described below, packaged with protective covering for storage and identified with labels clearly describing contents.
  - 1. Tile and Trim Units: Furnish quantity of full-size units equal to 2 percent of amount installed, for each type, composition, color, pattern, and size.

### PART 2 - PRODUCTS

## **09 31 13 THIN-SET CERAMIC TILING**

#### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Unglazed Ceramic Tile: (C.T.) on Finish Schedule - various styles
    - a. American Olean Tile Co., Inc.
    - b. Dal-Tile Corp.
  - 2. Glazed Wall Tile: (CER) on Finish Schedule - various styles
    - a. American Olean Tile Co., Inc.
    - b. Dal-Tile Corp.
  - 3. Quarry Tile (Designated QT)
    - a. Dal-Quarry heavy duty natural clay paving tiles - 8" x 8" x 1/2" with coefficient of friction of 0.6 including all base and accessory trim members. Color to be selected by Architect.
  - 4. Porcelain Tile (Designate P.T.)
    - a. Dal-Tile Donegal or Landscape Series polished and unpolished 12" x 12". Exterior surfaces to be unpolished with min. coefficient of friction of 0.6. Provide all base and accessory trim members. Color to be selected by Architect.
  - 5. Latex/Polymer Modified Portland Cement Mortars: conform to ANSI A108.5 and ANSI A118.4 as required.
    - a. American Olean Tile Co., Inc.
    - b. DAP Inc. Div.; USG Corp.
    - c. L & M Mfg. Inc.
    - d. Laticrete International Inc.
  - 6. Polymer Modified Tile Grout (Unsanded for joints of 1/8" or less; Sanded for joints

greater than 1/8"):

- a. American Olean Tile Co., Inc.
- b. L & M Mfg. Inc.
- c. Southern Grouts & Mortars, Inc.

## 2.2 PRODUCTS, GENERAL

- A. ANSI Standard for Ceramic Tile: Comply with ANSI A108, A118 and A136 "American National Standards for the Installation of Ceramic Tile" for types, compositions, and grades of tile indicated.
  1. Furnish tile complying with "Standard Grade" requirements unless otherwise indicated.
- B. ANSI Standard for Tile Installation Materials: Comply with ANSI standard referenced with products and materials indicated for setting and grouting.
- C. Colors, Textures, and Patterns: Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials complying with the following requirements:
  1. Provide selections made by Architect from manufacturer's full range of standard colors, textures, and patterns for products of type indicated.
  2. Provide tile trim and accessories that match color and finish of adjoining flat tile.
- D. Factory Blending: For tile exhibiting color variations within the ranges selected during sample submittals, blend tile in factory and package accordingly so that tile units taken from one package show the same range in colors as those taken from other packages and match approved samples.
- E. Mounting: Where factory mounted tile is required, provide back or edge mounted tile assemblies as standard with manufacturer unless another mounting method is indicated.
  1. Where tile is indicated for installation in swimming pools, on exteriors or in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies that this type of mounting is suitable for these kinds of uses and has been successfully used on other projects.

## 2.3 TILE PRODUCTS

- A. Unglazed Ceramic Tile: Provide tile complying with the following requirements: (CT as designated on Room Finish Schedule)
  1. Composition: Porcelain with abrasive admixture.
  2. Nominal Facial Dimensions: 6" x 12" and 12" x 12".
  3. Nominal Thickness: 1/2 inch.
  4. Face: Plain with cushion edges.
- B. Glazed Ceramic Wall Tile: Provide flat tile complying with the following requirements:
  1. Nominal Facial Dimensions: 6" x 6" and 3" x 8".
  1. Nominal Thickness: 5/16 inch.
  2. Face: Pattern of design indicated, with manufacturer's standard edge. (Scored Pattern)
  3. Mounting: Factory back mounted, where applicable.
  5. Trim Units: Provide tile trim units to match characteristics of adjoining flat tile and to comply with following requirements:
  6. Size: As indicated, coordinated with sizes and coursing of adjoining flat tile where applicable.
  7. Shapes: As follows, selected from manufacturer's standard shapes:



- a. Base for Portland Cement Mortar Installations: Coved.
- b. Wainscot Cap for Thinset Mortar Installations: Surface bullnose.
- c. Wainscot Cap for Flush Conditions: Regular flat tile for conditions where tile wainscot is shown flush with wall surface above.
- d. External Corners for Thinset Installations: Surface bullnose.
- e. Internal Corners: Field-buttet square corners, except use coved base and cap angle pieces designed to member with stretcher shapes.

#### 2.4 MARBLE THRESHOLDS

- A. General: Provide marble that is uniform in color and finish, fabricated to sizes and profiles indicated or required to provide transition between tile surfaces and adjoining finished floor surfaces.
- B. Marble Thresholds: Provide marble thresholds complying with ASTM C 503 requirements for exterior use and for abrasion resistance where exposed to foot traffic, a minimum hardness of 10 per ASTM C 241.
  1. Provide color samples to Interior Designer for selection.

#### 2.5 WINDOW SILLS

- A. Provide cultured marble sill 1/2" min. thickness by length and depth required by drawings.

#### 2.6 SETTING MATERIALS

- A.. Portland Cement Mortar Installation Materials: Provide materials complying with ANSI A108 and as specified below.
  1. Reinforcing Wire Fabric: Galvanized welded wire fabric, 2 inches by 2 inches - WO.3 by WO.3 (16 ASW gage or 0.0625 inch diameter), comply with ASTM A 185 and ASTM A 82 except for minimum wire size.
  2. Latex additive (water emulsion) described below, serving as replacement for part or all of gauging water, of type specifically recommended by latex additive manufacturer for use with job-mixed portland cement and aggregate mortar bed.
    - a. Latex Additive: Manufacturer's standard.
- B. Dry-Set Portland Cement Mortar: ANSI A108.5 and ANSI A118.1.
- C. Latex/Polymer Modified Portland Cement Mortar: ANSI A108.5 and ANSI A118.4, composition as follows:
  1. Latex additive (water emulsion) of type described below, serving as replacement for part or all of gauging water, combined at job site with prepackaged dry mortar mix supplied or specified by latex additive manufacturer.
    - a. Latex Type: Manufacturer's standard.

#### 2.7 GROUTING MATERIALS

- A. Polymer Modified Tile Grout: ANSI A118, color as indicated, composition as follows:
  1. Latex additive (water emulsion) serving as replacement for part or all of gauging water, added at job site with dry grout mixture, with type of latex and dry grout mix as follows:
    - a. Latex Type: Manufacturer's standard.

#### 2.8 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with requirements of referenced standards and manufacturers including those for accurate proportioning of materials, water, or additive content; type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce mortars and grouts of uniform quality with optimum performance characteristics for application indicated.



**09 31 43 EXTERIOR THIN-SET TILING AT FOUNTAIN**

## 2.1 MANUFACTURERS

- A. Subject to requirements:
  - 1. Custom Building Products 13001 Seal Beach Blvd. Seal Beach, CA 90740
  - 2. or approved equal.

## 2.2 MATERIALS

- A. Waterproofing and Anti-Fracture Membrane: as required for thin-set tile installations complying with ANSI 118.10 for waterproof membranes:
  - 1. Custom Building Products RedGard Waterproofing and Crack Prevention Membrane.
  - 2. Custom 9240 Waterproofing and Crack Prevention Membrane.
  - 3. or approved equal.
- B. Cementitious Tile Adhesives:
  - 1. ANSI A118.4: Polymer-Enhanced Mortars.
    - a. Custom Building Products Marble & Granite Fortified Premium Mortar.
  - 2. or approved equal.
- C. Grout:
  - 1. Polymer-Modified Portland Cement Grout.
    - a. Custom Building Products Polyblend Sanded Tile Grout; ANSI A118.6, for joints 1/8 inch (3 mm) - 1/2 inch (13 mm).
  - 2. or approved equal.
- D. Elastomeric Joint Caulk: ANSI A108.01.3.7:
  - 1. All joints between floors and walls and at joints between tile and dissimilar materials.

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine substrates and areas where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
  - 1. Verify that substrates for setting tile are firm, dry, clean, and free from oil or waxy films and curing compounds.
  - 2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.
  - 3. In slope to drain areas, verify that substrates for setting tile slope to drain and that drain is at the proper elevation to drain area effectively after tile installation.
- B. Do not proceed with installation until unsatisfactory conditions have been corrected.

## 3.2 PREPARATION

- A. Blending: For tile exhibiting color variations within the ranges selected during sample submittals, verify that tile has been blended in factory and packaged accordingly so that tile units taken from one package show the same range in colors as those taken from other packages and match approved samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

## 3.3 INSTALLATION, GENERAL

- A. ANSI Tile Installation Standard: Comply with parts of ANSI 108 series of tile installation

standards included under "American National Standard Specifications for the Installation of Ceramic Tile" that apply to type of setting and grouting materials and methods indicated.

- B. TCA Installation Guidelines: TCA "Handbook for Ceramic Tile Installation"; comply with TCA installation methods indicated.
- C. Extend tile work into recesses and under or behind equipment and fixtures to form a complete covering without interruptions except as otherwise shown. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so that plates, collars, or covers overlap tile.
- E. Jointing Pattern: Unless otherwise shown, lay tile in grid pattern. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths unless otherwise shown.
  - 1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so that extent of each sheet is not apparent in finished work.
- F. Lay out tile wainscots to next full tile beyond dimensions indicated.
- G. Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated during installation of setting materials, mortar beds, and tile. Do not saw cut joints after installation of tiles.
  - 1. Locate joints in tile surfaces directly above joints in concrete substrates.
- H. Grout tile to comply with the requirements of the following installation standards:
  - 1. For ceramic tile grouts (sand-portland cement, dry-set, commercial portland cement, and latex-portland cement grouts), comply with ANSI A108.10.
- I. At showers, tubs and similar wet areas, install over tile backer units and treat joints to comply with manufacturer's instructions for type of application indicated.

### 3.4 FLOOR INSTALLATION METHODS

- A. Ceramic Mosaic Tile: Install tile to comply with requirements indicated below for setting bed methods, TCA installation methods related to types of subfloor construction, and grout types:
  - 1. Portland Cement Mortar: ANSI A108.1
  - 2. Concrete Subfloors, Interior: TCA F112 (bonded).
  - 3. Concrete Subfloors, Interior, Waterproofing Membrane: TCA F121.
    - a. Grout: Latex-portland cement.
- B. Marble Thresholds: Install stone thresholds at locations indicated; set in same type of setting bed as abutting field tile unless otherwise indicated.
  - 1. Set thresholds in latex-portland cement mortar for locations where mortar bed would otherwise be exposed above adjacent nontile floor finish.
- C. Metal Edge Strips: Install at locations indicated or where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with top of tile.

### 3.5 WALL TILE INSTALLATION METHODS

- A. Install types of tile designated for wall application to comply with requirements indicated below for setting-bed methods, TCA installation methods related to subsurface wall conditions, and grout types:
  - 1. Dry-Set Portland Cement Mortar: ANSI A108.5.

- a. Cementitious Backer Units, Interior: TCA W244.
- b. Grout: Latex-portland cement.

### 3.6 CLEANING AND PROTECTION

- A. Cleaning: Upon completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
  1. Remove latex-portland cement grout residue from tile as soon as possible.
  2. Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer's printed instructions, but no sooner than 14 days after installation. Protect metal surfaces, cast iron, and vitreous plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.
- B. The grout shall be sealed with penetrating sealer and grout release as manufactured by Custom Building Products, Inc., Lithia Springs, Georgia. Apply 2 coats per manufacturer's directions. All sealer shall be removed from exposed tile surfaces prior to sealer drying.
- C. Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, and otherwise defective tile work.
- D. Provide final protection and maintain conditions in a manner acceptable to manufacturer and installer that ensures that tile is without damage or deterioration at time of Substantial Completion.
  1. When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.
  2. Prohibit foot and wheel traffic from tiled floors for at least 7 days after grouting is completed.
- E. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

END OF SECTION 09 31 00

## SECTION 09 51 00 - ACOUSTICAL CEILINGS

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all acoustical panel ceilings installed with exposed suspension systems as specified herein.

#### 1.3 RELATED SECTIONS

- 1. Division 21 Section "Fire Protection" for sprinkler heads in acoustical ceilings.
- 2. Division 23 Section "Air Outlets and Inlets" for grilles, registers, and diffusers in acoustical ceilings.
- 3. Division 26 Section "Interior Lighting Fixtures" for lighting fixtures in acoustical ceilings.

#### 1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and with Division 1 Specification Sections.
  - 1. Product data for each type of product specified.
  - 2. Samples for initial selection purposes in form of manufacturer's color charts consisting of actual acoustical units or sections of units showing full range of colors, textures, and patterns available for each type of unit indicated.

#### 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who has successfully completed acoustical ceilings similar in material, design, and extent to those indicated for Project.
- B. Fire Performance Characteristics: Provide acoustical ceilings that are identical to those tested for the following fire-performance characteristics, per ASTM test method indicated below, by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
  - 1. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.
    - a. Flame Spread: 25 or less.
    - b. Smoke Developed: 50 or less.
- C. Single Source Responsibility for Ceiling Units: Obtain each type of acoustical ceiling unit from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- D. Single Source Responsibility for Suspension System: Obtain each type of suspension system from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- E. Coordination of Work: Coordinate layout and installation of acoustical ceiling units and suspension system components with other construction that penetrates ceilings or is

supported by them, including light fixtures, HVAC equipment, fire-suppression system components (if any), and partition system (if any).

#### 1.6 DELIVERY, STORAGE, AND HANDLING

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

#### 1.7 PROJECT CONDITIONS

- A. Space Enclosure: Do not install interior acoustical ceilings until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete, and ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

### PART 2 - PRODUCTS

## **09 51 23 ACOUSTICAL TILE CEILINGS**

#### 2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide the following:
  - 1. Mineral Base Panels - Water Felted, with Painted Finish and Perforated and Fissured Pattern, Non-Fire-Resistance Rated: basis of design is "Travertone" Armstrong World Industries Inc.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Non-Fire-Resistance-Rated Wide-Face or 9/16" Slimline Double-Web Steel Suspension Systems:
    - a. Armstrong World Industries, Inc.
    - b. Chicago Metallic Corporation.
    - c. National Rolling Mills, Inc.
    - d. USG Interiors, Inc.
  - 2. Edge Moldings:
    - a. Armstrong World Industries, Inc.
    - b. Chicago Metallic Corporation.
    - c. Fry Reglet Corp.
    - d. National Rolling Mills, Inc.
    - e. USG Interiors, Inc.

#### 2.2 ACOUSTICAL CEILING UNITS, GENERAL

- A. Standard for Acoustical Ceiling Units: Provide manufacturers' units of configuration indicated that comply with ASTM E 1264 classifications as designated by reference to types, patterns, acoustical ratings, and light reflectance, unless otherwise indicated.
  - 1. Mounting Method for Measuring NRS: Type E-400 (plenum mounting in which face of test specimen is 15-3/4" inches (400 mm) away from the test surface) per ASTM E 795.
- B. Colors and Patterns: Provide products to match appearance characteristics indicated

under each product type.

1. For acoustical ceiling units whose appearance characteristics are indicated by reference to ASTM E 1264 designations for pattern and not by limiting to the naming of one or more products or manufacturers, provide Architect's selections from each named manufacturer's full range of standard products of type, color, pattern, and light reflectance indicated.

### 2.3 MINERAL-BASE PANELS

- A. Type, Form, and Finish: Provide type III, Form 2 units per ASTM E 1264 with painted finish that comply with pattern and other requirements indicated.
- B. Perforated and Fissured Pattern: Units matching pattern indicated by reference to manufacturer's standard pattern designations, with other characteristics as follows:
  1. AT-1: Armstrong Cortega #761, 24" x 24" x 5/8" lay-in tile with washable finish.
  2. AT-2: Armstrong Cortega #769A, 24" x 48" x 5/8" lay-in tile and #770, 24" x 24" x 5/8" lay-in tile.
- C. Fissured and Tegular Pattern: Panel face into multiple plane figures as indicated; with other panel characteristics as follows:
  1. AT-3 Armstrong Travertone Classic Step Fine Fissured #591 for 24" x 24" installation.
- D. Gypsum Ceiling Panels - GP
  1. Gypsum Panel shall be Acoustiflex, Vinyl Rock II, Vinyl Coated Gypsum Ceiling Tile, 24" x 48" size.
- E. Non-Combustible Ceiling Panels
  1. Armstrong Ceramaguard Lay-in Ceiling Panel No. 605A, to be placed at ceiling line around perimeter of range hood(s) to a minimum 18" away from range hood(s).

### 2.4 METAL SUSPENSION SYSTEMS, GENERAL

- A. Standard for Metal Suspension Systems: Provide manufacturer's standard metal suspension systems for 15/16" profile face system, and 9/16" slim profile face system. Provide structural classifications and finishes available that comply with applicable ASTM C 635 requirements.
- B. Finishes and Colors: Provide manufacturer's standard factory-applied matte finish for type of system indicated. Except as indicated elsewhere in these specifications.
- C. Attachment Devices: Size for 5 times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.
  1. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attachment of hangers of type indicated, and with capability to sustain without failure, a load equal to 5 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing laboratory.
- D. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper.
  1. Gage: Provide wire sized so that stress at 5 times hanger design load (ASTM C 635, Table 1, Direct-Hung), will be less than yield stress of wire, but provide not less than 0.106-inch diameter (12 gage).
- E. Edge Moldings and Trim: Metal or extruded aluminum of types and profiles indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit



type of edge detail and suspension system indicated.

## 2.5 MISCELLANEOUS MATERIALS

- A. Concealed Acoustical Sealant: Nondrying, nonhardening, nonskinning, nonstaining, nonbleeding, gunnable sealant complying with requirement specified in Division 7 Section "Joint Sealers."

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and structural framing to which ceiling system attaches or abuts, with Installer present, for compliance with requirements specified in this and other sections that affect installation and anchorage of ceiling system. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.
- B. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less-than-half-width units at borders, and comply with reflected ceiling plans.

### 3.3 INSTALLATION

- A. General: Install acoustical ceiling systems to comply with installation standard ASTM C 636; per manufacturer's instructions, and CISCA "Ceiling Systems Handbook."
- B. Arrange acoustical units and orient directionally patterned units in a manner shown by reflected ceiling plans.
- C. Suspend ceiling hangers from building structural members and as follows:
  - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or 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 at spacings 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. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eyescrews, or other devices that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
  - 4. Space hangers not more than 4'-0" o.c. along each member supported directly from hangers, unless otherwise shown, and provide hangers not more than 8 inches from ends of each member.
- D. Install edge moldings of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical units.
  - 1. Sealant Bed: Apply continuous bead of acoustical sealant, concealed on back of vertical leg before installing moldings.



2. Screw-attach moldings to substrate at intervals not over 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to tolerance of 1/8 inch in 12'-0". Miter corners accurately and connect securely.
- E. Install acoustical panels in coordination with suspension system, with edges concealed by support of suspension members. Scribe and cut panels to fit accurately at borders and at penetrations.

#### 3.4 CLEANING

- A. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09 51 00
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## SECTION 09 65 00 - RESILIENT FLOORING

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

#### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all resilient flooring as specified herein.

#### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Product Data: Submit manufacturer's technical data for each type of resilient flooring and accessory.
- C. Submit manufacturer's full color selection on actual materials for fabrication for Architect's selection.
- D. Samples for Verification Purposes: Submit the following samples of each type, color and pattern of resilient flooring required, showing full-range of color and pattern variations.
  - 1. Full-size tile samples.
  - 2. 6" x 9" samples of sheet flooring.
  - 3. 2-1/2" long samples of resilient flooring accessories.
  - 4. Other materials as requested.
- E. Certification for Fire Test Performance: Submit certification from an independent testing laboratory acceptable to authorities having jurisdiction that resilient flooring complies with fire test performance requirements.
- F. Maintenance Instructions: Submit 2 copies of manufacturer's recommended maintenance practices for each type of resilient flooring and accessory required.

#### 1.4 QUALITY ASSURANCE

- A. Manufacturer: Provide each type of resilient flooring and accessories as produced by a single manufacturer, including recommended primers, adhesives, sealants, and leveling compounds.
- B. Fire Test Performance: Provide resilient flooring which complies with the following fire test performance criteria as determined by an independent testing laboratory acceptable to authorities having jurisdiction.
  - 1. Critical Radiant Flux (CRF): 0.45 W/cm<sup>2</sup> or greater per ASTM E 648.
  - 2. Smoke Generation: Not more than 450 per ASTM E 662 and per ASTM E 84.

#### 1.5 PROJECT CONDITIONS

- A. Perform ASTM F 1869 "Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride." Relative humidity shall not exceed 80%. Moisture Vapor Emission Rate (MVER) shall not exceed 5 lbs./1000 sq. ft./24 hrs, or manufacturer's recommendations; whichever is more stringent. Results for both tests shall comply with the allowable limits. Do not proceed with flooring installation until results of moisture tests are acceptable. All test

- results shall be documented and retained.
- B. Maintain minimum temperature of 65 degrees F (18 degrees C) in spaces to receive resilient flooring for at least 48 hours prior to installation, during installation, and for not less than 48 hours after installation. Store resilient flooring materials in spaces where they will be installed for at least 48 hours before beginning installation. Subsequently, maintain minimum temperature of 55 degrees F (13 degrees C) in areas where work is completed.
  - C. Install resilient flooring and accessories after other finishing operations, including painting, have been completed. Do not install resilient flooring over concrete slabs until the latter have been cured and are sufficiently dry to achieve bond with adhesive as determined by resilient flooring manufacturer's recommended bond and moisture test.

## PART 2 - PRODUCTS

### **09 65 13 RESILIENT BASE & ACCESSORIES**

#### **09 65 13.13 RESILIENT BASE**

- A. Manufacturers of Rubber Wall Base:
  - a. Johnson Rubber Co., Inc. Johnsonite
- B. Rubber Wall Base: (Vinyl shown on Finish Schedule) Provide rubber base complying with FS SS-W-40, Type I, with matching end stops. Field form inside and outside corners as recommended by manufacturer.
  - a. Height: 4"
  - b. Thickness: 1/8"
  - c. Style: Standard top-set cove.
  - d. 100 ft. rolls
- C. Resilient Edge Strips: 1/8" thick, homogeneous vinyl or rubber composition, tapered or bullnose edge, color to match flooring, or as selected by Architect from standard colors available, not less than 1" wide.
- D. Adhesives (Cements): Waterproof, stabilized type as recommended by flooring manufacturer to suit material and substrate conditions.

#### **09 65 13.26 RESILIENT CARPET TRANSITIONS**

- A. Manufacturers of Rubber Transition profiles:
  - a. Johnson Rubber Co., Inc. Johnsonite
- B. Rubber Transition strips: (Vinyl shown on Finish Schedule) Provide rubber profile complying with FS SS-W-40, Type I.
  - a. Profiles as indicated on drawings or as necessary to smoothly and with a profile as low as possible transition between floor finishes indicated.
- C. To be homogeneous vinyl or rubber composition with tapered edges, color to be selected by Architect from standard colors available.
- D. Adhesives (Cements): Waterproof, stabilized type as recommended by manufacturer to suit material and substrate conditions.

### **09 65 16 RESILIENT SHEET FLOORING**

- A. Manufacturers of Filled Vinyl sheet without Backing:

- a. Mannington
- b. Metroflor Corp. - Norwalk, CT.
- B. Filled vinyl sheet products are those with a vinyl plastic wearlayer complying with descriptive requirements of FSL-F-475 for wearing surface.
- C. Filled Vinyl Sheet without Backing: Provide non-layered filled vinyl with pattern and color extending through its full thickness and complying with the following requirements:
  - a. Mannington: "Life Lines"
  - b. Metroflor "Technoflor"
- D. Federal Standard: Comply with FS L-F-475, Type II, Grade A requirements except for overall thickness, backing and dimensional stability requirements.
- E. Static Load Limit: 100 psi minimum as recommended by manufacturer.
- F. Thickness: 0.082" nominal.
- G. Sheet Width: Provide maximum available to minimize or eliminate seams; 6'-0" minimum.

## **09 65 19 RESILIENT TILE FLOORING**

### 2.1 ACCEPTABLE MANUFACTURERS

- A. Manufacturer of Vinyl Composition Tile:
  - 1. Armstrong - World Industries, Landcaster, PA
  - 2. Centiva by International Floors of America, Inc. - Florence, AL

### 2.2 RESILIENT FLOORING COLORS AND PATTERNS

- A. Provide colors and patterns as indicated, or if not otherwise indicated, as selected by Architect from manufacturer's standards.

### 2.3 TILE FLOORING

- A. Vinyl Composition Tile: FS SS-T-312B, Type IV; 12" x 12" unless otherwise indicated, and as follows:
  - 1. Armstrong - "Imperial Textured Standard Excelon"
  - 2. Centiva - "River Rock"
- B. Design Requirements:
  - 1. Composition 1 - asbestos-free.
  - 2. Thickness: 1/8"
  - 3. 20% of flooring may be in accent colors in patterns as determined by Architect.

### 2.4 ACCESSORIES

- A. Concrete Slab Primer: Non-staining type as recommended by flooring manufacturer.
- B. Leveling and Patching Compounds: Latex type as recommended by flooring manufacturer.
- C. Adhesives (Cements): Waterproof, stabilized type as recommended by flooring manufacturer to suit material and substrate conditions.

**09 65 20 SOLID VINYL PLANK FLOORING**

## A. ACCEPTABLE MANUFACTURES:

1. Armstrong
2. Mannington
3. Trafficmaster

## B. SOLID VINYL PLANK COLOR &amp; PATTERN:

Basis of design Armstrong natural creations luxury solid vinyl flooring.

1. Thickness: 0.125"
2. Size: 4" X 36"
3. 20% of flooring may be in accent colors and patterns as determined by architect.

**PART 3 - EXECUTION**

## 3.1 INSPECTION

- A. Require Installer to inspect subfloor surfaces to determine that they are satisfactory. A satisfactory subfloor surface is defined as one that is smooth and free from cracks, holes, ridges, coatings preventing adhesive bond, and other defects impairing performance or appearance.
- B. Perform bond and moisture tests on concrete subfloors to determine if surfaces are sufficiently cured and dry as well as to ascertain presence of curing compounds.
- C. Do not allow resilient flooring work to proceed until subfloor surfaces are satisfactory.

## 3.2 PREPARATION

- A. Prepare subfloor surfaces as follows:
  1. Use leveling and patching compounds as recommended by resilient flooring manufacturer for filling small cracks, holes and depressions in subfloors.
  2. Remove coatings from subfloor surfaces that would prevent adhesive bond, including curing compounds incompatible with resilient flooring adhesives, paint, oils, waxes and sealers.
- B. Broom clean or vacuum surfaces to be covered, and inspect subfloor.
- C. Apply concrete slab primer, if recommended by flooring manufacturer, prior to application of adhesive. Apply in compliance with manufacturer's directions.

## 3.3 INSTALLATION, GENERAL

- A. Install resilient flooring using method indicated in strict compliance with manufacturer's printed instructions. Extend resilient flooring into toe spaces, door reveals, and into closets and similar openings.
- B. Scribe, cut, and fit resilient flooring to permanent fixtures, built-in furniture and cabinets, pipes, outlets and permanent columns, walls and partitions.
- C. Maintain reference markers, holes, or openings that are in place or plainly marked for future cutting by repeating on finish flooring as marked on subfloor. Use chalk or other non-permanent marking device.
- D. Tightly cement resilient flooring to subbase without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections. Hand roll resilient flooring at perimeter of each covered area to assure adhesion.

### 3.4 INSTALLATION OF TILE FLOORS

- A. Lay tile from center marks established with principal walls, discounting minor offsets, so that tile at opposite edges of room are of equal width. Adjust as necessary to avoid use of cut widths less than 1/2 tile at room perimeters. Lay tile square to room axis, unless otherwise shown.
- B. Match tiles for color and pattern by using tile from cartons in same sequence as manufactured and packaged if so numbered. Cut tile neatly around all fixtures. Broken, cracked, chipped or deformed tiles are not acceptable.
  - 1. Lay tile grain orientation in accordance with Architect's direction at time of color selection.
- C. Adhere tile flooring to substrates using full spread of adhesive applied in compliance with flooring manufacturer's directions.

### 3.5 INSTALLATION OF SHEET FLOORING

- A. Lay sheet flooring to provide as few seams as possible with economical use of materials. Match edges for color shading and pattern at seams in compliance with manufacturer's recommendations.
- B. Adhere sheet flooring to substrates using method approved by flooring manufacturer for type of sheet flooring and substrate condition indicated.
  - 1. Use conventional full spread adhesive method unless otherwise indicated.
  - 2. Use conventional perimeter bonding adhesive procedures where recommended by flooring manufacturer.
  - 3. Use special perimeter bonding adhesive for unfilled vinyl sheet with vinyl backing.
- C. Prepare seams in vinyl sheet flooring in accordance with the manufacturer's instructions for most inconspicuous appearance, sealing continuously with fluid-applied sealant or adhesive as standard with manufacturer.
- D. Provide integral flash cove base where shown on drawings, including cove support strip and metal top edge strip. Construct coved base in accordance with manufacturer's instructions.

### 3.6 INSTALLATION OF ACCESSORIES

- A. Apply wall base to walls, columns, pilasters, casework and other permanent fixtures in rooms or areas where base is required. Install base in lengths as long as practicable, with preformed corner units, or fabricated from base materials with mitered or coped inside corners. Tightly bond base to substrate throughout length of each piece, with continuous contact at horizontal and vertical surfaces.
- B. Place resilient edge strips tightly butted to flooring and secure with adhesive. Install edging strips at edges of flooring which would otherwise be exposed.
- C. Apply resilient accessories at stair as indicated and in strict accordance with manufacturer's installation instructions.

### 3.7 CLEANING AND PROTECTION

- A. Perform following operations immediately upon completion of resilient flooring:
  - 1. Sweep or vacuum floor thoroughly.
  - 2. Do not wash floor until time period recommended by resilient flooring manufacturer has elapsed to allow resilient flooring to become well-sealed in adhesive.
  - 3. Damp-mop floor being careful to remove black marks and excessive soil.
  - 4. Remove any excess adhesive or other surface blemishes, using appropriate

cleaner recommended by resilient flooring manufacturers.

- B. Protect flooring against damage during construction period to comply with resilient flooring manufacturer's directions.
- C. Clean resilient flooring not more than 4 days prior to date scheduled for inspections intended to establish date of substantial completion in each area of project. Clean resilient flooring by method recommended by resilient flooring manufacturer.

END OF SECTION 09 65 00
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## SECTION 09 68 00 - CARPETING

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all carpeting as specified herein.

#### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of carpet material and installation accessory required. Submit written data on physical characteristics, durability, resistance to fading, and flame resistance characteristics.
- C. Shop drawings showing layout and seaming diagrams. Indicate pile or pattern direction and locations and types of edge strips. Indicate columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet. Show installation details at special conditions.
- D. Samples for verification purposes in manufacturer's standard size showing full range of color, texture, and pattern variations expected. Prepare samples from same material to be used for the Work. Submit the following:
  - 1. 12 inch-square samples of each type of carpet material required.
  - 2. 12-inch-long samples of each type of exposed edge stripping and accessory item.

#### 1.4 QUALITY ASSURANCE

- A. Carpet Surface Burning Characteristics: Provide carpet identical to that tested for fire performance characteristics per required test methods, by UL or other testing and inspection organizations acceptable to authorities having jurisdiction. Identify carpet with appropriate markings of applicable testing and inspection organization.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to project in original factory wrappings and containers, labeled with identification of manufacturer, brand name, and lot number. It is the responsibility of the contractor to inspect goods immediately and notify the Owner of any damage, defects or quantities less than ordered.
- B. Store materials in original undamaged packages and containers, inside well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity. Lay flat, blocked off ground. Maintain minimum temperature of 68 deg F (20 deg C) at least three days prior to and during installation in area where materials are stored.

#### 1.6 PROJECT CONDITIONS

- A. Substrate Conditions: pH of 9 or less when substrate wetted with potable water and pHydriion paper applied.

#### 1.7 EXTRA MATERIALS

- A. Usable pieces of carpet left over from installation are property of Owner. Roll neatly and store with other materials in accordance with Specification Section 00 78 00; remove scraps and trimmings from site.

## PART 2 - PRODUCTS

### **09 68 16 SHEET CARPETING**

#### 2.1 MANUFACTURERS

- A. Material
  - 1. Carpet in selected areas to be manufactured by Dunbar Cullum Carpets:
    - a. Colors and style to be selected. Inlaid carpet areas only.

#### 2.2 PERFORMANCE

- A. Static: 3.0 kv when tested under the Standard Shuffle Test (7F-20% R.H.)(21 C-20% R.H.)
- B. Flammability:
  - 1. Class 1: 0.45 W/cm<sup>2</sup> or greater, per Florida Building Code Section 804.2.
  - 2. Shall comply with: DOC FF-1 "pill test" (CPSC 16 CFR, Part 1630).
  - 3. Smoke Generation: Not more than 450 per ASTM E 662 and per ASTM E 84.

#### 2.3 WARRANTIES

- Unibond Warranty: Lifetime of Carpet.
- Wear: Lifetime of Carpet. No more than 10% face yarn loss by weight in normal use.
- Static: Lifetime of Carpet.
- Edge Ravel: Lifetime of Carpet. Guaranteed no edge ravel in normal use (no seam sealers required).
- Delamination: Lifetime of Carpet. Guaranteed no delamination in normal use (no chair pads required).
- Tuft Bind: Lifetime of Carpet. Guaranteed 20 lbs. average tuft bind, wet or dry, as tested in accordance with ASTM D-1335-67.
- A. Adhesives to be Burlington Unibond Carpet Adhesive
- B. Vinyl carpet mouldings to be manufactured by Mercer Products Company, Inc. and of the shape necessary to complete the job. Shapes to be noted on submittal drawings. Colors to be selected by the Architect.

#### 2.4 ACCESSORIES

- A. Carpet Edge Guard: Extruded or molded heavy-duty vinyl or rubber of size and profile indicated; minimum 2-inch-wide anchorage flange; manufacturer's standard colors.
- B. Seaming Cement: Hot-melt adhesive tape or similar product recommended by carpet manufacturer for taping seams and butting cut edges at backing to form secure seams and to prevent pile loss at seams.
- C. Carpet Adhesive: Water resistant and nonstaining as recommended by carpet manufacturer to comply with flammability requirements for installed carpet.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Clear away debris and scrape up cementitious deposits from concrete surfaces to receive carpet; apply sealer to prevent dusting.

### 3.2 INSTALLATION

- A. Comply with manufacturer's recommendations for seam locations and direction of carpet; maintain uniformity of carpet direction and lay of pile. At doorways, center seams under door in closed position; do not place seams perpendicular to door frame, in direction of traffic through doorway. Do not bridge building expansion joints with continuous carpet.
- B. Extend carpet under removable flanges and furnishings and into alcoves and closets of each space.
- C. Provide cutouts where required, and bind cut edges where not concealed by protective edge guards or overlapping flanges.
- D. Install carpet edge guard where edge of carpet is exposed; anchor guards to substrate.
- E. Install with pattern parallel to walls and borders.
- F. Install carpet by trimming edges, butting cuts with seaming cement, and taping and/or sewing seams to provide sufficient strength for stretching and continued stresses during life of carpet.
- G. Fit sections of carpet prior to application of adhesive. Trim edges and butt cuts with seaming cement.
- H. Apply adhesive uniformly to substrate in accordance with manufacturer's instructions. Butt edges tight to form seams without gaps. Roll entire area lightly to eliminate air pockets and ensure uniform bond.

### 3.3 CLEANING

- A. Remove adhesive from carpet surface with manufacturer's recommended cleaning agent.
- B. Remove and dispose of debris and unusable scraps. Vacuum with commercial machine with face-beater element. Remove soil. Replace carpet where soil cannot be removed. Remove protruding face yarn.
- C. Vacuum carpet.

### 3.4 PROTECTION

- A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and installer, to ensure carpet is not damaged or deteriorated at time of Substantial Completion.

END OF SECTION 09 68 00
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## SECTION 09 72 00 - WALL COVERINGS

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to install all Vinyl Wall Covering and Vinyl Boarder as specified herein.

#### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Product data for each type of wallcovering material specified:
  - 1. Include technical information, installation instructions for each type of substrate and maintenance instructions.
  - 2. Include data on physical characteristics, durability, fade resistance and flame resistance characteristics and VOC content.
  - 3. Include manufacturer's recommendations for maximum permissible moisture content of substrates.
- C. Samples for initial color selection in the form of manufacturer's standard samples no less than 8 by 10 inches showing full range of colors, textures and patterns available for each wallcovering type specified.
  - 1. Full width sample of each wallcovering required at final selection, not less than 36 inches long, showing complete pattern.
- D. Product certificates signed by manufacturers of wallcoverings certifying that materials furnished comply with specified requirements.
  - 1. Include certified test reports evidencing compliance with requirements for fire performance characteristics and physical properties indicated.
  - 2. Include manufacturer's certification stating that vinyl wallcovering material complies with "Use of Materials Bulletin UM-44C" published by the U.S. Department of Housing and Urban Development (HUD), is currently listed in the HUD "Certificate Products Directory" and is identified by an imprint on the back of the wallcovering.

#### 1.4 QUALITY ASSURANCE

- A. **No vinyl wall coverings shall be installed on exterior walls** without specific written approval. Applying this non-breathing material will create a vapor barrier trapping moisture within the wall cavity and will cause material failure.
- B. Installer Qualifications: Engage an experienced Installer who has specialized in the installation of wallcoverings similar to that required for this project.
- C. Manufacturer Qualifications: Provide each type of wallcovering produced by a single manufacturer with not less than 3 years production experience, whose published product literature clearly indicates compliance of wallcoverings with requirements indicated.
- D. Fire Performance Characteristics: Provide wallcovering materials that have been

tested and bear the UL label and marking, indicating the following fire performance characteristics:

1. Surface Burning Characteristics: Class "A" Fire Rated in accordance with ASTM E 84.
  2. Must conform to FL building code section 803.6.2 which requires performance in accordance with Method B protocol of NFPA 255.
    - a. Flame spread: Not more than 25.
    - b. Smoke developed: Not more than 50.
- E. Physical Properties:
1. Vinyl Wallcoverings: Provide vinyl wallcoverings with the following physical properties:
    - a. Adhesion of Vinyl Film: For Types II and III wallcoverings minimum 3lbs. per sq. inch when tested in accordance with ASTM D 751.
    - b. All wallcoverings scheduled for exterior walls shall have pin-hole perforating treatment.
- F. Provide maintenance data consisting of manufacturer's printed instructions for maintenance of each type of wallcovering in the Operating and Maintenance Manual specified in Division 1.
1. Include methods and frequency recommended for maintaining optimum condition under anticipated use conditions.
  2. Include precautions for use of cleaning materials and methods which could be detrimental to finishes and performance or might damage wallcovering material.

#### 1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to project in original factory packages or containers, clearly labeled to identify manufacturer, brand name, lot number, quality or grade, and fire hazard classification. It is the contractor's responsibility to inspect goods immediately and notify the Owner of any damage, defects or quantities less than ordered.
- B. Store materials inside in original undamaged packaging, in a well-ventilated area protected from weather, moisture, soiling, extreme temperatures and humidity. Do not store rolled goods upright; lay flat, blocked off the ground to prevent sagging and warping. Maintain temperature in storage area above 40 deg F (4 deg C).
- C. Comply with recommendations of the manufacturer for special delivery, storage and handling requirements.

#### 1.6 PROJECT CONDITIONS

- A. Maintain a constant minimum temperature of 60 deg F (16 deg C) in installation areas for at least 10 days before and 10 days after application of materials.
- B. Wallcoverings shall not be installed until after the building is dried out and moisture in gypsum board is totally evaporated.
- C. Illuminate installation areas using the building's permanent lighting system; temporary lighting alone will not be acceptable.

#### 1.7 SEQUENCING AND SCHEDULING

- A. Schedule installation with other construction activities to minimize the possibility of damage and soiling during the remainder of the construction period.

#### 1.8 MAINTENANCE

- A. Excess Materials: After completion of work, deliver to the Owners excess wall covering material of each wallcovering type, and of each color and pattern installed in

accordance with Specification Section 00 78 46.

## PART 2 - PRODUCTS

### **09 72 16 VINYL COATED FABRIC WALL COVERINGS**

#### 2.1 ACCESSORY ITEMS

- A. Adhesives: Provide manufacturer's recommended adhesive, primer, and sealer, produced expressly for use with selected wallcovering on substrate as shown on drawings. Provide materials which are mildew-resistant and nonstaining to wallcovering.
- B. Release Coat: Provide sealer or undercoat for new gypsum wallboard substrates as recommended by wallcovering manufacturer.
  - 1. Provide undercoat for previously painted gypsum wallboard and other substrates as recommended by wallcovering manufacturer.
- C. Lining Paper: Provide paper lining material expressly designed for underlayment of wallcovering and recommended by manufacturer for application indicated.

## PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine the substrates scheduled to receive wallcoverings for compliance with requirements and conditions affecting performance of wallcovering work.
- B. Make certain that wall surfaces are free from defects and imperfections that could show through the finished surface.
- C. Do not install wall coverings over oil-based wood stains or felt-tip pen markings.
- D. Check painted surfaces for possibility of pigment bleed-through.
- E. Do not proceed until unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Acclimatize wallcovering materials by removing them from packaging in the installation area not less than 24 hours before application.
- B. Remove switch plates, wall plates, and surface-mounted fixtures in areas where wallcovering is to be applied. Upon completion of wallcovering installation in each space or area, reinstall items removed.
- C. Prime and seal substrates in accordance with the wallcovering manufacturer's recommendations for type of substrate. Apply a surface sealer to gypsum board which will permit subsequent removal of wallcovering without damage to paper facing.
- D. Test substrate with electronic moisture meter to verify that surfaces to be covered do not exceed moisture content permitted by the manufacturer.

#### 3.3 INSTALLATION

- A. Follow Manufacturer's written installation instructions.
- B. Verify that colors and patterns of wall coverings are those specified before beginning installation.
- C. Vinyl Wallcovering: Place panels consecutively in the order cut from rolls, including filling spaces above or below openings. Hang by reversing alternate strips except on match patterns.
  - 1. Apply adhesive to the back of the wall covering and place in accordance with the manufacturer's instructions.
  - 2. Seams: Install seams plumb and at least 6 inches away from corners.

Horizontal seams will not be permitted. Overlap seams and double-cut to assure tight closure.

3. Roll, brush or use a broad knife to remove air bubbles, wrinkles, blisters, and other defects. Cut wall covering evenly to the edges of wall penetrations.
4. Trim salvages as required to assure color uniformity and pattern match.

#### 3.4 CLEANING

- A. Vinyl Wallcovering: Remove excess adhesive along finished seams and perimeter edges while still wet using warm water and a clean sponge; wipe dry.
- B. Remove surplus materials, rubbish, and debris resulting from wall covering installation upon completion of work, and leave areas of installation in neat, clean condition.

#### 3.5 PROTECTION

- A. Provide protective methods and materials needed to ensure that wallcoverings will be without deterioration or damage at time of substantial completion.

END OF SECTION 09 72 00
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## SECTION 09 99 00 - PAINTING AND COATING

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to this section.

#### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary for surface preparation, painting, and finishing of exposed interior and exterior items and surfaces.
  - 1. Surface preparation, priming, and finish coats specified in this section are in addition to shop priming and surface treatment specified under other sections.
  - 2. Painting includes back priming all exterior standing and running wood trim including but not limited to fascias, soffit assemblies and coping.
  - 3. Sealing of all concrete floors where carpet finish is scheduled.
- B. Paint exposed surfaces whether or not colors are designated in "schedules," except where a surface or material is specifically indicated not to be painted or is to remain natural. Where an item or surface is not specifically mentioned, paint the same as similar adjacent materials or surfaces. If color or finish is not designated, the Architect will select from standard colors or finishes available.
  - 1. Painting includes field painting exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment.
- C. Painting is not required on prefinished items, finished metal surfaces, concealed surfaces, operating parts, and labels.
  - 1. Prefinished items not to be painted include the following factory-finished components:
    - a. Acoustic materials.
    - b. Finished mechanical and electrical equipment.
    - c. Light fixtures.
    - d. Switchgear.
  - 2. Concealed surfaces not to be painted include wall or ceiling surfaces in the following generally inaccessible areas:
    - a. Furred areas.
  - 3. Finished metal surfaces not to be painted include:
    - a. Anodized aluminum.
    - b. Stainless steel.
    - c. Chromium plate.
    - d. Bronze.
    - e. Brass.
  - 4. Operating parts not to be painted include moving parts of operating equipment such as the following:
    - a. Valve and damper operators.
    - b. Linkages.
    - c. Sensing and detecting devices.

- d. Motor and fan shafts.
5. Labels: Do not paint over Underwriter's Laboratories, Factory Mutual or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

**D. Firewall and Smoke Barrier Location Labeling.**

**1.3 RELATED SECTIONS**

- A. Related Sections: The following sections contain requirements that relate to this section:
1. Division 5 Section "Structural Steel" for shop priming structural steel.
  2. Division 5 Section "Metal Fabrications" for shop priming ferrous metal.
  3. Division 8 Section "Steel Doors and Frames: for shop priming steel doors and frames.
  3. Division 9 Section "Gypsum Board" for fire and smoke wall labeling requirements.
  4. Division 9 Section "Wall Coverings" for substrate sealer under wall coverings.

**1.4 SUBMITTALS**

- A. General: Submit the following in accordance with the Conditions of Contract and Division 1 Specifications Sections.
- B. Product Data: Manufacturer's technical information, label analysis, and application instructions for each material proposed for use.
1. List each material and cross-reference the specific coating and finish system and application. Identify each material by the manufacturer's catalog number and general classification.
- C. Samples for initial color selection in the form of manufacturer's color charts.
1. After color selection, the Architect will furnish color chips for surfaces to be coated.
- D. Mock-up for verification purposes: Provide samples of each color to be applied, on representative samples of the actual substrate. Define each separate coat, including primers.
1. Submit samples on proposed substrates for Architect's review of color and texture.
  2. A maximum of four (4) different colors may be used in each room or space.  
A maximum of sixteen (16) different colors may be used for the entire project.

**1.5 QUALITY ASSURANCE**

- A. Single-Source Responsibility: Provide primers and undercoat paint produced by the same manufacturer as the finish coats.
- B. Coordination of Work: Review other sections in which primers are provided to ensure compatibility of the total systems for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
1. Notify the Architect of problems anticipated using the materials specified.
- C. Material Quality: Provide the manufacturer's best quality trade sale paint material of the various coating types specified. Paint material containers not displaying manufacturer's product identification will not be acceptable.
1. Proprietary names used to designate colors or materials are not intended to imply that products named are required or to exclude equal products of other manufacturers.
  2. Products that comply with qualitative requirements of applicable Federal

Specifications, yet differ in quantitative requirements, may be considered for use when acceptable to the Architect. Furnish material data and manufacturer's certificate of performance to Architect for proposed substitutions.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the job site in the manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:
  - 1. Product name or title of material.
  - 2. Product description (generic classification or binder type).
  - 3. Federal Specification number, if applicable.
  - 4. Manufacturer's stock number and date of manufacture.
  - 5. Contents by volume, for pigment and vehicle constituents.
  - 6. Thinning instructions.
  - 7. Application instructions.
  - 8. Color name and number.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F (7 deg C). Maintain containers used in storage in a clean condition, free of foreign materials and residue.
  - 1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

#### 1.7 JOB CONDITIONS

- A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 deg F (10 deg C) and 90 deg F (32 deg C).
- B. Apply solvent thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 deg F (7 deg C) and 95 deg F (35 deg C).
- C. Do not apply paint in snow, rain, fog, or mist, when the 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. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by the manufacturer during application and drying periods.

## PART 2 - PRODUCTS

### **09 91 13 EXTERIOR PAINTING**

#### 2.1 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
  - 1. ICI Paints (ICI). (Used in Finish Schedule).
  - 2. The Glidden Company (Glidden).
  - 3. Devoe and Reynolds Co. (Devoe).
  - 4. PPG Industries, Pittsburgh Paints (Pittsburgh).
  - 5. Pratt and Lambert, (P & L)
  - 6. The Sherwin-Williams Company (S-W).

B. EXTERIOR FINISH SCHEDULE	Finish Coating	
Reflectants	Gloss	Meter
<u>Metal (Shop Primed)</u>		
1 coat 4130 Devshield Rust Penetrating Metal Primer	81%+	
2 coats 877 Devshield Silicone Alkid Enamel		
<u>Aluminum</u>		
Pretreat per manufacturer's instructions	10-15%	
1 coat 4020 DevFlex WB Primer		
2 coats 4216 DevFlex HP Acrylic Enamel		
<u>Metal (Ferrous)</u>		
1 coat 4130 Devshield Rust Penetrating Metal Primer	81%	
2 coats 877 Devshield Silicone Alkid Enamel		
<u>Wood Trim</u>		
1 coat 3210 "Gripper" Primer/Sealer	10-15%	
2 coats 2402 Dulex Ext. Satin Acrylic		
<u>Cement, Concrete or Stucco (smooth) not having integral color</u>		
1 coat 300 Bond Prep Masonry Condition	0%	
1 coat Decra-Shield Acrylic Flat Finish		
<u>Cement and Cinder Block or Stucco (textured) not having integral color</u>		
1 coat 4000 Acrylic Block Fill	0%	
1 coat DS87 Decra-Shield Acrylic Flat Finish		
<u>Poured &amp; Precast Concrete</u>		
1 coat 4130 Devshield Rust Penetrating Metal Primer	0%	
1 coat DS87 Decra-Shield Acrylic Flat Finish		

**09 91 16 INTERIOR PAINTING**

A. INTERIOR FINISH SCHEDULE	Finish Coating	
Reflectants	Gloss	Meter
<u>Metal (Shop Primed)</u>		
1 coat 4120 DevGuard Metal and Galvanized Primer	81%+	
1 coat 379 Devthane Urethan Enamel		
<u>Metal (Galvanized)</u>		
1 coat 4120 DevGuard Metal and Galvanized Primer	0-5%	
2 coats 4216 DevFlex HP Acrylic Enamel		
<u>Concrete Block</u>		
1 coat 4000 Acrylic Block Filler	0-5%	

2 coats 4216 DevFlex HP Acrylic Enamel

Plaster & Drywall

1 coat 1030 Ultrahide PVA Primer 15-20%

2 coats LM9300 Lifemaster 200 Interior Eggshell

Wood (Trim Painted) (Doors Painted)

1 coat 1020 UH Interior Acrylic Primer/Sealer 10-15%

2 coats 4216 DevFlex HP Acrylic Enamel

Wood (Doors, Trim and Handrails Stained)

1 coat 1700 Woodpride Stain 40-55%

2 coats 1916 Woodpride QD Sanding Sealer and  
1902 Woodpride Satin varnish

Epoxy Paint

2 coats 379 Devthane 81%

Textured Ceilings

1 coat 1030 Ultrahide PVA Primer

1 coat 1210 UH Latex Flat

Concrete Floor Sealer

3708 Groundworks Clear

**09 97 23 CONCRETE COATING**

2.2 PREPARATION

A. Seal Concrete subfloor in all locations designated to have carpeting applied as the floor finish.

1. Scrape and clean all concrete subfloors to have sealer applied of all contaminants and debris.
2. Apply according to manufacturer's recommendations.
3. Follow manufacturer's guidelines for drying time according to climatic conditions.

2.3 MANUFACTURERS

A. SHAW 9000 Floorshield Adhesive Sealer.

1. or approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions under which painting will be performed for compliance with requirements for application of paint. Do not begin paint application until unsatisfactory conditions have been corrected.

1. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.

3.2 PREPARATION

A. General Procedures: Remove hardware and hardware accessories, plates, machined

surfaces, lighting fixtures, and similar items in place that are not to be painted, or provide surface-applied protection prior to surface preparation and painting. Remove these items if necessary for complete painting of the items and adjacent surfaces. Following completion of painting operations in each space or area, have items reinstalled by workers skilled in the trades involved.

1. Clean surfaces before applying paint or surface treatments. Remove oil and grease prior to cleaning. Schedule cleaning and painting so that dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- B. Surface Preparation: Clean and prepare surfaces to be painted in accordance with the manufacturer's instructions for each particular substrate condition and as specified.
1. Provide barrier coats over incompatible primers or remove and re-prime. Notify Architect in writing of problems anticipated with using the specified finish-coat material with substrates primed by others.
  2. Cementitious Materials: Prepare concrete, concrete masonry, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
    - a. Use abrasive blast-cleaning methods if recommended by the paint manufacturer.
    - b. Determine alkalinity and moisture content of surfaces by performing appropriate test. If surfaces are sufficiently alkaline to cause blistering and burning of finish paint, correct these conditions before application. Do not paint surfaces where moisture content exceeds that permitted in manufacturer's printed directions.
  3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
    - a. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer before application of primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
    - b. Prime, stain, or seal wood to be painted immediately upon delivery. Prime edges, ends, faces, undersides, and backsides of wood, including cabinets, counters, cases, and paneling.
    - c. When transparent finish is required, backprime with spar varnish.
    - d. Backprime wood trim on interior partitions and exterior fascias and trim where masonry, plaster, or other wet wall construction occurs on backside.
    - e. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately upon delivery.
  4. Ferrous Metals: Clean nongalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with recommendations of the Steel Structures Painting Council.
    - a. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by the paint manufacturer, and touch up with the same primer as the shop coat.

5. Galvanized Surfaces: Clean galvanized surfaces with non-petroleum-based solvents so that the surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
- C. Materials Preparation: Carefully mix and prepare paint materials in accordance with manufacturer's directions.
  1. Maintain containers used in mixing and application of paint in a clean condition, free of foreign materials and residue.
  2. Stir material before application to produce a mixture of uniform density; stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.
  3. Use only thinners approved by the paint manufacturer, and only within recommended limits.
- D. Tinting: Tint each undercoat a lighter shade to facilitate identification of each coat where multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

### 3.3 APPLICATION

- A. Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.
- B. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
  1. Paint colors, surface treatments, and finishes are indicated in "schedules."
  2. Provide finish coats that are compatible with primers used.
  3. The number of coats and film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. Sand between applications where sanding is required to produce an even smooth surface in accordance with the manufacturer's directions.
  4. Apply additional coats when undercoats, stains, or other conditions show through final coat of paint until paint film is of uniform finish, color, and appearance. Give special attention to ensure that surfaces, including edges, corners, crevices, welds, and exposed fasteners, receive a dry film thickness equivalent to that of flat surfaces.
  5. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convactor covers, covers for finned tube radiation, grilles, and similar components are in place. Extend coatings in these areas as required to maintain the system integrity and provide desired protection.
  6. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment or furniture with prime coat only before final installation of equipment.
  7. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, nonspecular black paint.
  8. Finish exterior doors on tops, bottoms, and side edges same as exterior faces.
  9. Sand lightly between each succeeding enamel or varnish coat.
  10. Omit primer on metal surfaces that have been shop-primed and touch up painted.
- C. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or



otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

1. Allow sufficient time between successive coats to permit proper drying. Do not recoat until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure and where application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.
- D. Minimum Coating Thickness: Apply materials at not less than the manufacturer's recommended spreading rate. Provide a total dry film thickness of the entire system as recommended by the manufacturer.
- E. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.
- F. Prime Coats: Before application of finish coats, apply a prime coat of material as recommended by the manufacturer to material that is required to be painted or finished and has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, this in order to assure a finish coat with no burn through or other defects due to insufficient sealing.
- G. Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling such as laps, irregularity in texture, skid marks, or other surface imperfections.
- H. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- I. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not in compliance with specified requirements.

### 3.4 CONCRETE SEALER

- A. Apply specified concrete sealer per manufacturer's recommendations in all locations where carpet is the specified flooring finish.

### 3.5 SPECIAL APPLICATIONS

- A. Firewall and Smoke Barrier Locations Labeling
  1. All firewalls/smoke barrier walls must be identified as to their designed capacity rating using 3" high lettering stencil above ceiling level. Using highly visible red or orange paint, in a bold, clear font so as to be readily comprehensible from a distance of 50 feet, spaced approximately 25 feet apart and centered vertically between ceiling and roof deck (adjust as required to maintain visibility around obstructions such as mechanical ductwork, etc.). Labeling shall be placed above ceilings on both sides of partitions on all segments of partitions. A vertical line shall be painted where walls change direction, on the opposite side of wall where direction changes occur, but is not apparent. The wording shall be as follows for each type of wall encountered. Not all types of walls listed will necessarily apply to this project, nor is the following meant to be an exhaustive list of wall possibilities. See Life Safety Plan (if not annotated on Life Safety Plan, coordinate with Architect) for type and location of all fire/smoke sensitive wall construction locations.

## **1 HOUR FIRE - SMOKE BARRIER PROTECT ALL OPENINGS**

-or-

**1 HOUR FIRE BARRIER  
PROTECT ALL OPENINGS**

-or-

**2 HOUR FIRE - SMOKE BARRIER  
PROTECT ALL OPENINGS**

-or-

**2 HOUR FIRE BARRIER  
PROTECT ALL OPENINGS**

-or-

**4 HOUR FIRE BARRIER  
PROTECT ALL OPENINGS**

3.4 CLEANING

- A. Cleanup: At the end of each work day, remove empty cans, rags, rubbish, and other discarded paint materials from the site.

3.5 PROTECTION

- A. Protect work of other trades, whether to be painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.
- B. Provide "wet paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.
  - 1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

END OF SECTION 09 99 00

## SECTION 10 14 00 - SIGNAGE

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- A. This section includes:
  - 1. 10 14 23 Panel Signage.

### **10 14 23 PANEL SIGNAGE**

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

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

##### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all signage indicated on drawings and specified herein:
  - 1. Including interior door signage.
  - 2. Including exterior door signage.

##### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with the Conditions of Contract and Division 1 Specifications Sections.
- B. Product Data: Include manufacturer's construction details relative to materials, dimensions of individual components, profiles, and finishes for each type of sign required.
- C. Samples: Provide samples of each sign component for initial selection of color, pattern and surface texture as required and for verification of compliance with requirements indicated.

##### 1.4 QUALITY ASSURANCE

- A. Single-Source Responsibility: For each separate type of sign required, obtain signs from one source from a single manufacturer.

#### PART 2 - MATERIALS

##### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products of one of the following:
  - 1. Exterior Signs: Provide material designed for exterior application and mounting:
    - a. Spanjer Brothers, Inc.
    - b. The Supersine Company.
    - c. A.R.K. Ramos
    - d. or approved equal.
  - 2. Interior Signs:
    - a. APCO Graphics.
    - b. Architectural Graphics, Inc.
    - c. Best Manufacturing Co.
    - d. Mohawk Sign Systems.
    - e. or approved equal.

##### 2.2 MISCELLANEOUS ROOM SIGNS

- A. Sign shall be 2" high mounted using vinyl tape, factory applied at ends on doors, centered 5'-0" high.
- B. Room Name shall be applied to each room sign. Letterstyle shall be Helvetica Medium, 1" high, raised letters, chemically welded to acrylic background.
  - 1. All panel signage shall have ADA compliant Braille feature.
- C. Miscellaneous Room Sign Schedule:
  - 1. Contractor to verify quantities.
  - 2. Contractor to verify room names with owner.
  - 3. Contractor to coordinate room numbers to be included on signage, with owner.

Administrator	1	Cooler	1
Director Of Nursing	1	Assistant Director Nursing	1
Social Services	1	Admissions	1
Business Office	1	Work Room	1
Records	1	Visitor Lounge	1
Men	2	Women	2
Physical Therapy	1 + 2 Exterior	Treatment	2
Equipment Storage	5	Toilet (Unisex)	12
Janitor	7	Office/Speech Therapy	1
Multi Purpose/Activity	1	Private Dining/Conference	1
Wait Station Vestibule	3	Server	1
Telephone	1	Salon	1
Closet	9	Lobby	1
Resident Storage	2	Soiled Holding	2
Wash	2	Clean Linen/Dryers	2
Dryer Filter Access	1	Kitchen	1
Kitchen (Exit Only)	1	Kitchen ( In Only)	1
Soiled Dishes (In Only)	1	Dietitian	1
Dry Storage	1	Freezer	1
Lockers/Toilet Vestibule	1	Staff Lounge	1
Screened Porch	7	Dedicated Smoking Porch	4
Oxygen Storage	3	Water Storage/ Roof Access	1
Roof Access	2	Therapy Courtyard	1
Service Corridor	3	Housekeeping	1
Central Supply	1	Mechanical	1 Exterior
Admitting	1 + 1 Exterior	Deliveries	1 Exterior
Electrical	3 + 1 Exterior	Dumpsters	1 Exterior
Emergency Electrical	1 + Exterior	Emergency Generator	1 Exterior
Staff Only	5 + Exterior	Maintenance	1 Exterior
Activity Storage	4	Chiller Courtyard	1 Exterior
Spa	2	Clean Linen	8
Serenity Room	1	Soiled Utility	8
Med Prep	4	Clean Utility	4
Nourishment	4	Chiller Courtyard	1 Exterior
Stretcher / Wheelchair Storage	4	MDS/Social Services/ Activity Director	2

### 2.3 RESIDENT ROOM IDENTIFICATION SIGNS

1. Sign shall be mounted using vinyl tape, factory applied in strip form, on corridor wall 5'-0" high to center, 1'-0" to center from corner, at hinge side of door.
2. Room Numbers shall be applied to each identification sign. Each sign to name up to four numerals each. Letterstyle shall be Helvetica Medium, 2-1/2" high, raised letters, chemically welded to acrylic background, located top center. Provide two slide in type name slots per room sign.
3. See drawings for Resident Room Identification Sign detail.
4. All panel signage shall have ADA compliant Braille feature.

### 2.4 TOILET ROOM SIGNS

1. Signage shall be 9" x 9" mounted using vinyl tape, factory applied on sign, on doors, centered 5'-0" high.
2. Room name shall be the Men's or Women's symbol as created by the American Institute of Graphic Arts. The symbol shall be 6" high. The Room name shall be applied to each room sign. Letterstyle shall be Helvetica Medium, 1" high, raised letters, chemically welded to acrylic background.
3. Public toilets shall have universal symbol for handicap accessibility.
4. All panel signage shall have ADA compliant Braille feature.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. General: Locate sign units and accessories where indicated, using mounting methods of the type described and in compliance with the manufacturer's instructions:
- B. Install signs level, plumb, and at the height indicated, with sign surfaces free from distortion or other defects in appearance.
- C. Wall Mounted Panel Signs: Attach panel signs to wall surfaces using vinyl tape. Use double sided foam tape to mount signs to smooth, nonporous surfaces.
  1. Use mechanical mounting method for vinyl covered or rough surfaces.

### 3.2 CLEANING AND PROTECTION

- A. At completion of the installation, clean soiled sign surfaces in accordance with the manufacturer's instructions. Protect units from damage until acceptance by the Owner:

END OF SECTION 10 14 00
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## SECTION 10 21 00 - CUBICLES CURTAINS

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### 10 21 00 Cubicle Curtains

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

- A. Drawings and General Provisions of Contract, including General and Supplemental Conditions, and Division 1 Specification Section, apply to this Section.

##### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all Cubicle Curtain Tracks indicated on the drawings or specified herein.

##### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Product Data for each item specified, including details of construction relative to materials, dimensions, gages, profiles, method of mounting, specified options, and finishes.

#### PART 2 - PRODUCTS

##### 2.1 MATERIALS

- A. Curtain Tracks
  1. Shall be manufactured by Imperial Fastener Company, Pompano Beach, Florida. Track shall be surface mounted, 1-3/8" W x 3/4" deep standard track with rollers in quantity of 3.0 rollers per foot of track.
  2. Provide all supports, stops and accessories for complete installation. See plans for lay-out and locations.
  3. All curtains shall be furnished by others.
  4. Equivalent products manufactured by the following are acceptable: A.R. Nelson Co., Inc., Long Island City, New York, Capital Cubicle Co., Inc., Brooklyn, N.Y.

#### PART 3 - EXECUTION

##### 3.1 INSTALLATION

- A. Install cubical tracks to comply with manufacturer's instructions, at locations indicated. Position tracks level, plumb, secure, and at proper height and location relative to other related work. Securely anchor tracks with clips, brackets and anchorages suited to type of substrate.
- B. Protect installed units to ensure their being in operating condition, without damage, blemishes, or indication of use at substantial completion of project. Correct nonconforming damaged units. Replace units that cannot be field corrected.

END OF SECTION 10 21 00



## SECTION 10 26 00 - WALL AND DOOR PROTECTION

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### **10 26 13 CORNER GUARDS**

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

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

##### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all corner guards as specified herein.

##### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Product Data for each item specified, including details of construction relative to materials, dimensions, gages, profiles, method of mounting, specified options, and finishes.
- C. Submit manufacturer's full color selection on actual materials for fabrication for Architect's selection.

#### PART 2 - MATERIALS

##### 2.1 MATERIALS

- A. Stainless Steel Corner Guards (Designated S.S.C.G. on Plans).
  - 1. Shall be adhesive mount, 16 gauge, Type 430, stainless steel as manufactured by Wilkinson Chutes, Inc., Stow, Ohio.
    - a. Size: 2" x 2", WCG-1/8"C and WCG-1/8"CU as required.
    - b. Schedule: Main Bath Areas, Kitchen.
  - 2. Adhesive shall be manufactured by H.B. Fuller Company, Palatine, Illinois, or approved equal; or shall be as recommended and approved by corner guard manufacturer.

#### PART 3 - EXECUTION

##### 3.1 INSTALLATION

- A. Corner guards are indicated on plans, shall be installed full height from top of base to ceiling line, either for 90 degree or 45 degree corners as indicated on drawings.
- B. Corner guards indicated at handrails on plans, shall be installed from top of base to two (2") inches above bottom of handrail.
- C. The top and bottom caps shall be snapped on the continuous extruded aluminum retainer and fastened through the predrilled holes with proper fastening devices.
- D. Corner guards designed S.S.C.G. on plans shall be attached to the wall as recommended by manufacturer with bottom of corner guard at top of base to 6'-0" above finish floor or to top of ceramic tile finish.

## PART 4 - PROTECTION

4.1 Protect as necessary during final construction activities and move-in activities until Substantial Completion.

### **10 26 16.13 Protective Bumper Gards**

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

A. This section includes all labor, materials, equipment, and related services, necessary to furnish and install all vinyl handrails and wall protection as specified here-in.

### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Product Data for each item specified, including details of construction relative to materials, dimensions, gages, profiles, method of mounting, specified options, and finishes.
- C. Submit manufacturer's full color selection on actual materials for fabrication for Architect's selection.

## PART 2 - MATERIALS

### 2.1 MATERIALS

- A. Bed Bumper Rail shall be style 700 wall guard as manufactured by IPC Door and Wall Protection Systems, Muskego, Wisconsin. Bed bumper shall be 7-3/4" high, impact resistant, rigid vinyl covering, mounted to continuous aluminum retainer. Provide an end cap and splice accessories as well as continuous mounting retainer required for complete system.
- B. Architect shall select color from 50 manufacturer's standard colors.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. See plans for locations vinyl handrails. Wherever handrails are located bumper rails shall be installed below. Additional bumper rails are located thru-out building see drawings. Handrails and Bumper Rails shall be mounted to walls using manufacturers standard materials as required for each substrate encounter. Bed bumpers shall be mounted at height required to match bed selected by Owner. In side by side bed locations, the bumper shall be continuous across bed head wall inside corner to inside corner. On single bed locations, the bumper shall be six feet wide centered on bed location. Manufacturers written installation instructions shall be followed explicitly.
- B. Remove all debris from site, protect work during construction against damage. Final cleaning shall be in accordance with Specification Section 01 74 00.

## PART 4 - PROTECTION

4.1 Protect as necessary during final construction activities and move-in activities until Substantial Completion.

## **10 26 19 FIBER REINFORCED PLASTIC WALL PANELS**

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all Fiber Reinforced Wall Panels as specified herein.

#### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Product Data including details of construction relative to materials, dimensions, profiles, method of mounting, and finishes.
- C. Submit manufacturer's full color selection on actual materials for fabrication for Architect's selection.

#### 1.4 QUALITY ASSURANCE

- A. Single Source panels and associated trim from the same supplier and manufacturer for warranty and color consistency.

### PART 2 - MATERIALS

#### 2.1 MATERIALS

- A. Class III (C) Interior Finish. Wall panels shall be KEMLITE Glasbord with Surfaseal fiberglass reinforced plastic panels as manufactured by KEMLITE COMPANY, Joliet, Illinois; or approved equal.
  - 1. Embossed 0.12" (3.0mm Glasbord-PWI with Surfaseal) meeting the following criteria. Color to be selected by Architect.
    - a. Independent laboratory ASTM-E84 testing.
    - b. Class C Flame Spread of 200 or less, Smoke Developed of 450 or lower per ASTM E-84 latest version.
    - c. Barcol Hardness (scratch resistance per ASTM D-2583 of 55.
    - d. Panels will exhibit no more than a 0.038% weight loss after a 25-cycle Taber Abrasion Test.
    - e. Gardner Impact Strength of 16 in./lbs. (19 cm/kg) for Glasbord-P and Glasbord-CGI, and 18 in./lbs. (21 cm/kg) for Glasbord PSI per ASTM D-3029.
    - f. Meets USDA/FSIS Requirements.
    - g. ICBO Report Number 4583.
    - h. A means of frontside identification and confirmation of meeting Class III (C) interior finish requirements after installation and while in service (without labels) embossed panels only.
  - 2. Adhesive shall be manufactured by H.B. Fuller Company, Palatine, Illinois, or approved equal; or shall be as recommended and approved by FRP

manufacturer.

- B. Division Bars, Corner Trim: Panel manufacturer's standard length extruded vinyl pieces; longest length possible to eliminate end joints.
- C. Fasteners: DO NOT APPLY FRP PANELS USING FASTENERS. Panels to be applied using appropriate adhesive only; per manufacturer's recommendations.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Do all cutting with carbide tipped saw blades or drill bits, or cut with snips.
- B. Install panels with manufacturer's recommended gap for panel field and corner joints.
- C. For trowel type and application of adhesive, follow adhesive manufacturer's recommendation.
- D. Using products acceptable to manufacturer, install the FRP panel system in accordance with panel manufacturer's printed instructions, Installation Guide #6211.
- E. Remove any adhesive or excessive sealant from panel face using solvent or cleaner recommended by panel manufacturer.

### PART 4 - PROTECTION

- 4.1 Protect as necessary during final construction activities and move-in activities until Substantial Completion.

END OF SECTION 10 26 00
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## SECTION 10 28 00 - TOILET & BATH ACCESSORIES

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the following toilet accessory items:
  - 1. Toilet tissue dispenser.
  - 2. Grab bar.
  - 3. Shower curtain rod.
  - 4. Shower curtain and hooks.
  - 5. Towel bar.
  - 6. Mop and broom holder.
  - 7. Robe hook.
  - 8. Fold Down Shower Seat
- B. Mirror glass for frameless applications is specified in Division 8 Section "Glass and Glazing".

#### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Product Data for each toilet accessory item specified, including details of construction relative to materials, dimensions, gages, profiles, method of mounting, specified options, and finishes.
- C. Setting Drawings: Where cutouts are required in other work, provide templates, substrate preparation instructions, and directions for preparing cutouts and for installation of anchorage devices.
- D. Contractor to provide blocking as required for toilet accessories as needed or recommended by manufacturer.

#### 1.4 QUALITY ASSURANCE

- A. Inserts and Anchorages: Furnish inserts and anchoring devices that must be set in concrete or built into masonry; coordinate delivery with other work to avoid delay.

#### 1.5 PROJECT CONDITIONS

- A. Coordination: Coordinate accessory locations, installation, and sequencing with other work to avoid interference and to assure proper installation, operation, adjustment, cleaning, and servicing of toilet accessory items.

### PART 2 - PRODUCTS

#### 2.1 ACCEPTABLE MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide toilet accessories by one of the following:
  - 1. American Specialties, Inc.
  - 2. Bobrick Washroom Equipment, Inc.
  - 3. Bradley Corporation.

## 2.2 MATERIALS, GENERAL

- A. Stainless Steel: AISI Type 302/304, with polished No. 4 finish, 22-gage (.034-inch) minimum thickness, unless otherwise indicated.
- B. Brass: Leaded and unleaded, flat products, ASTM B 19; rods, shapes, forgings, and flat products with finished edges, ASTM B 16, Castings, ASTM B-30.
- C. Galvanized Steel Sheet: ASTM A 527, G60.
- D. Chromium Plating: Nickel and chromium electro-deposited on base metal, ASTM B 456, Type SC 2.
- E. Fasteners: Screws, bolts, and other devices of same material as accessory unit or of galvanized steel where concealed.
- F. Keys: Unless otherwise indicated, provide universal keys for access to toilet accessory units requiring internal access for servicing, resupply, etc. Provide minimum of six (6) keys to Owner's representative and obtain receipt.

## 2.3 PAPER TOWEL DISPENSERS

- A. By Owner

## 2.4 TOILET TISSUE DISPENSERS

- A. Recessed Roll Tissue Dispenser: Fabricate of chrome plated steel with satin finish for recessed mounting in nominal 4-inch wall depth. Provide complete with drywall mounting clamp.
  - 1. Size: Unit to accommodate core tissue to 5-inch diameter rolls.

## 2.5 GRAB BARS

- A. Stainless Steel Type: Provide grab bars with wall thickness not less than 18 gage (.050 inch) and as follows:
  - 1. Mounting: Concealed, manufacturer's standard flanges and anchorages.
  - 2. Clearance: 1-1/2 inches clearance between wall surface and inside face of bar.
  - 3. Gripping Surfaces: Manufacturer's standard nonslip texture.
  - 4. Heavy-Duty Size: Outside diameter of 1-1/2 inches.

## 2.6 SOAP DISPENSERS

- A. By Owner.

## 2.7 SHOWER AND BATH ACCESSORIES

- A. Shower Curtain Rod, Heavy-Duty: 1-1/4 inches O.D., 18-gage (.050-inch) stainless steel, satin finish; furnish with 3 inches O.D., minimum 20-gage stainless steel flanges with satin finish, designed for exposed fasteners.
- B. Antibacterial Shower Curtain: 10-ounce nylon-reinforced antibacterial vinyl fabric with hemmed edges. Fabric to be flameproof, stain resistant and self- deodorizing, with stainless steel grommets at minimum 6 inches on center; plus or minus 1 inch, through top hem. Furnish in white color unless otherwise indicated. Mount curtain with bottom 3/4" - 1/2" above floor.
- C. Shower Curtain Hooks: Stainless steel spring wire curtain hooks with snap fasteners, sized to accommodate curtain rod size specified above.
- D. Towel Bar: Satin-finished Type 304 stainless steel tubular (3/4-inch-square) bar and rectangular end brackets. Provide galvanized backplates for concealed mounting. Length as shown on drawings.

## 2.8 MISCELLANEOUS ACCESSORIES

- A. Mop and Broom Holder: 18-gage (.050-inch) Type 304 stainless steel "hat" channel

with spring-loaded rubber cam-type mop broom holders. Provide unit 36 inches long and complete with 4 holders at each janitor sink.

- B. Double Robe Hook: Heavy-duty satin finish chrome plated steel double-prong robe hook; rectangular wall bracket with backplate for concealed mounting.
- C. Fold Down Seat: Stainless Steel with Phenolic Seat.

## 2.9 FABRICATION

- A. General: No names or labels are permitted on exposed faces of toilet and bath accessory units. On either interior surface not exposed to view or on back surface, provide identification of each accessory item by either a printed, waterproof label or a stamped nameplate indicating manufacturer's name and product model number.
- B. Surface-Mounted Toilet Accessories, General: Except where otherwise indicated, fabricate units with tight seams and joints, exposed edges rolled. Hang doors or access panels with continuous stainless steel piano hinge. Provide concealed anchorage wherever possible.
- C. Recessed Toilet Accessories, General: Except where otherwise indicated, fabricate units of all welded construction, without mitered corners. Hang doors or access panels with full-length stainless steel piano hinge. Provide anchorage that is fully concealed when unit is closed.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install toilet accessory units in accordance with manufacturers' instructions, using fasteners appropriate to substrate and recommended by manufacturer of unit. Install units plumb and level, firmly anchored in locations and at heights indicated.
- B. Secure mirrors to walls in concealed, tamperproof manner with special hangers, toggle bolts, or screws. Set units plumb, level, and square at locations indicated, in accordance with manufacturer's instructions for type of substrate involved.

### 3.2 ADJUSTING AND CLEANING

- A. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly. Replace damaged or defective items.
- B. Clean and polish all exposed surfaces in strict accordance with manufacturer's recommendations after removing temporary labels and protective coatings.

### 3.3 SCHEDULE OF TOILET AND BATH ACCESSORIES:

- A. Manufacturer: Model Numbers of toilet accessories listed below are those of Bobrick Washroom Equipment, Inc., unless otherwise indicated. See Toilet Room Accessories schedule on plans.
  - 1. Paper Towel Holder - By Owner - Installed by G.C.
  - 2. Soap Dispenser - By Owner - Installed by G.C.
  - 3. Towel Bars (Grab Bar) - #B6209.99 x 18"
  - 4. Shower Seat - Fold Down Type #B-5181 Left hand and #B 5171 Right hand Stainless Steel and Phenolic Slat Seats.
  - 5. Toilet Paper Holder (Recessed) - #B-6667
  - 6. Grab Bar - #B-6209.99 x 36"
  - 7. Grab Bar - #B-6209.99 x 42"
  - 8. Mirror - See Section 08750 Glass and Glazing



- |     |                                  |   |                                     |
|-----|----------------------------------|---|-------------------------------------|
| 9.  | Shower Curtain Rod               | - | #B-6107 x width of showers          |
| 10. | Nurse Call                       | - | See Section 16761                   |
| 11. | Bedpan Washer                    | - | See Section 15400                   |
| 12. | Bedpan Wand Bracket              | - | See Section 15400                   |
| 13. | Grab Bar                         | - | #B6209.99 x 24"                     |
| 14. | Toilet Paper Holder<br>(Surface) | - | #B-685                              |
| 15. | Mirror                           | - | See Section 08750 Glass and Glazing |

END OF SECTION 10 28 00
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## SECTION 10 32 00 – FAUX FIREPLACES

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### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Fireplace surround, decorative front, mesh curtain, log set & fire box lining

#### 1.2 RELATED SECTIONS

- A. Section 06 10 00 – Misc. Rough Carpentry.
- B. Section 06 20 00 – Finish Carpentry
- C. Section 06 41 00 – Architectural Wood Casework
- D. Section 09 29 00 - Gypsum Board.

#### 1.3 REFERENCES

- A. UL 907 - Standard for Fireplace Accessories

#### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.
- B. Manufacturer's data sheets on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store products in covered area, well protected from weather.

### PART 2 PRODUCTS

#### 2.1 MANTLE & SURROUND MANUFACTURERS

- A. Acceptable Manufacturer: Heatilator (fireside furnishings collection)
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 25 00.

#### 2.2 FAUX FIREPLACE COMPONENTS

- A. Mantel & Surround:
  - 1. Custom Built per drawings. Provide Solid Surface (Corian) surround and flush hearth to match countertops (sizes per drawings).
- B. Decorative Front
  - 1. Heatilator, non-operable front for gas fireplaces, model: Arts & Crafts mesh, size 42" w X 36" h, Finish: bronze.
- C. Curtain Mesh Screen:

1. Recessed Black  $\frac{1}{4}$ " weave curtain mesh screen. Custom size to fit interior opening. 2-piece bi-parting screen with black fender.
- D. Log Set:
  1. Pleasant hearth electric crackling wood log set, model #L-20W. 110 volt plug in connection. Does not generate heat.
- E. Fire Box Lining:
  1. Owing corning cultured brick  $\frac{1}{2}$ " thick veneer. Antique red CB-4052. Install on back, sidewalls, and floor in herringbone pattern. Apply faux sote finish at center of firebox with flat black spray paint.

### PART 3 EXECUTION

#### 3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

#### 3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

#### 3.3 INSTALLATION

- A. Anchor all components firmly in position for long life under hard use.
- B. Upon completion of installation, visually inspect all exposed surfaces. Touch up scratches and abrasions with touch up paint recommended by the manufacturer; make imperfections invisible to the unaided eye from a distance of 5 feet (1.5 m).

#### 3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

**END OF SECTION 10 32 00**

## SECTION 10 44 00 - FIRE PROTECTION SPECIALTIES

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Fire extinguishers.
  - 2. Fire extinguisher cabinets.
  - 3. Mounting brackets.

#### 1.3 RELATED SECTIONS

- A. Division 21 Section "Fire Suppression" for fire protection systems.

#### 1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of product specified. For fire extinguisher cabinets include rough-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type and materials, trim style, door construction, panel style, and materials.
- C. Samples for verification purposes of each type of metal finish required, prepared on metal samples of same thickness and alloy indicated for final unit of Work. Where finishes involve normal color and texture variations, include sample sets showing full range of variations expected.

#### 1.5 QUALITY ASSURANCE

- A. Single-Source Responsibility: Obtain fire extinguishers and cabinets from one source from a single manufacturer.
- B. UL-Listed Products: Fire extinguishers UL-listed and bear UL "Listing Mark" for type, rating, and classification of extinguisher.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. J.L. Industries.
  - 2. Larsen's Manufacturing Co.
  - 3. Potter-Roemer, Inc.
  - 4. Walter Kidde, Division of Kidde, Inc.
  - 5. Watrous Inc.

#### 2.2 FIRE EXTINGUISHERS

- A. General: Provide fire extinguishers for each extinguisher cabinet and other locations indicated, in colors and finishes selected by Architect from manufacturer's standard, which comply with requirements of governing authorities.

- B. Multipurpose Dry Chemical Type: UL-rated 2-A:10:B:C, 5-lb. nominal capacity, in enameled steel container.
- C. Multipurpose dry chemical type: UL-Rated 4-A:60-B:C, 10-lb. nominal capacity, chemical shall be sodium bicarbonate or potassium bicarbonate dry chemical type in enameled steel brackets where indicated.

### 2.3 MOUNTING BRACKETS

- A. Provide brackets designed to prevent accidental dislodgement of extinguisher, of sizes required for type and capacity of extinguisher indicated in plated finish.

### 2.4 FIRE EXTINGUISHER CABINETS

- A. General: Provide fire extinguisher cabinets where indicated, of suitable size for housing fire extinguishers of types and capacities indicated.
- B. Construction: Manufacturer's standard enameled steel box, with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated. Weld all joints and grind smooth. Miter and weld perimeter door frames.
- C. Cabinet Type: Suitable for mounting conditions indicated, of the following types:
  - 1. Recessed: Cabinet box (tub) fully recessed in walls of sufficient depth to suit style of trim indicated.
- D. Trim Style: Fabricate trim in one piece with corners mitered, welded, and ground smooth.
  - 1. Exposed Trim: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).
    - a. Square-Edge Trim with 1/4- to 5/16-inch backbend depth.
- E. Door Material and Construction: Manufacturer's standard door construction, of material indicated, coordinated with cabinet types and trim styles selected.
  - 1. Enameled Steel: Manufacturer's enamel finish, hollow steel door construction with tubular stiles and rails.
  - 2. Door Glazing: Tempered float glass complying with ASTM C 1048, Type I, Quality q3, Class as follows:
    - a. Clear glass, Class 1 (transparent).
  - 3. Application Process: Silk screen.
- F. Door Style: Manufacturer's standard design.
  - 1. Full-Glass Panel: Float glass, 1/8-inch thick tempered.
- G. Door Hardware: Provide manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated. Provide either lever handle with cam action latch, or door pull, exposed or concealed, and friction latch. Provide concealed or continuous-type hinge permitting door to open 180 deg.

### 2.5 FINISHES FOR FIRE EXTINGUISHER CABINETS, GENERAL

- A. Comply with NAAMM "Metal Finishes Manual" for recommendations relative to application and designations of finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by application of strippable, temporary protective covering prior to shipment.

### 2.6 STEEL FIRE EXTINGUISHER CABINET FINISHES

- A. Surface Preparation: Solvent-clean surfaces in compliance with SSPS-SP 1 to remove dirt, oil, grease, and other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel in compliance with SSPC-SP 5 (White

Metal Blast Cleaning) or SSPC-SP 8 (Pickling).

- B. Baked Enamel Finish: Immediately after cleaning and pretreatment, apply manufacturer's standard 2-coat baked enamel finish consisting of prime coat and thermosetting topcoat. Comply with paint manufacturer's instructions for application and baking to achieve a minimum dry film thickness of 2.0 mils.
  - 1. Color and Gloss: As indicated.
    - a. Exterior of cabinet except for those surfaces indicated to receive another finish.
      - 1. White, High Gloss.
    - b. Interior of cabinet.
      - 1. White, High Gloss
    - c. Lettering
      - 1. Black

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Install items included in this section in locations and at mounting heights indicated, or if not indicated, at heights to comply with applicable regulations of governing authorities.
  - 1. Prepare recesses in walls for fire extinguisher cabinets as required by type and size of cabinet and style of trim and to comply with manufacturer's instructions.
  - 2. Securely fasten mounting brackets and fire extinguisher cabinets to structure, square and plumb, to comply with manufacturer's instructions.

END OF SECTION 10 44 00
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## SECTION 10 51 00 - LOCKERS

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### **10 51 13 METAL LOCKERS**

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

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

##### 1.2 SUMMARY

- A. This Section includes metal lockers and related equipment as indicated on drawings.
- B. Types of products in this section include the following:
  - 1. Purse Lockers.
  - 2. Triple Tier Lockers.

##### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification sections.
- B. Product data and installation instructions for metal locker units.
- C. Color Samples on squares of same metal to be used for fabrication of lockers.
- D. Shop Drawings that show metal locker dimensions in relation to adjacent surfaces. Show lockers in detail, method of installation, fillers, trim, base, and accessories. Include locker numbering sequence information.

##### 1.4 QUALITY ASSURANCE

- A. Uniformity: Provide metal lockers that are standard products of single manufacturer, with interchangeable like parts. Include necessary mounting accessories, fittings, and fastenings.

##### 1.5 JOB CONDITIONS

- A. Do not deliver metal lockers until building is enclosed and ready for locker installation. Protect from damage during delivery, handling, storage, and installation.

#### PART 2 - PRODUCTS

##### 2.1 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
  - 1. The Interior Steel Equipment Co.
  - 2. Lyon Metal Products
  - 3. Medart Inc.
  - 4. Penco Products Inc.
  - 5. Republic Storage Systems

##### 2.2 MATERIALS

- A. Sheet Steel: Mild cold-rolled and leveled furniture steel, free from buckle, scale, and surface imperfections.
- B. Fasteners: Cadmium, zinc, or nickel-plated steel; exposed bolt heads, slotless type; self-locking nuts or lock washers for nuts on moving parts.



- C. Equipment: Hooks and hang rods of cadmium-plated or zinc-plated steel.

### 2.3 FABRICATION, GENERAL

- A. Construction: Fabricate lockers square, rigid, and without warp, with metal faces flat and free of dents or distortion. Make exposed metal edges safe to touch. Weld frame members together to form rigid, one-piece structure. Weld, bolt, or rivet other joints and connections. Grind exposed welds flush. Do not expose bolts or rivet heads on fronts of locker doors or frames.
- B. Frames: Fabricate of 16-gage channels or 12-gage angles, minimum, with continuous stop/strike formed on vertical members.
- C. Finishing: Chemically pretreat metal with degreasing and phosphatizing process. Apply baked-on enamel finish to all surfaces, exposed and concealed, except plates and nonferrous metal.
  - 1. Color: Provide locker units in color(s) selected by Architect from manufacturer's full line of colors. Concealed parts may be manufacturer's standard neutral color.

### 2.4 LOCKER ACCESSORIES

- A. Equipment: Furnish each locker with the following items, unless otherwise shown:
  - 1. Box Units: One double-prong hook and not fewer than 2 single-prong wall hooks.
- B. Number Plates: Manufacturer's standard etched, embossed, or stamped, nonferrous metal number plates with numerals not less than 3/8 inches high. Number lockers in sequence as directed by Architect. Attach plates to each locker door, near top, centered, with at least 2 fasteners of same finish as number plate.
- C. Legs: Provide nominal 6 inch legs by extending vertical frame members or by attaching gusset type legs made of not less than 16- gage steel sheet, with provision for fastening to floor.
- D. Continuous Metal Base: Minimum 20-gage cold-rolled steel, fabricated in lengths as long as practicable to enclose base of lockers without additional fastening devices. Flange bottoms inward 3/4 inch for stiffening. Factory-finish metal base to match lockers.
- E. Continuous Sloping Tops: Not less than 20-gage sheet steel, approximately 25 degrees pitch, in lengths as long as practicable but not less than 4 lockers. Provide closures at ends. Finish to match lockers.
- F. Separators: Provide horizontal dividers of not less than 16-gage sheet steel between doors of multiple-tier lockers to ensure rigidity.
- G. Filler Panels: Provide filler panels where indicated, of not less than 18-gage steel sheet, factory fabricated and finished to match locker units.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install metal lockers at locations shown in accordance with manufacturer's instructions for plumb, level, rigid, and flush installation.
- B. Space fastenings about 48 inches o.c., unless otherwise recommended by manufacturer, and apply through backup reinforcing plates where necessary to avoid metal distortion, using concealed fasteners.
- C. Install trim, metal base, sloping top units, and metal filler panels and end panels, using concealed fasteners. Provide flush, hairline joints against adjacent surfaces.

3.2 ADJUST AND CLEAN

- A. Adjust doors and latches to operate easily without binding. Verify that integral locking devices are operating properly.
- B. Touch up marred finishes, but replace units that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by locker manufacturer.

END OF SECTION 10 51 00

## SECTION 10 56 00 - WIRE SHELVING

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all wire shelving and carts as specified herein:
  - 1. PORTABLE LINEN CARTS are not a built in item, but will be provided under this Section.

#### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with the Conditions of Contract and Division 1 Specifications Sections.
- B. Product Data for each item specified, including details of construction relative to materials, dimensions, gages, profiles, method of mounting, specified options, and finishes.

#### 1.4 QUALITY ASSURANCE

- A. Provide wall blocking as required for support of shelving throughout.

#### 1.5 PROJECT CONDITIONS

- A. Coordinate accessory locations, installation, and sequencing with other work to avoid interference and to assure proper installation, operation, adjustment, cleaning, and servicing of accessory items.

### PART 2 - MATERIALS

#### **10 56 23 WIRE STORAGE SHELVING**

##### 2.1 MANUFACTURER

- A. Shelving as indicated on drawings, shall be the "Space Builder" system of vinyl coated, ventilated, steel rod shelving manufactured by Closet Maid Corporation, or approved equal.

##### 2.2 PRODUCTS

- A. All metal shelves and integral rods shall be fabricated of heavy gauge welded steel rod with deck rod spacing having maximum distance one (1") inch between centers.
- B. All mounting hardware shall be hi-tensile engineered plastic with intermediate support brackets not to exceed a shelf span of 3'-6".

##### 2.3 PERFORMANCE

- A. Shelves shall be able to withstand a static pressure of 75 lbs. per square foot when installed according to manufacturer's recommendations.

#### **10 56 26 MOBILE STORAGE SHELVING**

##### 2.4 PORTABLE LINEN CARTS

- A. Postmaster Shelving PA348, (4) 18" x 48" shelves with PB060, 60" high standard posts as manufactured by William Hodges & Company, or approved equal. Provide dolly frame PF348 with wrap around bumper and 5" swivel wheels with caster rating of 200 lbs. Each cart shall be provided with nylon cover (NU60©3489) with full height metal zippers at each of 48.
  - 1. Provide eight (8) carts.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Locate and place wire shelving units plumb, level and in proper alignment with adjacent work.
- B. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to finishes. Rinse thoroughly and dry surfaces.

### PART 4 - PROTECTION

- A. Care shall be taken to prevent any scratch or marring of prefinished surfaces. Contractor shall be responsible for replacement of same, to Architect's satisfaction.

<b>END OF SECTION 10 56 00</b>
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## SECTION 10 76 00 - COATED FOAM EXTERIOR TRIM

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all exterior decorative architectural trimwork consisting of pre-manufactured, acrylic-strengthened cement coated EPS foam indicated on drawings and specified herein.

#### 1.3 RELATED SECTIONS

- A. The following Sections contain requirements that relate to this Section:
  - 1. Division 3 Section "Cast-In-Place Concrete" for concrete substrates behind system.
  - 2. Division 4 Section "Unit Masonry" for masonry substrates behind system.
  - 3. Division 5 Section "Cold-Formed Metal Framing" for steel stud framing behind system.
  - 4. Division 7 Section "Joint Sealants" for requirements specified by reference in this Section for sealing joints in system with elastomeric joint sealants.

#### 1.4 DEFINITIONS

- A. Coated foam exterior trim refers to exterior assemblies composed of an inner base shape/profile extrusion of EPS foam and an outer layer composed of a glass-fiber-reinforced coating applied directly to the foam. Coated foam profiles are adhesively applied to supporting substrates indicated.
- B. Designation PB for class of exterior insulation specified in this Section is based on the classification developed by the EIFS Industry Members Association (EIMA).
- C. System manufacturer refers to the manufacturer of exterior foam and finish system.

#### 1.5 PERFORMANCE REQUIREMENTS

- A. General: Provide systems that comply with the following performance requirements:
  - 1. Bond Integrity: Free from bond failure within system components or between system and supporting wall construction, resulting from exposure to fire, wind loads, weather, or other in-service conditions.
  - 2. Weathertightness: Resistant to water penetration.
- B. Physical Properties of Class PB: Provide exterior insulation and finish systems whose physical properties and structural performance comply with the following requirements when tested per methods referenced.
  - 1. Accelerated Weathering Characteristics: Sample of size suitable for test equipment and consisting of 1-inch- (25.4-mm-) thick exterior insulation system mounted on 1/2-inch- (12.7-mm-) thick gypsum board, cured for 28 days, shows no evidence of cracking, flaking, or deleterious effects after testing for 2,000 hours per Method 1 of ASTM G 23.
  - 2. Water Penetration: Sample, consisting of 1-inch- (25.4-mm-) thick exterior

- insulation and finish system mounted on 1/2-inch- (12.7-mm-) thick gypsum board, cured for 28 days, shows no water penetration into the plane of the innermost face of the test specimen under 2.86 psf (137 Pa) of air pressure difference across the specimen during a 15-minute test period when tested per ASTM E 331.
3. Water Resistance: Sample, consisting of 1-inch- (25.4-mm-) thick exterior insulation and finish system mounted on 1/2-inch- (12.7-mm-) thick board, cured for 28 days, shows no deleterious effects after testing for 14 days per ASTM D 2247.
  4. Salt-Spray Resistance: Sample, consisting of 1-inch- (25.4-mm-) thick exterior insulation and finish system mounted on 1/2-inch- (12.7-mm-) thick gypsum board, cured for 28 days, shows no deleterious effects after testing for 300 hours per ASTM B 117.
  5. Absorption-Freeze Resistance: Three samples, 4 by 8 by 1 inch (101.6 by 203.2 by 25.4 mm) in size, consisting of exterior insulation and finish system coated on all sides with base and finish coats including reinforcing fabric, cured for 28 days, show no visible change when subjected to 4 days' underwater soak followed by 60 cycles of alternating exposure for 2 hours to minus 10 deg C and 2 hours to plus 20 deg C.
  6. Mildew Resistance: Sample, consisting of finish coat applied to 2 by 2 inch (50.8 by 50.8 mm) clean glass substrate, cured for 28 days, shows no mildew growth when tested per MIL Standard 810C, Method 508.
  7. Abrasion Resistance: Sample, consisting of 1-inch- (25.4-mm-) thick exterior insulation and finish system mounted on 1/2-inch- (12.7-mm-) thick gypsum board, cured for a minimum of 28 days, shows no evidence of cracking, checking, or loss of film integrity after exposure to 500 liters of sand when tested per ASTM D 968, Method A.
  8. Impact Resistance: Sample, consisting of 1-inch- (25.4-mm-) thick exterior insulation and finish system when constructed, conditioned, and tested per EIMA 101.86, produces the following impact classification and range:
    - a. Medium Impact Resistance: 50-89 inch-lb.
  9. Negative Wind Load Performance: Sample assembly, 48 by 48 inches (1220 by 1220 mm) in size, consisting of studs, sheathing, and 1-inch- (25.4-mm-) thick exterior insulation and finish system, shows capability to withstand wind loads indicated when tested per ASTM E 330.
  10. Normal thermal movement is defined as that resulting from the following maximum change (range) in ambient temperature. Base design calculations on actual surface temperatures of materials due to both solar heat gain and nighttime sky heat loss.
    - a. Temperature Change (Range): 100 deg F (56 deg C).
  11. Wind Loads: Uniform pressure (velocity pressure) of 20 lbf per sq. ft. (960 Pa), acting inwards or outwards.
  12. Deflection: Limit deflection of framing members to less than 1/240 of the span of the member.

## 1.6 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for each component of exterior insulation and finish systems specified.

- C. Shop drawings showing fabrication and installation of system including plans, elevations, sections, details of components, joint locations and configurations within system and between system and construction penetrating it, and attachments to construction behind system.
- D. Samples for initial selection in the form of manufacturer's color charts and small-scale samples consisting of actual units or sections of units showing the full range of colors, textures, and patterns available for each type of textural choices indicated.
  - 1. Submit sealant manufacturer's standard bead samples consisting of strips of actual products showing full range of colors available.
- E. Samples for verification in the form of 12-inch long sections of chosen profiles for each finish, color, texture, and pattern specified. Prepare samples using same tools and techniques intended for actual work.
  - 1. Incorporate within each sample a typical control joint filled with sealant of color indicated or selected.
- F. Installer certificates signed by manufacturer certifying that Installers comply with requirements under the "Quality Assurance" Article.
- G. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and address of architects and owners, and other information specified.
- H. Product test reports from a qualified independent testing agency evidencing compliance of exterior insulation and finish systems with requirements based on comprehensive testing of current products.
- I. Sealant compatibility and adhesion test reports from sealant manufacturer indicating that materials forming joint substrates and joint sealant backings have been tested for compatibility and adhesion with joint sealants; include joint sealant manufacturers' interpretation of test results relative to sealant performance and recommendations for primers and substrate preparation needed to obtain adhesion.
- J. Research reports or evaluation reports of the model code organization acceptable to authorities having jurisdiction that evidence system's compliance with building code in effect for Project.

#### 1.7 QUALITY ASSURANCE

- A. **Installer Qualifications:** Engage an experienced Installer who is certified in writing by system manufacturer as qualified to install manufacturer's system.
- B. **Manufacturer Qualifications:** Firm experienced in manufacturing systems similar to those indicated for this Project and that have a record of successful in-service performance.
  - 1. **Fire Resistance Characteristics:** provide materials and construction identical to those of assemblies whose fire resistance has been determined per ASTM E 119 by testing and inspecting agency acceptable to authorities having jurisdiction.
- C. **Single-Source Responsibility:** Obtain materials for system from one source and by a single manufacturer or by manufacturers approved by the system manufacturer as compatible with other system components.
- D. **Mockup:** Prior to installing system, construct mockups 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 mockups to comply with the following requirements, using materials indicated for final unit of Work.



1. Locate mockups on site in the location and of the size indicated or, if not indicated, as directed by Architect.
2. Notify Architect one week in advance of the dates and times when mockups will be constructed.
3. Demonstrate adhesion capacity of proposed foam adhesive to TPO single ply membrane roofing at parapet wall locations.
4. Demonstrate the proposed range of aesthetic effects and workmanship.
5. Obtain Architect's acceptance of mockups before start of final unit of Work.
6. Retain and maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
  - a. Protect mockups from weather and from construction activities. Brace to resist design wind loads and provide waterproof coverings for construction materials not intended to be permanently exposed to the weather.
  - b. Accepted mockups in an undisturbed condition at the time of Substantial Completion may become part of the completed Work.

#### 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in original, unopened packages with manufacturer's labels identifying products legible and intact.
- B. Store materials inside and under cover; keep them dry and protected from the weather, direct sunlight, surface contamination, aging, corrosion, damaging temperatures, damage from construction traffic, and other causes.
  1. Stack insulation board flat and off the ground.

#### 1.9 PROJECT CONDITIONS

- A. Environmental Conditions: Do not install system when ambient outdoor air and substrate temperatures are 40 deg F (4 deg C) and falling unless temporary protection and heat are provided to maintain ambient temperatures above 40 deg F (4 deg C) during installation of wet materials and until they have dried thoroughly and become weather resistant, but for not less than 24 hours after installation.

#### 1.10 COORDINATION AND SCHEDULING

- A. Coordinate installation of system with related units of Work specified in other Sections to ensure that wall assemblies, including sheathing, flashing, trim, and joint sealers, are protected against damage from the effects of weather, age, corrosion, and other causes.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide Class PB system by one of the following:
  1. Sun-Rock, Inc. 275 Maple Ave Palm Harbor, FL 34684 (727 938-0013).
  2. or approved equal.

#### 2.2 MATERIALS

- A. Compatibility: Provide adhesive, EPS insulation, reinforcing fabrics, base and finish coat materials, sealants, and accessories that are compatible with one another and approved for use by system manufacturer.
- B. Colors and Textures of Finish Coat: Comply with the following requirements:
  1. Provide Architect's selections from manufacturer's full range of colors and

textures for type of finish coat indicated.

- C. Primer Sealer: System manufacturer's standard substrate conditioner designed to seal substrates from moisture penetration and to improve the bond between substrate of type indicated and adhesive used for application of insulation.
- D. Adhesive for Application of Insulation: System manufacturer's standard formulation designed for indicated use, compatible with substrate, and complying with the following requirements:
  - 1. Factory-mixed formulation designed for adhesive attachment of insulation to substrates of type indicated, as approved by system manufacturer.
- E. Molded Polystyrene Insulation: Rigid cellular thermal insulation formed by the expansion of polystyrene resin beads or granules in a closed mold, complying with ASTM C 578 for Type I, approved by system manufacturer for material qualities including corner squareness, other dimensional tolerances, and the following:
  - 1. Age insulation in block form prior to cutting and shipping by air drying for not less than 6 weeks or by another method approved by system manufacturer that produces equivalent results.
- F. Reinforcing Fabric: Balanced, alkali-resistant open-weave glass-fiber fabric treated for compatibility with other system materials, made from continuous multiend strands with tensile strength of not less than 145 lb (645 N) and 150 lb (667 N) in warp and fill directions per ASTM D 5035, complying with ASTM D 578 and the following requirements for minimum weight:
  - 1. Intermediate Reinforcing Fabric: 9.5 oz./sq. yd. (322 g/sq. m).
  - 2. Strip Reinforcing Fabric: 3.75 oz./sq. yd. (127 g/sq. m).
- G. Base Coat Materials: System manufacturer's standard mixture complying with the following requirements for material composition and method of combining materials:
  - 1. Factory-mixed formulation of polymer emulsion adhesive polymer admixture, and inert fillers that is ready to use without the addition of other materials.
- H. Finish Coat Materials: System manufacturer's standard mixture complying with the following requirements for material composition and method of combining materials:
  - 1. Factory-mixed formulation of polymer emulsion binder colorfast mineral pigments, sound stone particles, and fillers.
- I. Water: Clean and potable.
- J. Trim Accessories: Type as designated or required to suit conditions indicated and to comply with system manufacturer's requirements, manufactured from vinyl plastic and complying with ASTM C 1063.
  - 1. Casing Bead: Prefabricated 1-piece type for attachment behind insulation, of depth required to suit thickness of coating and thickness of insulation as well, with face leg perforated for bonding to coating.
  - 2. Drip Screed: Prefabricated 1-piece type for attachment behind insulation, of depth required to suit thickness of coating and thickness of insulation as well, with face leg perforated for bonding to coating and extended to form a drip.

### 2.3 ELASTOMERIC SEALANTS

- A. Sealant Products: Provide system manufacturer's recommended chemically curing, elastomeric sealant that is compatible with joint fillers, joint substrates, and other related materials and complies with requirements of Division 7 Section "Joint Sealants" for products corresponding to description indicated below.
  - 1. Multipart nonsag urethane sealant.
  - 2. Low modulus silicone sealant.

- B. Sealant Color: Comply with the following requirement:
  - 1. Match finish coat color of system.

#### 2.4 MIXING

- A. General: Comply with system manufacturer's requirements for combining and mixing materials. Do not introduce admixtures, water, or other materials except as approved by system manufacturer. Mix materials in clean containers. Use materials within time period specified by system manufacturer or discard.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates, with Installer present, to determine if they are in satisfactory condition for installation of system. Do not proceed with installation of system until unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Protect contiguous work from moisture deterioration and soiling resulting from application of systems. Provide temporary covering and other protection needed to prevent spattering of exterior finish coatings on other work.
- B. Protect system, substrates, and wall construction behind them from inclement weather during installation. Prevent infiltration of moisture behind system and deterioration of substrates.
- C. Prepare and clean substrates to comply with system manufacturer's requirements to obtain optimum bond between substrate and adhesive for insulation.
  - 1. Apply primer-sealer over substrates where required by system manufacturer for improving adhesion or for protecting substrates from premature degradation.

#### 3.3 INSTALLATION

- A. Comply with manufacturer's current published instructions for installation of system as applicable to each type of substrate indicated.
- B. Glass-Faced Gypsum Board: Install on metal framing to comply with board manufacturer's recommendations. Install with steel drill screws. Space fasteners no more than 8 inches (203 mm) o.c. along framing with perimeter fasteners at least 3/8 inch (9.5 mm) but less than 5/8 inch (15.9 mm) from edges of boards.
- C. Adhesively attach insulation to comply with the following requirements:
  - 1. Apply adhesive to insulation by the notched trowel method in a manner that results in adhesive coating the entire surface of gypsum sheathing once insulation is adhered to the sheathing.
  - 2. Allow adhered insulation to remain undisturbed for period prescribed by system manufacturer, but not less than 24 hours, prior to beginning rasping and sanding insulation or application of base coat and reinforcing fabric.
  - 3. Apply insulation boards over dry substrates in courses with long edges oriented horizontally. Begin first course from a level base line and work upward.
  - 4. Stagger vertical joints in successive courses to produce running bond pattern. Locate joints so that no piece of insulation is less than 12 inches (300 mm) wide or 6 inches (150 mm) high. Offset joints at least 6 inches (150 mm) from corners of window and door openings.
    - a. Offset joints of insulation at least 4 inches (100 mm) from joints in sheathing.
    - b. Offset joints of insulation at least 4 inches (100 mm) from decorative

- grooves (false joints).
5. Interlock ends at internal and external corners.
  6. Abut boards tightly at joints within and between each course to produce flush, continuously even surfaces without gaps or raised edges between insulation boards. If gaps occur, fill with insulation cut to fit gaps exactly; insert without use of adhesive.
  7. Cut insulation to fit openings, corners, and projections precisely and to produce edges and shapes conforming to details indicated.
  8. Rasp or sand flush entire surface of insulation to remove irregularities projecting more than 1/32 inch (0.8 mm) from surface of insulation and to remove yellowed areas due to sun exposure; do not create depressions deeper than 1/16 inch (1.6 mm).
  9. Cut grooves, rabbets, and other features in outside face of insulation with high-speed router and bit configured to produce grooves, rabbets, and other features that conform accurately to profiles and locations indicated. Do not reduce insulation thickness at features to less than 3/4 inch (19 mm).
  10. Interrupt insulation where expansion joints are indicated in substrates behind exterior insulation and finish systems.
  11. Form joints for sealant application by leaving gaps between adjoining insulation edges as well as between insulation edges and dissimilar adjoining surfaces. Make gaps wide enough to produce joint widths indicated after encapsulation of joint substrates with base coat, reinforcing fabric, and finish coat.
  12. Treat exposed edges of insulation board, including those forming substrates of sealed joints within system or between system and other work, by encapsulating with base coat, reinforcing fabric, and finish coat, unless otherwise indicated.
  13. Coordinate flashing installation with installation of insulation to produce a wall system that does not allow water to penetrate behind protective coating.
- D. Apply base coat to exposed surfaces of insulation in minimum thickness specified by system manufacturer.
- E. Embed reinforcing fabric of type indicated below in wet base coat to produce wrinkle-free installation with fabric continuous or lapped at corners and lapped or otherwise treated at joints to comply with system manufacturer's requirements. Completely embed fabric, applying additional base coat material if necessary, so that reinforcing fabric pattern is not visible.
1. Intermediate reinforcing fabric where indicated.
- F. Additional Reinforcing Fabric: Apply strip reinforcing fabric around openings extending 4 inches (100 mm) beyond perimeter. Apply additional 8 by 16 inch (200 by 400 mm) strip reinforcing fabric diagonally at corners of openings (re-entrant corners). Apply 8-inch- (200-mm-) wide strip reinforcing at both inside and outside corners unless base layer of fabric is lapped at least 4 inches (100 mm) on each side of corners.
1. At decorative grooves (false joints), apply strip reinforcing at least 8 inches (200 mm) wide.
  2. Embed strip reinforcing fabric in base coat before applying first layer of reinforcing fabric.
  3. Intermediate reinforcing fabric.
- G. Double Base Coat Application: Where indicated, apply a second base coat in same manner as first application, except without reinforcing fabric. Do not apply until first

base coat has cured.

- H. Apply finish coat over dry base coat in thickness required by system manufacturer to produce a uniform finish of texture and color matching approved sample.

### 3.4 INSTALLATION OF JOINT SEALANTS

- A. Prepare joints and apply sealants, of type and at locations indicated, to comply with applicable requirements of Division 7 Section "Joint Sealants" and with EIMA "Joint Sealant Specifications for Exterior Insulation and Finish Systems (EIFS) Class PB and PM."
  - 1. Clean surfaces to receive sealants to comply with indicated requirements and system manufacturer's recommendations.
  - 2. Apply primer recommended by sealant manufacturer for surfaces to be sealed.
  - 3. Install sealant backing to control depth and configuration of sealant joint and to prevent sealant from adhering to back of joint.
  - 4. Apply masking tape to protect areas adjacent to sealant joints. Remove tape immediately after tooling joints without disturbing joint seal.
  - 5. Apply joint sealants after base coat has cured but before applying finish coat.

### 3.5 CLEANING AND PROTECTION

- A. Remove temporary covering and protection of other work. Promptly remove coating materials from window and door frames and other surfaces outside areas indicated to receive system coatings.
- B. Provide final protection and maintain conditions in a manner acceptable to Installer and system manufacturer that ensures system's being without damage or deterioration at time of Substantial Completion.

END OF SECTION 10 76 00
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## SECTION 10 77 00 - WATER FEATURES

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install Stone Column Fountain

#### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with the Conditions of Contract and Division 1 Specifications Sections.
- B. Product Data for each item specified, including details of construction relative to materials, dimensions, profiles, method of installing, specified options, and finishes.

#### 1.4 QUALITY ASSURANCE

- A. Use only manufacturer trained and certified installation personnel.
- B. Strictly follow manufacturer's recommendations on substrate construction and condition prior to installation, if conditions are unsatisfactory, do not begin installation until conditions have been corrected.
- C. Proceed with installation only when current and pending weather conditions are within manufacturer's guidelines.

#### 1.5 PROJECT CONDITIONS

- A. Coordinate accessory locations, installation, and sequencing with other work to avoid interference and to assure proper installation, operation, adjustment, cleaning, and servicing of accessory items.

### PART 2 - MATERIALS

#### 2.1 MANUFACTURERS

- A. Coverall Stone Inc. (800)779-3234
  1. Provide (1) each per fountain of the following:
    - a. Basalt column, min. 18" diameter min. 9 ft. tall, drilled for fountain.
    - b. Basalt column, min. 12" diameter, min 7 ft tall, non-drilled.
    - c. Basalt column, min 12" diameter, min 5 ft tall, non drilled.
  2. All columns shall have natural tops
  3. Provide 2"-4" diameter river rock, stainless steel expand metal screen, submersible pump system and piping and water proof membrane as recommended to provide a complete working fountain.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

1. Installer shall verify foundation is adequate prior to installing columns.
2. Group columns tightly so water cascades from highest to lowest column.
3. Install columns so they are stable and will not rock or fall over. Fasten columns as required and recommended by manufacturer.

END OF SECTION 10 77 00



## SECTION 10 82 00 - GRILLES AND SCREENS

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all fixed metal wall louvers as specified herein:
  - 1. Includes both architectural and those indicated on HVAC and Mechanical Plans.

#### 1.3 RELATED SECTIONS

- 1. Division 7 Section "Joint Sealers."
- 2. Division 9 Section "Painting."

#### 1.4 DEFINITIONS

- A. Louver Terminology: Refer to AMCA Publication 501-85 for definitions of terms for metal louvers not otherwise defined in this section or referenced standards.

#### 1.5 SYSTEM PERFORMANCE REQUIREMENT

- A. Structural Performance: Design, engineer, fabricate, and install exterior metal wall louvers to withstand the effects of loads and stresses from wind and normal thermal movement, without evidencing deformation of louver components including blades, frames, and supports; noise or metal fatigue caused by louver blade rattle or flutter; and damage to fasteners and anchors:
  - 1. Wind Load: As indicated on Structural Drawings for locations on building. Louvers shall resist windloads as well as wind-blown debris per Miami-Dade County Product Control Approval **NOA #06-320.12 Exp 6/9/2011**.
  - 2. Each louver type used must have a **Miami-Dade Notice of Approval (NOA)**.
  - 3. Normal thermal movement is defined as that resulting from the maximum change (range) in ambient temperature to be expected on site. Base design calculations on calculated surface temperatures of metals due to both solar heat gain and night time sky heat loss.

#### 1.6 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Product data for each product indicated.
- C. **Miami-Dade Notice of Approval (NOA)** must be submitted for each type used.
- D. Shop drawings of louver units and accessories. Include plans, elevations, sections, and details showing profiles, angles, spacing of louver blades; unit dimensions related to wall openings and construction; free areas for each size indicated; and profiles of frames at jambs, heads and sills.
- E. Submit manufacturer's full color selection on actual materials for fabrication for Architect's selection.

#### 1.6 QUALITY ASSURANCE

- A. Single Source Responsibility: Obtain louvers and vents from a single source to ensure uniformity with regard to type, design, and factory-applied color finish.
- B. SMACNA Standard: Comply with SMACNA "Architectural Sheet Metal Manual" recommendations for fabrication, construction details, and installation procedures.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Horizontal Blade Louvers: basis of design: **Ruskin Elf6375DXD Drainable Stationary Louver (NOA 06-0320.12)**
    - a. No Damper, no bug/bird screen.
  - 2. Other manufacturers upon approved equal:
    - a. Airline Products Co. Div., Danzer Metal Works Co.
    - b. Construction Specialties, Inc.

### 2.2 MATERIALS

- A. Aluminum Sheet: ASTM B 209, Alloy 3003 or 5005 with temper as required for forming, or as otherwise recommended by metal producer to produce required finish.
- B. Aluminum Extrusions: ASTM B 221, Alloy 6063-T5 or T-52.
- C. Fasteners: Of same basic metal and alloy as fastened metal, unless otherwise indicated. Do not use metals which are corrosive or incompatible with materials joined.
  - 1. Use types, gages, and lengths to suit unit installation conditions.
  - 2. **Use Phillips flat-head machine screws for exposed fasteners, unless otherwise indicated.**
- D. Anchors and Inserts: Of type, size, and material required for type of loading and installation indicated in NOA. Use nonferrous metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or expansion bolt devices for drilled-in-place anchors.
- E. **Bituminous Paint: SSPC-Paint 12 (cold-applied asphalt mastic).**

### 2.3 FABRICATION, GENERAL

- A. General: Fabricate louvers and vents to comply with requirements indicated for design, dimensions, materials, joinery, and performance.
- B. Preassemble louvers in shop to minimize field splicing and assembly. Disassemble units as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
- C. Maintain equal louver blade spacing, including separation between blades and frames at head and sill, to produce uniform appearance.
- D. Fabricate frames, including integral sills, to fit in openings of size indicated with allowances made for fabrication and installation tolerances of louvers, adjoining construction, and perimeter sealant joints.
- E. Include supports, anchorages, and accessories required for complete assembly.
- F. Provide vertical mullions of type and at spacing indicated but not further apart than recommended by manufacturer, or 72 inches o.c., whichever is less. At horizontal joints between louver units provide horizontal mullions except where continuous vertical assemblies are indicated.

- G. Join frame members to one another and to fixed louver blades as follows, unless otherwise indicated, or where size of louver assembly makes bolted connections between frame members necessary:
  - 1. With fillet welds, concealed from view; or mechanical fasteners; or a combination of these methods; as standard with louver manufacturer.
- H. Provide 3/4" x .051" expanded flattened bird screen in removable frame unless otherwise noted.

#### 2.4 FIXED EXTRUDED ALUMINUM WALL LOUVERS

- A. Horizontal Drainable Fixed Blade Louvers: Extruded aluminum frames and louver blades; designed to collect and drain water to exterior at sill by means of gutters in front edges of blades and of channels in jambs and mullions; complying with the following requirements.
  - 1. Ruskin Model ELF6375DXD with optional CD50 as standard- 42% min. free area.
  - 2. Louver Depth: 6 inches, unless otherwise indicated.
  - 3. Frame Thickness: 0.081 inch, unless otherwise indicated.
  - 4. Louver Blade Angle: 37.5 degrees, unless otherwise indicated.

#### 2.5 FINISHES, GENERAL

- A. Comply with NAAMM "Metal Finishes Manual" for recommendations relative to application and designations of finishes.
- B. Provide factory applied primer by full submersion bath in alkali cleaner, detergent deoxidization, amorphous chrome phosphate conversion coating and acidulated final rinse. Kynar 500 finish shall be applied to provide 1.2 mils baked-on film build in accordance with AAMA 2605-02 (Voluntary Specification Performance and Test Procedures for Superior Performing Organic Coatings on Architectural Extrusions and Panels) Color to be selected by Architect.

#### 2.6 ALUMINUM FINISHES

- A. Finish designations prefixed by "AA" conform to the system established by the Aluminum Association for designating aluminum finishes.
- B. Conversion-Coated Finish: (Fixed Aluminum Wall Louvers) AA-C12C42 (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: chemical conversion coating, acid chromate-fluoride-phosphate pretreatment).

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Coordinate setting drawings, diagrams, templates, instructions and directions for installation of anchorages which are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

#### 3.2 INSTALLATION

- A. Locate and place louver units plumb, level, and in proper alignment with adjacent work.
- B. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection.
- C. Form closely fitted joints with exposed connections accurately located and secured.

- D. Provide perimeter reveals and openings of uniform width for sealants and joint fillers, as indicated.
- E. Repair finishes damaged by cutting, welding, soldering, and grinding operations required for fitting and jointing. Restore finishes so there is no evidence of corrective work. Return items which cannot be field refinished to shop, make required alterations and refinish entire unit, or provide new units.
- F. Protect galvanized and nonferrous metal surfaces from corrosion or galvanic action by application of a heavy coating of bituminous paint on surfaces which will be in contact with concrete, masonry, or dissimilar metals.
- G. Install concealed gaskets, flashings, joint fillers, and insulation, as louver installation progresses where required to make louver joints weathertight. Comply with Division 7 Section "Joint Sealers" for sealants applied during installation of louver.

### 3.3 ADJUSTING AND PROTECTION

- A. Protect louvers and vents from damage of any kind during construction period including use of temporary protective coverings where needed and approved by louver manufacturer. Remove protective covering at time of Substantial Completion.
- B. Restore louvers and vents damaged during installation and construction period, so that no evidence remains of correction work. If results of restoration are unsuccessful, as judged by Architect, remove damaged units and replace with new units.
  - 1. Clean and touch-up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating.

### 3.4 CLEANING

- A. Periodically clean exposed surfaces of louvers and vents, which are not protected by temporary covering, to remove fingerprints and soil during construction period; do not let soil accumulate until final cleaning.
- B. Before final inspection, clean exposed surfaces with water and with a mild soap or detergent not harmful to finishes. Rinse thoroughly and dry surface.

END OF SECTION 10 82 00
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# SECTION 11 23 00 - COMMERCIAL LAUNDRY EQUIPMENT

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## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

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

### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all laundry equipment indicated on the drawings and specified herein.

### 1.3 RELATED SECTIONS

- A. Section: Cast-in-Place Concrete
- B. Section: Gypsum Board
- C. Section: Flooring Finishes
- D. Section: Mechanical
- E. Section: Plumbing
- F. Section: Electrical

### 1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Submit product data specification information for each kind of laundry unit.

## PART 2 - MATERIALS

### 2.1 MATERIALS

- A. Washer(s) shall be UNI-MAC UW Pocket Hardmount Washer Extractor  
Model: UWNO60T3VX; no substitutions considered (2 washers of this type)
- B. Washer shall be UNI-MAC UW Pocket Hardmount Washer Extractor  
Model: UWNO35T3VX; no substitutions considered (1 washer of this type)
- C. Dryer(s) shall be UNI-MAC (3 Dryers of this type)  
Model: UTF75NRM; no substitutions considered
- D. No substitutions considered

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. General Contractor to furnish and install all laundry equipment and associated accessories to ensure proper operation, function, and performance.
- B. Align and level all equipment for final connection by appropriate trades.

### 3.2 GUARANTEE

- A. All equipment to carry 1 year full warranty on parts and labor.

### 3.3 PROJECT CLOSEOUT

- A. Equipment supplier to instruct personnel in operation of equipment in accordance with Specification Section 01 79 00; and provide operation manuals to Contractor to be

included in Operations and Maintenance Manuals in accordance with Specification Section 01 78 00.

**PART 4 - PROTECTION**

- A. Cover and protect installed equipment from water/moisture, dust, paint, abrasion, dents and any other type of damage until turned over to owner.

<b>END OF SECTION 11 23 00</b>
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## SECTION 11 31 00 - RESIDENTIAL APPLIANCES

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section specifies requirements for residential appliances to include.
  - 1. Refrigerators
  - 2. Electric Ranges
  - 3. Range Hoods
  - 4. Residential Dryers
  - 5. Residential Washers
  - 6. Microfridges
  - 7. Microwaves
  - 8. Outdoor Gas Grills
  - 9. Outdoor Undercounter Refrigerators
  - 10. Outdoor Access Doors (at Gazebo Grill area)
- B. Specified Elsewhere :
  - 1. Food service equipment is specified elsewhere in Division 11.
  - 2. Plumbing requirements are specified in Division 22.
  - 3. Electrical services and connections are specified in Division 26.

#### 1.3 QUALITY ASSURANCE

- A. Certification Labels: Provide residential equipment which complies with standards and bears certification labels as follows:
  - 1. Energy Ratings: Provide energy guide labels with energy cost analysis (annual operating costs) and efficiency information as required by the Federal Trade Commission.
  - 2. Underwriters Laboratories (UL) Standards: Provide residential equipment with UL labels.
- B. Uniformity: Provide products of same manufacturer for each type of residential equipment required.
  - 1. To greatest extent possible, provide all residential equipment by single manufacturer for entire project.

#### 1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Product Data: Submit manufacturer's specifications and installation instructions for each type of residential equipment, including data indicating compliance with requirements. Submit operating and maintenance instructions for each item of residential equipment:
- C. Schedule: Submit schedule of residential equipment, using same room designations shown on drawings.

#### 1.5 DELIVERY AND STORAGE



- A. Deliver products to project site in manufacturer's undamaged protective containers, after spaces to receive them have been fully enclosed:

#### 1.6 SPECIFIED PRODUCT WARRANTIES

- A. Submit manufacturer's standard written warranty for each item of residential equipment.

### PART 2 - MATERIALS

#### 2.1 MATERIALS AND FABRICATION

- A. Electric Range/Oven Combination Units: **General Electric PD968SPSS**

- 1. 30" Drop-In Type: Stainless Steel Unit with ceramic glass, 4 – ribbon smoothtop cooktop burners. with infinitely adjustable controls, including not less than one 8", 3000 watt element; pyrolytic self-cleaning oven equipped with manually switched light, door with window and safety locking feature, 2 adjustable chrome racks, control panel with clock, timer, and automatic oven controls; storage drawer below oven; adjustable legs.

- B. Range Hoods: **General Electric JV536HSS**

- 1. Non-vented Stainless Steel 30" hood, disposable one piece smoke/grease filter, 3 speed fan.

- C. Refrigerator/Freezers: **General Electric GCL22QGTSV**

- 1. Top Freezer Type: Counter depth side by-side Freestanding, two door unit; both compartments frostless, with separate temperature controls, storage features including adjustable shelves, vegetable crisper(s), butter conditioning compartment, removable egg trays or bins, door shelves, ice and water dispenser, clean steel w/ black case.

- D. Glass Door Under Counter Refrigerators: Summit SPR601OS

- 1. Stainless steel under counter all refrigerator with glass door, front mounted lock, automatic defrost, 5.5 cubic feet capacity, UL listed for indoor or outdoor use.

- E. Microfridge Combos; microfridge MF-5

- 1. 4.8 CF refrigerator/freezer combination with .7 cubic feet, 700-watt microwave oven. Color white

- F. Microwave Oven: **General Electric PEB159OSMSS**

- 1. Counter top Microwave oven (stainless steel).
  - a. Capacity 1.5 cubic feet
  - b. 1,000 watts (IEC-705 test procedures)

- G. Washing Machine: **General Electric WCVH6800JMS**

- 1. Front-Load – king-size Capacity, 120V, Electric Washer with stainless steel basket.
  - a. “Energy Star” compliant.
  - b. Capacity, 4.0 IEC cubic feet.
  - c. Rotary / Electronic controls.
  - d. LED status lights
  - e. Include optional Pedestal Accessory SBS137HMS
  - f. Washer and pedestal metallic silver color

- H. Dryer: **General Electric DCVH680EJMS**

- 1. Front-Load – Super Capacity, 208V, Electric Dryer.
  - g. “Energy Star” compliant.
  - h. Capacity, 7.0 IEC cubic feet.
  - i. “Sensory Dry Plus”.

- j. Rotary electronic countdown controls with countdown display and LED indicators.
- k. Interior dryer light.
  - 1. Include optional Stack Rack GEFLSTACK.
- I. Outdoor Gas Grill: **Twin Eagles, Inc. TEBQ30GS-B**
  - 1. 30” stainless steel gas grill with LED lights
- J. Outdoor Undercounter Refrigerator: **Twin Eagles, Inc. TEOR-24-B**
  - 1. Outdoor stainless steel uncounter refrigerator
- K. Outdoor Access Doors (at gazebo grill area): **Twin Eagles, Inc. TEAD30-B**
  - 1. Outdoor stainless steel access doors
- L. Colors: Provide manufacturer's standard colors as shown or scheduled. Colors to be selected by Interior Designer.
  - 1. Wherever residential equipment by more than one manufacturer is installed in same space, provide units with matching colors unless otherwise indicated.

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

- A. General: Comply with manufacturer's instructions and recommendations.
- B. Built-In Equipment: Securely anchor units to supporting cabinetry or countertops with concealed fasteners. Verify that clearances are adequate for proper functioning and rough openings are completely concealed.
- C. Freestanding Equipment: Place units in final locations after finishes have been completed in each area. Verify that clearances are adequate for proper operation of equipment.
- D. Utilities: Refer to Division 22 and 26 for plumbing and electrical requirements.

**3.2 ADJUST AND CLEAN**

- A. Testing: Test each item or residential equipment to verify proper operation. Make necessary adjustments.
- B. Accessories: Verify that accessory items required have been furnished.
- C. Cleaning: Remove packing material from residential equipment items and leave units in clean condition, ready for operation.

**3.3 RESIDENTIAL EQUIPMENT SCHEDULE**

	<u>Quantity</u>	<u>Location</u>
A. Electric Range	2	Occupational Therapy, Activities
B. Range Hood	2	Occupational Therapy, Activities
C. Side By Side Refrig.	8	O T, Activities, Staff Lounge, Med. Prep (4)
D. Under Counter Refrig.	2	Café, Administration, Break,
E. Microfridge	5	Private Dining Vest., Charting (4)
F. Countertop Micro.	3	Café, Administration, Break, Staff Lounge
G. Washing Machine	1	Occupational Therapy
H. Dryer	1	Occupational Therapy
I. Outdoor Gas Grill	2	Gazebos
J. Outdoor U.C. Refg.	2	Gazebos
K. Outdoor Access Doors	4	Gazebos

**PART 4 - PROTECTION**

- A. Protect all appliances and adjacent work form damage and use until owner takes delivery.

**END OF SECTION 11 31 00**

## SECTION 11 40 00 - FOODSERVICE EQUIPMENT

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### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install all commercial kitchen and foodservice equipment as specified herein:
  - 1. Equipment Schedule at the end of this section.

#### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with the Conditions of Contract and Division 1 Specifications Sections.
- B. Equipment Contractor must provide within 30 days after notification of award, shop drawings showing dimensioned location, size, height, and capacity of all mechanical services required for each item of equipment, and furnish three (3) sets of these drawings to Architect and/or Owner for approval.
- C. Equipment Contractor to prepare detailed shop drawings at a minimum scale of 3/4" to the foot with necessary cross sections at a scale of 1 1/2" to the foot showing complete detail of each item of custom fabricated equipment. These drawings are to be based upon floor plans and the following itemized specifications. Drawings to include accurately dimensioned details, layouts, and location for all masonry bases if required and include accurately dimensioned details and locations of any special wall openings that are required where items of equipment extend through walls.
- D. The Equipment Contractor will check all measurements at job site of areas which might affect the installation of kitchen equipment, such as, aisles, door openings, or other functional aspects of the equipment. He shall submit drawings which show structural measurements and dimensions which are critical to the proper execution and fitting of his work. Measurements shown on drawings accompanying these specifications are approximate and are for estimating purposes only. At time of checking measurements, equipment Contractor to carefully examine spaces and existing conditions, and report to Architect and/or Owner any work performed by others which prevents him from proper execution of his work as required under the contract and obtain Architect's and/or Owner's final decision and instructions before proceeding.
- E. No changes of building dimensions or conditions affecting equipment installation shall be made by any contractor after detail drawings of food service equipment have been approved and measurements checked by Equipment Contractor.
- F. If such changes are necessary, Architect and/or Owner shall notify Equipment Contractor through General Contractor who will immediately advise them of additional cost if any, for making required changes in equipment and Equipment Contractor will await final approval from Architect and/or Owner before proceeding with that portion of the work.
- G. Submit color samples of all finishes to Architect for selection and approval.

#### 1.4 QUALITY ASSURANCE

- A. Inserts and Anchorages: Furnish inserts and anchoring devices that must be set in concrete or built into masonry; coordinate delivery with other work to avoid delay.
- B. The submitting of a bid by Equipment Contractor shall constitute full evidence that he has viewed the architectural, mechanical, and structural drawings and specifications pertaining to same, and that he is fully cognizant of the conditions under which the work must be conducted.
- C. The Architect and/or Owner reserves the right to accept or reject any/or all bids.

#### 1.5 SCOPE

- A. Kitchen Equipment Contractor is to furnish all material, equipment and items as called for on drawings and specified herein.
- B. Kitchen Equipment Contractor is responsible for consolidating all equipment, delivering all equipment to the jobsite, un-crate, assemble, set-in-place, leveling all equipment, secure and seal all equipment with back splashes to adjoining walls as included herein and at locations shown on drawings.
- C. The Kitchen Equipment Contractor must coordinate all rough-in locations, utility requirements and connections for all equipment being provided. The Kitchen Equipment Contractor is to deliver to appropriate trades all plumbing, steam fittings and electrical parts that are furnished loose as a part of the equipment, and coordinate with other trades for proper installation.
- D. Kitchen Equipment bidders are cautioned that all equipment must be fabricated so that it can be handled through finished door openings.
- E. General Contractor (or his sub-contractors) to finish all required interconnections; all finishes on the walls, floor, and ceiling; and dry wall trim as required to finish-out or complete installation of Kitchen equipment with the building.
- F. General Contractor to supply Kitchen Equipment Contractor with free use of construction elevators and/or hoisting equipment, together with operators for same that may be available on premises at time of installation.
- G. Kitchen Equipment Contractor to "Z-Clip" all back splashes to wall and (in a neat and professional manor) seal with a bead of clear silicon. General contractor is to provide wall backing as required to secure "Z-Clip" and wall mounted shelves.
- H. Kitchen Equipment Contractor to clean up all debris made by his workmen, immediately upon completion of installation and remove same from building. All debris is to be placed in a Dumpster provided by General Contractor. Kitchen Equipment Contractor to cover all equipment with plastic sheathing to protect equipment from dust and dirt accruing from building conditions.
- I. General Contractor to provide at no cost to Kitchen Equipment Contract, a Dumpster, electrical utilities, adequate lighting to assemble equipment, clear access to all food service related areas and cleaned, unencumbered work spaces.

#### 1.6 QUALIFICATION OF BIDDERS

- A. It is required that all special fabricated equipment such as food serving counters, tables, sinks, dish tables, etc., described in the following specifications, other than by name and catalog numbers, be manufactured by an equipment fabricator who has the plant, personnel and engineering facilities to properly design, detail and manufacture high quality food service equipment. The fabricator must be an NSF certified custom fabricator and must be pre-approved by Architect and/or Owner. All work in the above category manufactured by one manufacturer, of standard unit assembly, uniform design

and finish.

- B. It is required that any Kitchen Equipment Contract being considered for this project must be pre-approved by the Architect and/or Owner prior to submitting a proposal for this project. The Kitchen Equipment Contractor must have a successful record (indicated by a reference list) of projects completed in the health care industry. the required experience must include a field supervisor and crew with a minimum of five years experienced in providing equipment and a working knowledge of their unique code requirements associated with health care projects.
- C. Upon demand, Kitchen Equipment Contractor being considered for possible negotiation to submit to Architect and/or Owner evidence of having executed contracts of a size and nature comparable to this contract. He shall further submit evidence of ample financial resources which enable him to handle the work in a satisfactory manner, and to deliver items of equipment as required without delaying progress of the work.
- D. The Equipment Contractor for the equipment as herein specified is a recognized distributor for these items of equipment which are of other manufacture than his own.
- E. Only Equipment Contractors who can meet the forgoing qualifications will be considered in awarding of contract for this work.

#### 1.7 MATERIALS AND WORKMANSHIP

- A. Unless otherwise specified or shown on drawings, all material shall be new of best quality and delivered upon completion in an undamaged condition.
- B. All workmanship to be best of Contractor's respective kind. All labor to be performed in a thorough workmanlike manner by qualified, efficient and skilled mechanics.

#### 1.8 SANITARY CONSTRUCTION

- A. All Food Service equipment to be constructed in strict compliance with the National Sanitation Foundation as outlined in their bulletins on Food Service equipment and in full compliance with Public Health regulations of the State and County in which the installation is to be made.

#### 1.9 BRAND NAMES AND MANUFACTURERS

- A. Bids are to be submitted on standard manufactured equipment as shown on drawings and specifications.
- B. The name of the Custom Fabricator you wish to use must be submitted with proposal. They must be approved before a contract can be awarded.
- C. All fabricated equipment to be field measured and verified prior to fabrication. All custom fabricated items to carry the NSF seal of approval and Manufacturer label.

#### 1.10 SUBSTITUTIONS

- A. No substitutions will be permitted unless submitted to the Architect for approval with manufacturer's specification sheet and any and all deviations from that specified, and outlined in it's entirety. No substitutions will be permitted unless submitted to Architect at least ten (10) days prior to bid date. Any approved substitutions will be approved by addendum only. This project will be supplied only with listed manufacturers and equipment as specified or changed by addendum.

#### 1.11 PERMITS AND LICENCES

- A. The Equipment Contractor to give proper authorities all notices as required by law relative to work in his charge, obtain all official permits, licenses, etc., pay such proper and legal fees to public officers and other as necessary for faithful performances of the work, and which may arise incidental to fulfilling of these specifications.



## 1.12 INSPECTION AND CONDEMNATION

- A. The architect, Owner or their duly authorized representative shall have free access to Equipment contractor's shop or shops during the construction of this equipment for the purpose of making inspections to see that plans, specifications and detail drawings are being adhered to carefully. Equipment Contractor to correct any errors found during these inspections to the extent within the scope of plans, specifications and detail drawings.
- B. Material delivered to job site may be inspected by Architect, Owner or their authorized representative. The Equipment Contractor will, within a reasonable time after receiving written notice from Architect and/or Owner to that effect, proceed to remove from ground or building, all materials, fixtures or apparatus condemned by Architect, or take down and remove all portions of work which Architect and/or Owner deems as failing to conform to drawings and specifications and to conditions of the contract.
- C. The Architect, Owner or their duly authorized representative has the right to order work wholly or partially stopped until objectionable work, materials, fixture or apparatus are removed.
- D. The Architect, Owner or their duly authorized representative has the right to declare contract forfeited for non performance or not being executed according to intent of meaning of drawings and specifications.

## 1.13 WORK BY OTHERS

- A. All plumbing, steam, gas, electrical and ventilation work, both material and labor, required to connect this equipment furnished by other contractors unless specifically called for in "Itemized Specifications". The work done by other contractors to include roughing-in to points indicated on mechanical plan and final connecting from rough-in point to various pieces of equipment requiring such connection and the supplying of all necessary materials and labor for this work except as hereinafter noted. All plumbing and electrical inter-connections are to be provided by the plumbing and electrical trades. In instances where Kitchen Equipment Contractor provides loose components associated with equipment, plumbing, and electrical trades are to mount, connect and install to make units complete and operational. Plumbing contractor is responsible for confirming proper gas pressure at appliances.
- B. The Kitchen Equipment Contractor is responsible for assembling the Walk-In, running the refrigeration lines, charging the lines, start-up and check out of entire system and providing a one (1) year service warranty. The condensate drain lines, the wiring of lights, heaters, controls and all other utilities are by the respective plumbing or electrical contractors.
- C. All traps, grease traps, tail pieces, valves, stops, gas safety valves, shutoffs and fittings necessary, are to be furnished and installed under mechanical contract by others, unless specifically called for under item specifications.
- D. All steam traps, valves, shutoffs, condensate pumps, and fittings necessary are to be furnished and installed under mechanical contract by others.
- E. All line and disconnect switches, safety cut outs, control panels, fuse boxes or other electrical controls, fittings, and connections not furnished as a standard part of the fixture by the manufacturer, to be furnished and installed by others. Starting switches provided by Equipment Contractor and furnished loose as standard by food service equipment manufacturers (other than special fabricated items) to be mounted and wired complete under electrical contract.
- F. Any sleeves or conduit required for refrigeration tubing lines furnished and installed



under mechanical contract by others.

- G. Plumbing, gas and steam fitting contractors to see that all lines are flushed free of foreign matter before connecting fixtures.
- H. General contractor is responsible for all building penetrations, sleeving and patching, as required to facilitate Kitchen Equipment Contractor.

#### 1.14 TESTING AND OPERATING INSTRUCTIONS

- A. After all utility connections to equipment are made by other contractors, Equipment Contractor to conduct final test of equipment in presence of Architect, Owner or their duly authorized representative.
- B. On all mechanical equipment the Kitchen Equipment Contractor is to furnish three (3) sets of manufacturers spare parts lists, operational instructions manuals and a telephone number for warranty and service. All sets to be bound and provided with a card board cover.
- C. Upon notification by the Owner that they have their operational staff is available for In-Service, the Kitchen Equipment Contractor and/or factory representative shall perform a detailed review on the operation of all mechanical equipment.

#### 1.15 GUARANTEE

- A. The Kitchen Equipment Contractor is to guarantee all fixtures against defect in workmanship and material for one (1) year from date of installation. This guarantee to cover replacement of such defective material in accordance with the manufactures warranty. It is understood that this warranty does not cover any cost whatsoever for replacement of parts or work made necessary by misuse or carelessness of equipment. After one (1) year equipment shall be warranted in accordance with standard warranties as offered by each manufacturer.
- B. Equipment Contractor shall supply standard manufacturer's five (5) year compressor warranties for all refrigeration units.

#### 1.16 PRODUCT

- A. The following specifications apply to all items mentioned hereinafter and embrace the particular details of construction. All deviations described within item itself.

#### 1.17 ELECTRICAL SPECIFICATIONS

- A. The Equipment Contractor to supply for each motor driven appliance or electrically heated unit a suitable control switch or starter of proper type in accordance with the National Electrical Code. All switches and controls are to be listed or recognized by Underwriter's Laboratories. Controls that are mounted on vertical surfaces of fabricated fixtures to be set into recessed die-stamped stainless steel cups or otherwise indented to prevent damage.
- B. All internal wiring for fabricated equipment items, including all electrical devices built into or forming an integral part, shall be furnished and installed by Equipment Contractor in his factory with all items wired complete to a junction box within the fixture ready for final connection to building lines by Electrical Contractor. All receptacles are to be grounding type listed by Underwriter's Laboratories and approved for use by the National Electrical Code.
- C. All cord connected items must be furnished with cord sets not to exceed six (6) feet in length. All cord sets are to contain an equipment grounding conductor and be furnished with caps or plugs listed or recognized by Underwriter's Laboratories.

#### 1.18 FAUCETS, VALVES AND FITTINGS

- A. Faucets furnished as part of Food Service Equipment Contract. All faucets fitted with 12" long spouts unless otherwise stated in itemized specifications.
- B. Deck type faucets to be T&S as specified.
- C. Faucets to be properly tagged with item numbers and delivered to plumbing contractor on job. Mounting of faucets and drains to fixtures by plumbing contractor.
- D. All other fittings, such as stops on hot and cold water service, traps, valves, fittings, etc., furnished and installed by plumbing contractor.

#### 1.19 WITH IN 14 DAYS OF AWARD OF CONTRACT

- A. The Kitchen Equipment Contractor must be in regular communication with the General Contractor to develop a schedule for delivery of the Food Service Equipment.
- B. The Kitchen Equipment Contractor shall provide a field technician who is technically knowledgeable on all equipment being provided on this project. The technician must be capable of a complete utility connection review with the Trades.
- C. Approximately 8-12 weeks prior to the delivery of the Food Service equipment, the Kitchen Equipment Schedule shall meet with the General Contractor to verify that the actual locations of the rough-ins are correct.
- D. Kitchen Equipment Contractor shall review with the General Contractor and his sub-contractors the utility connections on every item in the approved Brochure and Shop Drawings.
- E. Kitchen Equipment Contractor shall discuss with the Trades how the utilities should be connected to the equipment and the review the best method for making the connections.
- F. Kitchen Equipment Contractor shall discuss with the Trades, all inter-connections and determine who is to make these connections.
- G. Kitchen Equipment Contractor shall verify critical field dimensions.

#### 1.20 PROJECT CONDITIONS

- A. Coordinate accessory locations, installation, and sequencing with other work to avoid interference and to assure proper installation, operation, adjustment, cleaning, and servicing of accessory items.

## PART 2 - MATERIALS

### 2.1 MATERIALS AND CONSTRUCTION

- A. Stainless Steel: All stainless steel shall be of gauge specified. Type 302 or 304, 18.8 composition with a number 4 mill finish. Standard content 18% chromium, 8% nickel and .02% carbon steel. All stainless steel sheets shall be stretcher leveled and shall be free of buckles, warps and surface imperfections.
- B. Galvanized Iron: Where specified shall be of an approved grade of low carbon steel. All sheets are to be commercial quality, stretcher leveled, bonderized and rolled to insure smooth surface. Paint with NSF approved hammertone gray enamel.
- C. Welding: Shall be done in a thorough workmanlike manner with all welds of the same composition as sheets or parts welded. Welds shall have full penetration the entire length of the joint and shall flat, without buckles, voids or imperfections. Welds shall have all excess metal ground off and joints finished smooth to match parent material, ground and polished on the exposed surfaces, and ground on unexposed surfaces. Welds shall be free of imperfections, such as pits, runs, splatter and cracks. All joints in the tops of fixtures, drain-boards, sinks, shelving, etc., shall not be carbon arc welded or by any method permitting carbon pick up.
- D. Soldering, riveting, bolting or spot welding of seams in tops is not acceptable for full

arc welding. The intent of this specification is that all welded joints be homogeneous with the sheet metal itself.

- E. Field Joints: All items shall be made in maximum length sections as building permits, with as few joints as possible. Field joints are provided only for the convenience of installation and shall be held to a minimum.
- F. Bolted Type (Hairline Joint): Field joints shall be drawn tight, leaving a hairline seam and shall not have any exposed screws or rivets. Joints shall be carefully fabricated to make the very best appearing joint possible. After equipment is set in place, all field joints shall be drawn tightly together, leaving only a hairline seam. Alignment on the joints shall be tightened horizontally and vertically.
- G. Welded Field Joints: At time of installation, field joints can be welded. Proper joint preparation and location shall be provided by fabricator. All joints shall be free of pits, flaws, discoloration, and peened to remove flux and impurities. Grind welds smooth and polish to original finish and grain uniform to grain of parent material.
- H. Grinding and Polishing: All exposed welded joints including field joints shall be ground smooth with adjoining material and finished to match same. Wherever material has been depressed by the welding operation, such depressions shall be hammered and peened flush with adjoining surfaces and if necessary, ground again to eliminate low spots. All ground surfaces shall be polished or buffed to match adjoining surfaces. Exercise care in all grind operations to avoid excessive heating and discoloration of metal. Wherever break bends occur, they shall be free of open texture or orange peel appearance. All such marks shall be removed by grinding and polishing and restoring to original finish. Wherever sheared edges occur, they shall be free of burrs and projections to alleviate the danger of cuts and lacerations when the hand is drawn over sheared edges. It is the intent of this specification to furnish equipment of quality standard consistent with the highest quality of manufacturing practices in the industry.

## 2.2 WORKTABLE TOPS

- A. Unless otherwise specified, all tops shall be 14 gauge stainless steel with 1 3/4" bullnose edge four sides. Where table tops are adjacent to walls or other high equipment, those edges shall be turned up 6" at 90 degrees with a 1" turn back to form a backsplash. All horizontal and vertical corners shall be coved on a 3/4" radius.

## 2.3 DISHTABLE TOPS

- A. Unless otherwise specified, all tops shall be 14 gauge stainless steel with 3" high curb terminated with a 1 1/2" roll at 180° to form a sanitary rolled rim on all working edges. Edges adjacent to walls or other high equipment shall have a 8" high backsplash with a 2 1/8" turn-back on a 45° angle and a 3/4" straight turn-down on rear to form a straight edge. All horizontal and vertical corners shall be coved on a 3/4" radius.

## 2.4 SINKS

- A. Sinks to be of size as called for in itemized specifications. Sinks to be 14 gauge stainless steel with all interior horizontal and vertical corners coved on a 3/4" radius. Back, bottom and front of sink to be formed from one continuous sheet of metal with ends and partitions welded into place.
- B. Sinks to have 1 1/2" die formed roll on all free edges and 8" backsplash at walls turned back to wall 2 1/8" on a 45° angle and 3/4" straight turn down on rear. Where roll is terminated into backsplash the roll shall be fully welded and polished thereto. Ends of splash to be closed.

- C. Sinks to be 37" high to top of roll and be 17" deep from top of roll to bottom of compartment.
- D. Partitions in multi-compartment sinks to be 14 gauge stainless steel double wall thickness. Front of sinks at partitions to be flush with no indentations or traps being visible.
- E. Bottom of each sink compartment to have four die stamped radial grooves, pitched to drain. Sinks fitted with 1 1/2" duo-drain with basket strainer unless otherwise noted in itemized specifications. Where twist handle drains are specified they shall be T&S, model #3900 - 1 1/2" chrome plated brass with a 16 gauge stainless steel bracket for rod support under each compartment.
- F. Faucet holes are to be provided in backsplash 4" down from top. Faucet holes centered over single compartment sinks and centered over partitions on multi-compartment sinks.
- G. Sinks to supported on base as specified in section entitled "Pipe Bases". Sink legs to have corner plates at leg locations welded to sink bottom. Furnish a 1 5/8" OD crossrail located 10" above floor, running front to back on legs forming a "H" frame. Sinks up to and including 72" long to have four (4) legs. Sinks over 72" to 108" long to have six (6) legs.

## 2.5 SINK INSETS

- A. Sink insets to be of size and depth as called for in itemized specifications. Insets to be 14 gauge stainless steel with all interior, horizontal and vertical corners coved on a 3/4" radius.
- B. Partitions in multi-compartment sinks to be as specified in paragraph "D" of section entitled "Sinks."
- C. Bottom of each compartment and drains to be as specified in paragraph "E" of section entitled "Sinks."
- D. Sink Insets to be fully welded and polished integral to table top.

## 2.6 SINK DRAINBOARDS

- A. Drainboards to be of size as called for in itemized specifications. Drainboards to be 14 gauge stainless steel with coved corners and backsplash same as specified in section entitled "Sinks". Backsplash to be 8" high from where drainboard intersects with sink compartment.
- B. Drainboards to be fully welded integral and polished to sinks. A minimum pitch in top of 1/2" from end of drainboard to sink compartment.
- C. Drainboards to be braced as follows, up to 30" long to have bracing same as worktables. Over 36" long to have legs as specified in section entitled "Underbracing."

## 2.7 UNDERBRACING

- A. Tops of worktables, dishtables, sinks, drainboard, enclosed base tables and serving counters to be braced with 1 1/2" X 1 1/2" X 1/8" galvanized iron angle stud bolted to the underside of top and furnished with nickel plated lock nut fasteners.
- B. Angles on worktables, dishtables, sinks and drainboard to run widthwise at each set of legs. Angles to welded to gussets. Furnish two angles under top lengthwise between legs.
- C. Angles on enclosed base tables and service counters to be widthwise on a minimum of 24" centers. Furnish angle under top lengthwise on open side of counters between partitions. Angles to be welded to adjoining body flanges.

**2.8 SOUND DEADENING**

- A. Furnish sound deadening mastic to break metal to metal contact between angle underbracing and tops on all worktables, dishtables, sinks, drainboard, enclosed base tables and serving counters except where noted otherwise below.
- B. Furnish 1/8" sound deadening compound on underside of pot sinks with drainboard and dishtables. Sound deadening to be sprayed with two coats of aluminum paint.

**2.9 PIPE BASES (Unless Otherwise Specified)**

- A. All pipe bases for worktables, dishtables, sinks and drainboard to be 1 5/8" OD. 16 gauge stainless steel type 304 tubing with #180 grit finish.
- B. Legs fitted at top with stainless steel fully enclosed sanitary gusset with locking set screw, which are welded to angle underbracing and stud bolted to top.
- C. Legs fitted at bottom with stainless steel, adjustable, sanitary bullet shaped foot insert. Bullet foot shall have a total adjustment of 1" with threads unexposed. Furnish flanged feet with two 5/16" holes for bolting to floor when called for in itemized specifications.
- D. Crossrails to be furnished 10" above floor, to be of same material as legs, with joints between leg and crossrail notched and welded to legs.
- E. Legs to be spaced a maximum of 6'-0" centers.

**2.10 DRAWERS**

- A. Drawers shall be 20" X 20" X 5" deep, or 15" X 20" X 5" deep, when required by top widths or equipment sizes. Drawer inset shall be 18 gauge stainless steel die stamped, coved corner pan, mounted on roller bearing slides with stops. Drawer inset shall be mounted in an 18 gauge stainless steel enclosed housing. Drawer inset shall be removable without the use of tools.

**2.11 UNDERSHELVES**

- A. Undershelves for pipe base tables shall be as follows unless otherwise noted in itemized specifications. 18 gauge stainless steel notched and fully welded, ground and polished to legs of tables. Underside of undershelf to have a 4" wide 14 gauge galvanized channel stud bolted lengthwise down center of undershelf. All edges shall be turned down 1 1/2" at 90 degrees and back 1/2" at 30 degrees.

**2.12 ELEVATED SHELVES**

- A. Elevated shelves to be size and shape as shown on plans constructed of 16 gauge stainless steel unless otherwise noted in itemized specifications. Free edges of elevated shelf to be finished with 1 3/4" bullnose to match worktable tops. Edges adjacent to walls or other fixtures to have 1 1/2" turned up at 90 degrees. Where shelf is adjacent to walls, it shall be mounted on bracket 1" off wall to meet NSF requirements.
- B. Wall type shelves to be mounted on 14 gauge stainless steel cantilever brackets.
- C. Table mounted shelves to be mounted on 1" OD stainless steel tubing supports, welded to a stainless steel angle, and stud bolted to the shelf. Attach to table top with brass expander bolted from underside.
- D. Elevated shelves to be mounted on 1 5/8" OD. 16 gauge stainless steel tubing with 14 gauge stainless steel cantilever bracket. Tubing support to pass-through backsplash of table and into gusset welded to table underbracing. Gusset to be fitted with set screw as described under "Pipe Bases."

**2.13 ENCLOSED BASE COUNTERS**

- A. Tops to be constructed as described under "Work Table Tops". Counters to be enclosed on rear and ends with 18 gauge stainless steel. Body of counter to be unitized

construction with ends and rear formed from continuous sheet of metal. Partitions shall be tack welded in place. Ends and partitions to terminate in a 2" wide completely enclosed mullion. Body shall be braced at top as described under section "Under bracing". Body to be 28" high with 1 1/4" turn in at 90 degree angle at top and 3/4" turn in at 90 degree angle at bottom.

- B. Bodies to be furnished with 18 gauge stainless steel bottom and intermediate shelves on open side where possible. Front edges of shelves to be turned down 1 1/2" at 90° and back 1/2" at 90 degrees to form channel edge. The intermediate shelf shall be closed on rear of channel edge. Rear and ends of shelves shall be turned up 1 1/4" at 90 degrees and tack welded to body. Shelves to be braced on underside with 14 gauge galvanized steel channels. Mount body on 6" high sanitary adjustable counter legs. Counter legs shall have 1" adjustment, with thread unexposed. Legs shall be as manufactured by Klein Hardware, bolted to an iron plate and welded to a 12 gauge galvanized steel channel welded to body. Legs to be spaced on maximum of 6'-0" centers. Counter height shall be 36" unless otherwise noted in itemized specifications.

### PART 3 - EXECUTION

**EQUIPMENT SCHEDULE: See Drawings.**

### PART 4 - PROTECTION

- A. Protect all equipment from use, damage, soiling and construction dust by covering or protecting by any means necessary to ensure safety and integrity of kitchen equipment at time of project delivery.

<b>END OF SECTION 11 40 00</b>
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## SECTION 11 48 00 - SANITIZING EQUIPMENT

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### **11 48 13 COMMERCIAL DISHWASHERS**

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

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

##### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install one commercial dishwasher for the intended purpose of **sanitizing bedpans** in the **Soiled Utility Room 175**.
- B. This section is separate and in addition to any and all commercial kitchen equipment specified for the commercial kitchen pursuant to this project.

##### 1.3 RELATED SECTIONS

- A. Section: Cast-in-Place Concrete
- B. Section: Gypsum Board
- C. Section: Flooring Finishes
- D. Section: Mechanical
- E. Section: Plumbing
- F. Section: Electrical

##### 1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Submit product data specification sheet for equipment detailed in this section.

#### PART 2 - MATERIALS

##### 2.1 MATERIALS

- A. Washer shall be **Champion model UL-100** undercounter low temperature dishwashing machine with built-in detergent, rinse-aid and sanitizer dispensing pumps.
  - 1. Features 141 second total cycle, 1 Hp pump motor, fill and dump, pumped drain. Constructed of Stainless Steel.
  - 2. With manufacturer provided modified racks for bedpan sanitization.
  - 3. Features a one year manufacturer parts and labor warranty.

#### PART 3 - EXECUTION

##### 3.1 INSTALLATION

- A. General Contractor to furnish and install all equipment and associated accessories to ensure proper operation, function, and performance.
- B. Align and level all equipment for final connection by appropriate trades.

##### 3.2 GUARANTEE

- A. All equipment to carry 1 year full warranty on parts and labor.

##### 3.3 PROJECT CLOSEOUT

- A. Equipment supplier to instruct personnel in operation of equipment in accordance with Specification Section 01 79 00; and provide operation manuals to Contractor to be included in Operations and Maintenance Manuals in accordance with Specification



Section 01 78 00.

**PART 4 - PROTECTION**

- A. Cover and protect installed equipment from water/moisture, dust, paint, abrasion, dents and any other type of damage until turned over to owner.

**END OF SECTION 11 23 00**

## SECTION 12 48 00 - RUGS AND MATS

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### **12 48 13 ENTRANCE FLOOR MATS AND FRAMES**

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

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

##### 1.2 SUMMARY

- A. This section includes all labor, materials, equipment and related services necessary to furnish and install entrance mat as indicated on drawings and specified herein.

##### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Product Data for walk-off mat assembly specified, including details of construction relative to materials, dimensions, gages, profiles, method of mounting, specified options, finishes and color selections.

#### PART 2 - MATERIALS

##### 2.1 PRODUCTS

- A. Entrance mat shall be "Pedimat" Model PM425RM (recessed vinyl/abrasive) as manufactured by Construction Specialties, Inc., Muncy, Pennsylvania.
  - 1. Or Approved Equal.

##### 2.2 FINISH

- A. Tread rail finish shall be standard medium bronze Duranodic. Vinyl colors shall be selected from manufacturer's standard colors. There shall be a minimum of six (6) colors to select from.
- B. Colors shall be selected by Architect.

#### PART 3 - EXECUTION

##### 3.1 INSTALLATION

- A. Mat shall be installed in slab depression so that top of mat and surrounding finish and material are flush.
- B. Tread shall be securely locked into tread rails. Tread rails shall be fabricated from aluminum alloy, and be continuously hinged at each tread connection to permit cleaning.

##### 3.2 GUARANTEE

- A. Provide one year guarantee against defects in material or installation.
- B. Repair or replacement of mat during one year period shall be at no charge to Owner.

##### 3.3 CLEANING

- A. Shall be in accordance with Section 01 74 00.

PART 4 - PROTECTION

A. Shall be in accordance with Section 01 76 00.

END OF SECTION 12 48 00