

**ADDENDUM NO. 01**  
**TO THE BID DOCUMENTS (PLANS AND SPECIFICATIONS) FOR**  
**MORRISVILLE-STOWE STATE AIRPORT**  
**NEW TERMINAL**  
**CHA Project # 34775**  
**Stowe, Vermont**  
**Vermont Department of Transportation**  
August 20, 2018

The following changes and/or additions shall be made to the plans and/or specifications. All other requirements of the contract documents shall remain the same. Acknowledge receipt of this addendum by inserting its number and date in the Bid Proposal.

Changes/Additions to the Bid Documents:

THIS ADDENDUM is hereby made a part of the contract documents on the subject work as though originally included therein. The following amendments, additions and/or corrections shall govern this work.

This Addendum is in the following parts as follows:

- Part I - Pertaining to Technical Specifications
- Part II - Clarifications/Responses to Contractor Questions
- Part III - List of Attachments

**PART I - PERTAINING TO TECHNICAL SPECIFICATIONS**

**Question Cut-off:** Noon, Wednesday, August 23, 2018.

**Final Addendum Submission:** Monday, August 27, 2108

**Bid Opening:** 2:00 PM, Thursday, August 30, 2018.

**Bid Form:**

Deletion: Page BF-6 – Non-Collusion Form in its entirety from the Project Proposal.

**Bid Summary:**

Revision: Page BS-1 – Bid Summary to include a Lump Sum Allowance for Fire Pump and Water Tank (attached)

**Supplementary Conditions:**

Revision: SC 5.4.1 to read as follows:

**Commercial General Liability Insurance:**

SC 5.4.1

Commercial General Liability (CGL) with limits of insurance of not less than:

Limits of Liability:

- \$1,500,000** Each Occurrence
- \$2,000,000** General Aggregate applying, **in total, to this project only**
- \$2,000,000** Products/Completed Operations **Aggregate**
- \$1,000,000** Advertising/Personal Injury
- \$ 10,000** Premises Medical Payments
- \$ 250,000** **Fire Damage Legal Liability**

**Division 01 – General Requirements:**

Revision: Specification has been revised to delete out any and all references to ‘Construction Manager’. (attached)

**Technical Specifications**

Clarification: *“Federal provision do not allow identification of a just single material, supplier, or brand name equipment. As such, by way of this Addendum, any specific material/supplier/brand names listed in the plans and technical specifications are hereby nullified. During construction, the Contractor will propose the material/supplier/brand name for each required item for review and approval by the Owners Representative.”*

Clarification: The below list of Technical Specifications shall be deleted in its entirety from the Project Proposal.

Deletion: Technical Specification **07 2400 Exterior Insulation and Finish System**

Deletion: Technical Specification **10 5113 Metal Lockers**

Clarification: The below list of Technical Specifications shall be deleted in its entirety and replaced by the attached specification:

Revision: Technical Specification **06 2013 Exterior Finish Carpentry and Siding** (attached)

Revision: Technical Specification **06 2023 Interior Finish Carpentry** (attached)

Revision: Technical Specification **06 6400 Fiberglass -reinforced plastic panels** (attached)

Revision: Technical Specification **07 2119 Spray Foam Insulation** (attached)

Revision: Technical Specification **07 2120 Insulating foam sealant** (attached)

Revision: Technical Specification **07 2125 Cellulose Blown insulation** (attached)

Revision: Technical Specification **07 2126 Fiberglass Blown insulation** (attached)

Revision: Technical Specification **07 3010 Roofing underlayment** (attached)

Revision: Technical Specification **07 4600 Rainscreen** (attached)

Revision: Technical Specification **07 5400 TPO Roofing** (attached)

Revision: Technical Specification **07 6113 Standing Seam Metal Roofing** (attached)

Revision: Technical Specification **07 6200 Sheet Metal Flashing and Trim** (attached)

Revision: Technical Specification **07 6526 Self-adhering sheet flashing** (attached)

Revision: Technical Specification **07 7253 Snow Guards** (attached)

Revision: Technical Specification **07 8413 Penetration Firestopping** (attached)

Revision: Technical Specification **07 9200 Joint Sealants** (attached)

Revision: Technical Specification **08 1113 Metal Doors and Frames** (attached)

Revision: Technical Specification **08 1416 Flush Wood Doors** (attached)

Revision: Technical Specification **08 1423 Clad Commercial Doors** (attached)

Revision: Technical Specification **08 4229 Automatic Sliding Doors** (attached)

Revision: Technical Specification **08 5400 Composite Windows** (attached)

Revision: Technical Specification **08 7100 Door Hardware** (attached)

Revision: Technical Specification **08 8113 Fire Resistant Glazing** (attached)

Revision: Technical Specification **09 2216 Metal Furring** (attached)

Revision: Technical Specification **09 2900 Gypsum Board** (attached)

Revision: Technical Specification **09 3000 Tile and Stone** (attached)

Revision: Technical Specification **09 5123 Acoustical Ceiling Tile** (attached)

- Revision: Technical Specification **09 6000 Interior Room Finish Schedule** (attached)  
Revision: Technical Specification **09 6513 Rubber Floor, Wall and Stair products** (attached)  
Revision: Technical Specification **09 6543 Linoleum Flooring** (attached)  
Revision: Technical Specification **09 6813 Carpet** (attached)  
Revision: Technical Specification **09 8116 Acoustic Blanket Insulation** (attached)  
Revision: Technical Specification **09 9100 Painting** (attached)  
Revision: Technical Specification **09 9300 Staining and Transparent Finishing** (attached)  
Revision: Technical Specification **10 1423 Panel Signage** (attached)  
Revision: Technical Specification **10 2113 Toilet Compartments** (attached)  
Revision: Technical Specification **10 2813 Toilet Room Accessories** (attached)  
Revision: Technical Specification **10 4413 Fire extinguishers and cabinets** (attached)  
Revision: Technical Specification **12 3661 Solid Surface Countertops** (attached)  
Revision: Technical Specification **12 4813 Entrance Floor Mats** (attached) (attached)  
Revision: Technical Specification **14 2423 Hydraulic Passenger Elevators** (attached)

**Addition to the Technical Specifications:**

- Insertion: Technical Specification **21 1300 Terminal Sprinkler Work** (attached)

**PART II – CLARIFICATIONS/RESPONSES TO CONTRACTOR QUESTIONS**

*First Terminal Inquiry:*

**Q. In the construction documents, I cannot find a construction start date and if there is a Certificate of Occupancy finish date. Can you point me towards that information for provide it?**

A. General Condition 2.3, page GC-3, states that the contract time will commence on the 30th day after the effective date of the contract or the date indicated on the Notice to Proceed.

General Provision 80-02 states that a Notice to Proceed will state the date the Contractor is expected to begin work.

General Requirement Specification 011000 Paragraph 1.3.A. states that the work shall be substantially complete and ready for occupancy within 120 days of Notice to Proceed.

**Note: the FAA requires construction to commence by March 1, 2019. The Notice-to-Proceed will be issued to accommodate that federal requirement. If Contractor wishes to commence work in the Fall of 2018 for the Contractor's convenience, that may permissible upon approval of Owner.**

**PART III – LIST OF ATTACHMENTS**

- Bid Summary – BS-1 through BS-2
- 01 3300 Submittal Procedures
- 06 2013 Exterior Finish Carpentry and Siding
- 06 2023 Interior Finish Carpentry
- 06 6400 Fiberglass -reinforced plastic panels
- 07 2119 Spray Foam Insulation
- 07 2120 Insulating foam sealant
- 07 2125 Cellulose Blown insulation

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- 07 2126 Fiberglass Blown insulation
- 07 3010 Roofing underlayment
- 07 4600 Rainscreen
- 07 5400 TPO Roofing
- 07 6113 Standing Seam Metal Roofing
- 07 6200 Sheet Metal Flashing and Trim
- 07 6526 Self-adhering sheet flashing
- 07 7253 Snow Guards
- 07 8413 Penetration Firestopping
- 07 9200 Joint Sealants
- 08 1113 Metal Doors and Frames
- 08 1416 Flush Wood Doors
- 08 1423 Clad Commercial Doors
- 08 4229 Automatic Sliding Doors
- 08 5400 Composite Windows
- 08 7100 Door Hardware
- 08 8113 Fire Resistant Glazing
- 09 2216 Metal Furring
- 09 2900 Gypsum Board
- 09 3000 Tile and Stone
- 09 5123 Acoustical Ceiling Tile
- 09 6000 Interior Room Finish Schedule
- 09 6513 Rubber Floor, Wall and Stair products
- 09 6543 Linoleum Flooring
- 09 6813 Carpet
- 09 8116 Acoustic Blanket Insulation
- 09 9100 Painting
- 09 9300 Staining and Transparent Finishing
- 10 1423 Panel Signage
- 10 2113 Toilet Compartments
- 10 2813 Toilet Room Accessories
- 10 4413 Fire extinguishers and cabinets
- 12 3661 Solid Surface Countertops
- 12 4813 Entrance Floor Mats
- 14 2423 Hydraulic Passenger Elevators
- 21 1313 Wet-Pipe Sprinkler Systems

**END OF ADDENDUM No. 1**

Date: August 20, 2018  
Submitted by: Mark Vilem

**BID SUMMARY FORM**

ITEM NUMBER	ESTIMATE OF QUANTITIES	ITEMS WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE BID		AMOUNT OF BID	
			DOLLARS	CENTS	DOLLARS	CENTS
1	1	Construction of New Terminal, Parking Lot, appurtenances, and demolition of existing terminal building For: _____ per <u>lump sum</u>				
		<b>SUBTOTAL</b>				
2	1	Allowance for Hazardous Material Survey For: <u>Three Thousand dollars and no cents.</u> _____ per <u>lump sum</u>	3,000	00	3,000	00
3	1	Allowance for Hazardous Material Abatement For: <u>Ten thousand dollars and no cents.</u> _____ per <u>lump sum</u>	10,000	00	10,000	00
4	1	Allowance for Fire Pump and Water Tank For: <u>One Hundred thousand dollars and no cents.</u> _____ per <u>lump sum</u>	100,000	00	100,000	00
		<b>ALLOWANCE:</b>			<b>\$ 113,000</b>	<b>00</b>
		<b>TOTAL</b>				

ITEM NUMBER	ESTIMATE OF QUANTITIES	ITEMS WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE BID		AMOUNT OF BID	
			DOLLARS	CENTS	DOLLARS	CENTS
PLEASE MAKE SURE A BID IS ENTERED FOR EACH ITEM.						
TOTAL OR GROSS SUM WRITTEN IN WORDS _____						
NOTE: In the event that there are discrepancies within the Bid Schedule, the values written in words will be the accepted quantity.						

## SECTION 013300 – SUBMITTAL PROCEDURES

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.

#### 1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Engineer's responsive action.
- B. Informational Submittals: Written information that does not require Engineer's approval. Submittals may be rejected for not complying with requirements.
- C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.
- D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

#### 1.3 SUBMITTAL ADMINISTRATIVE REQUIREMENTS:

- A. Engineer's Digital Data Files: Electronic digital data files of the Contract Drawings will not be provided by Engineer for Contractor's use in preparing submittals.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
  - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  - 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
  - 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
  - 4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
  - 1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.

2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. Resubmittal Review: Allow 15 days for review of each resubmittal.
  4. Sequential Review: Where sequential review of submittals by Engineer's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
  5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Engineer and to Engineer's consultants, allow 15 days for review of each submittal. Submittal will be returned to Engineer before being returned to Contractor.
- D. Paper Submittals: Place a permanent label or title block on each submittal item for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
  2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Engineer.
  3. Include the following information for processing and recording action taken:
    - a. Project name.
    - b. Date.
    - c. Name of Engineer.
    - ~~d. Name of Construction Manager.~~
    - e. Name of Contractor.
    - f. Name of subcontractor.
    - g. Name of supplier.
    - h. Name of manufacturer.
    - i. Submittal number or other unique identifier, including revision identifier.
      - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
    - j. Number and title of appropriate Specification Section.
    - k. Drawing number and detail references, as appropriate.
    - l. Location(s) where product is to be installed, as appropriate.
    - m. Other necessary identification.
  4. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Engineer observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
    - a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Engineer.
  5. Transmittal for Paper Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Engineer will discard submittals received from sources other than Contractor.
    - a. Transmittal Form for Paper Submittals: Use CSI Form 12.1A .
    - b. Transmittal Form for Paper Submittals: Provide locations on form for the following information:
      - 1) Project name.
      - 2) Date.
      - 3) Destination (To:).
      - 4) Source (From:).
      - 5) Name and address of Engineer.
      - ~~6) Name of Construction Manager.~~



- 7) Name of Contractor.
- 8) Name of firm or entity that prepared submittal.
- 9) Names of subcontractor, manufacturer, and supplier.
- 10) Category and type of submittal.
- 11) Submittal purpose and description.
- 12) Specification Section number and title.
- 13) Specification paragraph number or drawing designation and generic name for each of multiple items.
- 14) Drawing number and detail references, as appropriate.
- 15) Indication of full or partial submittal.
- 16) Transmittal number, numbered consecutively.
- 17) Submittal and transmittal distribution record.
- 18) Remarks.
- 19) Signature of transmitter.

E. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.
  - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).
3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Engineer.
4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner, containing the following information:
  - a. Project name.
  - b. Date.
  - c. Name and address of Engineer.
  - ~~d. Name of Construction Manager.~~
  - e. Name of Contractor.
  - f. Name of firm or entity that prepared submittal.
  - g. Names of subcontractor, manufacturer, and supplier.
  - h. Category and type of submittal.
  - i. Submittal purpose and description.
  - j. Specification Section number and title.
  - k. Specification paragraph number or drawing designation and generic name for each of multiple items.
  - l. Drawing number and detail references, as appropriate.
  - m. Location(s) where product is to be installed, as appropriate.
  - n. Related physical samples submitted directly.
  - o. Indication of full or partial submittal.
  - p. Transmittal number .
  - q. Submittal and transmittal distribution record.
  - r. Other necessary identification.

- s. Remarks.
- 5. Metadata: Include the following information as keywords in the electronic submittal file metadata:
  - a. Project name.
  - b. Number and title of appropriate Specification Section.
  - c. Manufacturer name.
  - d. Product name.
  
- F. Options: Identify options requiring selection by Engineer.
  
- G. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Engineer on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
  
- H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
  - 1. Note date and content of previous submittal.
  - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
  - 3. Resubmit submittals until they are marked with approval notation from Engineer's action stamp.
  
- I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
  
- J. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Engineer's action stamp.

## PART 2 – PRODUCTS

### 2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
  - 1. Submit electronic submittals via email as PDF electronic files.
    - a. Engineer will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
  - 2. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
    - a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
    - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.
  
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
  - 1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.

2. Mark each copy of each submittal to show which products and options are applicable.
  3. Include the following information, as applicable:
    - a. Manufacturer's catalog cuts.
    - b. Manufacturer's product specifications.
    - c. Standard color charts.
    - d. Statement of compliance with specified referenced standards.
    - e. Testing by recognized testing agency.
    - f. Application of testing agency labels and seals.
    - g. Notation of coordination requirements.
    - h. Availability and delivery time information.
  4. For equipment, include the following in addition to the above, as applicable:
    - a. Wiring diagrams showing factory-installed wiring.
    - b. Printed performance curves.
    - c. Operational range diagrams.
    - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
  5. Submit Product Data before or concurrent with Samples.
  6. Submit Product Data in the following format:
    - a. PDF electronic file.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    - a. Identification of products.
    - b. Schedules.
    - c. Compliance with specified standards.
    - d. Notation of coordination requirements.
    - e. Notation of dimensions established by field measurement.
    - f. Relationship and attachment to adjoining construction clearly indicated.
    - g. Seal and signature of professional engineer if specified.
  2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.
  3. Submit Shop Drawings in the following format:
    - a. PDF electronic file.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
  2. Identification: Attach label on unexposed side of Samples that includes the following:
    - a. Generic description of Sample.
    - b. Product name and name of manufacturer.
    - c. Sample source.
    - d. Number and title of applicable Specification Section.
    - e. Specification paragraph number and generic name of each item.

3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
  4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
    - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
  5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    - a. Number of Samples: Submit 1 full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Engineer will return submittal with options selected.
  6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
    - a. Number of Samples: Submit 3 sets of Samples. Engineer will retain 2 Sample sets; remainder will be returned
      - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
      - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least 3 sets of paired units that show approximate limits of variations.
- E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
  2. Manufacturer and product name, and model number if applicable.
  3. Number and name of room or space.
  4. Location within room or space.
  5. Submit product schedule in the following format:
    - a. PDF electronic file.
- F. Coordination Drawing Submittals: Comply with requirements specified in Division 01 Section "Project Management and Coordination."
- G. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."
- H. Application for Payment and Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."

- I. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Division 01 Section "Quality Requirements."
- J. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 01 Section "Closeout Procedures."
- K. Maintenance Data: Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."
- L. LEED Submittals: Comply with requirements specified in Division 01 sustainable design requirements Section.
- M. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of Engineers and owners, and other information specified.
- N. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- O. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- P. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- Q. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- R. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- S. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- T. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- U. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
  - 1. Name of evaluation organization.
  - 2. Date of evaluation.
  - 3. Time period when report is in effect.
  - 4. Product and manufacturers' names.
  - 5. Description of product.
  - 6. Test procedures and results.

- 7. Limitations of use.
- V. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- W. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- X. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- Y. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- Z. Engineer Construction Photographs: Comply with requirements in Division 1 Section "Construction Progress Documentation."

## 2.2 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
  - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Engineer.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file and 3 paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
  - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

## 2.3 CONTRACTOR'S PROJECT HEALTH & SAFETY PLAN

- A. No later than the Pre-construction meeting, the Contractor shall submit to the Engineer a written Project Health & Safety Plan, which states the Contractor's company policy relative to safety. The plan must also address specific health and safety concerns, which are expected to be encountered on the project. As a minimum this plan shall include:
  - 1. Listing of project and company safety officers.
  - 2. Specific company safety policies.
  - 3. Employee Safety Training Program.
  - 4. Administrative procedures to handle employee health & safety concerns.
  - 5. Procedures for insuring worker compliance with health and safety requirements.

- B. The Contractor shall be responsible to ensure that each Subcontractor employed on the project complies with the requirements of this section either by submitting a copy of the subcontractor's Project Health & Safety Plan or by submitting a letter from the Subcontractor stating that they will comply with the provisions of the Contractor's Project Health & Safety Plan.
- C. Submission of the required Project Health & Safety Plan by the Contractor is primarily for information or record purposes and shall not be construed to imply approval by the Engineer or to relieve the Contractor from the responsibility to adequately protect the health & safety of all workers involved in the project.

## PART 3 – EXECUTION

### 3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer .
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

### 3.2 ENGINEER'S ACTION

- A. General: Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
  - 1. Final Unrestricted Release: Where submittals are marked "No Exceptions 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 "Revise and Resubmit," "Rejected," or "Submit Specified Item," 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 "Revise and Resubmit," "Rejected," or "Submit Specified Item" to be used at the Project site, or elsewhere where Work is in progress.
  - 4. Other Action: Where a submittal is primarily for information or record purposes, special processing or other activity, the submittal will be returned, marked "Action Not Required."
- C. Informational Submittals: Engineer will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Engineer will forward each submittal to appropriate party.

D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

END OF SECTION



SECTION 06 2013  
EXTERIOR FINISH CARPENTRY AND SIDING

## PART 1 GENERAL

## 1.1 SECTION INCLUDES

- A. Exterior finish products including the following:
  - 1. Wood timber posts and beams.
  - 2. Wood siding.
  - 3. Window casings.
  - 4. Wood fascias, rakes, soffits, etc.
  - 5. Wood barn doors..

## 1.2 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: 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.
- C. Selection Samples: For each product specified, two complete sets of material samples representing manufacturer's full range of available species and textures.

## 1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum 5 year experience manufacturing similar products.
- B. Installer Qualifications: Minimum 2 year experience installing similar products.
- C. Certified Wood: Operations shall be FSC and PEFC Chain of Custody certified.
  - 1. TFP #: FSC C005906.
  - 2. TFP #: PEFC/26-31-27.
- D. Grading shall be established by published grading rules.
- E. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
  - 1. Finish areas designated by Architect.
  - 2. Do not proceed with remaining work until workmanship is approved by Architect.
  - 3. Refinish mock-up area as required to produce acceptable work.

## 1.4 PRE-INSTALLATION MEETINGS

- A. Convene minimum two weeks prior to starting work of this section.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.
- B. Handling: Handle materials to avoid damage.

## 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 recommended limits.

## 1.7 SEQUENCING

- A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

## PART 2 PRODUCTS

### 2.1 MATERIALS

- A. General: Exterior wood products unless noted otherwise are to be kiln dried, premium grade or better eastern white pine.
- B. All wood products are to be kiln dried and shall at time of use, have moisture content (M.C.) no greater than 10%.
- C. All wood products shall be of consistent texture and ready for staining/painting.
- D. All products shall be primed on six sides prior to installation, as scheduled in Section 09 9300.
- E. All products shall be finished, as scheduled in Section 09 9300.
- F. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
- G. Products:
  - 1. Exterior Fascia Board (2 piece)
    - a. 1 x 8 Fascia
    - b. 1 x 4 shadow board
  - 2. Exterior soffit
    - a. ½" Rough sawn fir/pine plywood, with ¼" x 1 ½" battens at 24" o.c.
  - 3. Exterior Rake & Eave Frieze
    - a. 5/4 x 6"
  - 4. Exterior Window Casing
    - a. 5/4 x 4" jamb casing
    - b. 5/4 x 4" head casing
    - c. 2 x 1 ½" sills with drip kerf, STK Western Red Cedar
  - 5. Exterior Door Casing
    - a. 5/4 x 4" jamb casing
    - b. 5/4 x 4" head casing
  - 6. Exterior Inside Corners:
    - a. 5/4 x 5/4
  - 7. Exterior Vertical Siding:
    - a. 1 x 8, band sawn, with custom T&G profile as indicated on drawings.
  - 8. Exterior Barn Doors:
    - a. 2 x 6 frame (5 piece), over vertical siding boards.
  - 9. Exterior Main Entry Timbers:
    - a. Sizes as indicated on drawings, air-dried, eastern hemlock.
      - 1) Fasteners: Timberlok screws (as blind as possible).

10. Exterior Main Entry Roof Ceiling:
  - a. 3 x 6" T&G square edge kiln dried spruce.

### 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. Install in accordance with manufacturer's instructions.
- B. Products shall have all butt and scarf joints caulked with a quality, exterior rated, flexible caulk prior to paint application. All non-trim/fascia abutments shall be caulked and sealed with the same exterior grade caulk.
- C. Use only corrosion resistant fasteners. Acceptable are stainless steel or hot-dipped galvanized nails; minimum size - 7 penny.
- D. Joints shall fall over framing lumber and shall be double nailed. Trim boards of 10 inches (254 mm) or greater in width require 3 nails evenly spaced across the face of the board. Do not nail any less than 1/2 inch (13 mm) from any edge and fasten at a minimum of every 24 inches (610 mm) on center.
- E. Drive nails perpendicular to the framing lumber and the wood trim product; drive nails flush with the product's surface. Nails shall penetrate at least 1-1/4 inches (32 mm) into the structural framing.

#### 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



SECTION 06 2023  
INTERIOR FINISH CARPENTRY

## PART 1 - GENERAL

## 1.1 SUMMARY

- A. Work of this Section consists of milled certified wood, and includes but is not limited to the following:
1. Millwork, molding and trim
    - a. Window casings, extensions, stools, and apron.
    - b. Baseboards
    - c. Wall bumpers
    - d. Miscellaneous interior wood trim
  2. Accessories including, but not limited to, fasteners

## 1.2 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting:
1. Meeting purpose shall be to review site conditions, installation procedures, schedules, coordination with other work, and warranty requirements.
- B. Sequencing:
1. Millwork Fabricator:
    - a. Certified wood stored and tracked separately.
    - b. Maintains dust control.
    - c. Wood scrap, chips and dust reused, recycled or converted into harnessed energy.
    - d. Uses non-toxic, and low or no-VOC adhesives and finishes.
    - e. Does not use cadmium or chromium-plated materials.
    - f. Millwork and harvested forest resource transported less than 500 miles (805 km).
  2. Jobsite: Certified wood materials stored and tracked separately prior to installation.

## 1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's printed descriptions of materials, components and systems, performance criteria, use limitations, recommendations and installation information.
- B. Shop Drawings: Submit keyed location plans, detailed and keyed plans and elevations indicating materials, dimensions, finishes, hardware, blocking and other attachment requirements.
- C. Samples:
1. Initial for Selection: Submit printed color charts or sample chains indicating manufacturer's complete range for each type of material finish exposed to view that is not yet selected by Architect or specified.
  2. Final Selection: Submit 6 inch (150mm) long sample of each different profile (grain and species for clear finishes) with proposed finishes, and fasteners.
- D. Quality Assurance Submittals:
1. Certificates: Submit printed certificates or manufacturer's letterhead with manufacturer's signature certifying that each product and/or system meets each regulatory requirement, sustainability characteristic, performance requirement, design criteria, and applicable standard specified.
    - a. KD Certificates: Kiln-dried moisture content by (ALSC) recognized inspection agency.
  2. Qualification Statements: Submit a letter, on printed letterhead and signed by an officer of the firm, for each listed quality assurance qualification listed, attesting to meeting each requirement called out.

## E. Closeout Submittals:

1. Operation and Maintenance Data: Including, but not limited to, methods for maintaining installed products and precautions against cleaning materials with methods detrimental to finishes and performance.
2. Record Documents: Drawings, Specifications, and Product Data.

## 1.4 QUALITY ASSURANCE

## A. Regulatory Requirements

1. Provide AWI / AWMAC / WIC Quality Certification Program labels and inspection or Certificate indicating that woodwork complies with the requirements of the grades specified. Finish Carpentry Work shall conform to one of the following program type(s):
  - a. Premium
  - b. Custom

## B. Qualifications:

1. Manufacturer: A firm experienced a minimum five (5) years in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance.
  - a. Manufacturer shall source wood materials from sustainably managed forests.
  - b. Manufacturer shall be capable of providing Third Party Certification that wood materials were sourced from sustainably managed forests.
2. Supplier: A firm capable of providing Third Party Certification that wood materials were sourced from sustainably managed forests.
3. Fabricator: A firm experienced a minimum five (5) years in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
  - a. Fabricator shall source wood materials from sustainably managed forests.
  - b. Fabricator shall be capable of providing Third Party Certification that wood materials were sourced from sustainably managed forests.
4. Installer: Perform installation with skilled, experienced and trained workmen supervised by trained personnel who shall have a minimum three (3) years successful experience in installations of similar size and scope.

## C. Sustainability Standards and Certifications:

1. Engineered wood shall be made using non-toxic glues, no added formaldehyde, and 100 percent recycled fibers or certified sustainably harvested wood.
2. Adhesive and Sealant VOC Limits: According to South Coast Air Quality Management District Rule 1168 and GS-36 for aerosols.
3. VOC Limits: As tested using U.S. EPA Reference Test Method 24 and as defined by
  - a. South Coast Air Quality Management District Rules: In areas where exposure to freeze/thaw conditions and direct exposure to moisture will not occur.
    - 1). SCAQMD Rule 1113, Architectural Coatings
    - 2). SCAQMD Rule 1168, Adhesive and Sealant Applications
  - b. Bay Area Air Quality Management District Regulation: For containers larger than 16 oz., for areas where freeze/thaw conditions do exist or direct exposure to moisture can occur.
    - 1). BAAQMD Regulation 8, Rule 51
  - c. California Air Resources Board: For areas where freeze/thaw conditions do exist or direct exposure to moisture can occur.
    - 1). CARB for containers 16 oz. or less.
  - d. Green Seal Standards:
    - 1). GS-11, Low Odor or Low VOC Paint
    - 2). GC-03, Anti-Corrosive Paints, Second Edition, January 7, 1997
4. Composite wood and agrifiber products shall contain no added urea-formaldehyde resins.
5. Certified Wood Materials: According to FSC-STD-40-004 chain-of-custody requirements.

D. Mock-ups: Provide materials or assemblies of each unit type for review and approval prior to benchmarking, manufacturing or fabrication production indicating each different:

1. Each different joint connection detail
2. Each different support, and exposed fastener
3. Bends, angles and corners
4. Finishes
5. Special grain patterns and acceptable wood defects.

## 1.5 DELIVERY, STORAGE, AND HANDLING

A. Delivery, Storage and Handling:

1. Delivery and Acceptance Requirements
  - a. Deliver materials to Project site in an undamaged condition, in original bundles and bearing intact labels.
  - b. Inspect shipped materials on delivery to ensure compliance with requirements of Contract Documents and to ensure that products are undamaged and properly protected.
    - 1). Reject damaged goods, and accept properly ordered, protected and undamaged goods.
2. Storage and Handling Requirements
  - a. Protect wood materials and accessories from soiling, damage, and deterioration, handling with proper care in proportion to the fragility and hazard of each item and its finished surfaces.
  - b. Protect materials during shipping, handling, storage and installation from exposure to harmful conditions including, but not limited to, weather, vandalism, extreme changes in temperature, dryness or humidity, denting, chipping, gouging, warping, peeling, moisture, construction operations, and other damage.
  - c. Store product materials from exposure to harmful conditions including, but not limited to, weather, vandalism, extreme changes in temperature, direct sunlight, dryness or humidity, water, construction operations, and other damage.
    - 1). Store certified materials separately for auditing.
3. Packaging Waste Management
  - a. Require that manufacturers, fabricators, suppliers and shippers provide least amount of packaging that adequately and properly protects, supports and contains the items shipped, and is reusable, returnable or recyclable.

1.6 WARRANTY A. Manufacturer Warranty: Contractor shall provide Wood Treatment manufacturer's twenty (20) year limited warranty against structural damage due to termites, carpenter ants and fungal decay.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Interior wood products unless noted otherwise are to be kiln dried, douglas fir, mixed grade.
- B. All products to be kiln dried and shall at time of installation have moisture content (M.C.) no greater than 7%.
- C. All products shall be of consistent texture and ready for oil/stain.
- D. All products shall be sealed (prime on six sides, and first finish coat) before installation, as scheduled in Section 09 9300.
- E. All products shall be finished, as scheduled in Section 09 9300.
- F. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

## G. Products:

1. Interior Wood Baseboard:
  - a. 5/4 x 4"
2. Interior Window Casing:
  - a. 1 x 4 head casing
  - b. 1 x 4 jamb casing
3. Interior Window Extensions:
  - a. 1 x extension head
  - b. 1 x extension jamb
4. Interior Window Stool:
  - a. 5/4x square edge (eased slightly), flush horns.
5. Interior Window Apron:
  - a. 3/4" x 2"
6. Interior Wall Bumper (2 piece):
  - a. 5/4 x 2 stool
  - b. 1 x 3 running trim

## 2.2 ACCESSORIES

A. Fasteners: Of appropriate type, length and durability for wood product used to securely fasten to the substrate or other wood product for the intended life, exposure, and use of the unit.

## PART 3 - EXECUTION

## 3.1 FIELD CONDITIONS

## A. Ambient Conditions:

1. Environmental Limitations: Do not deliver or install wood products until building is enclosed, wet work is complete, and HVAC system is operating and consistently maintaining temperature and relative humidity (RH) at occupancy levels, and in accordance with manufacturer's recommendations.

B. Enhanced Ventilation Mode: Initial mechanical ventilation flushing cycle of 3 ACH used to reduce initial material VOC chemical off-gasses, CO2 levels, and suspended particulate contaminant levels.

1. Maintain RH from 30 to 60 percent and allow for expansion/contraction in installed wood materials.

## C. Existing Conditions

1. Field measurements as required.
2. Locate concealed framing, blocking and reinforcements that support woodwork and document on Shop Drawings before work is enclosed. All preparatory support work shall be subject to inspection and approval of Architectural Woodworker and other trades.
3. Establish dimensions as accurately as project progress allows, provide scribes for site fitting where necessary.

## 3.2 EXAMINATION

## A. Examination:

1. Acceptance of Conditions: Carefully examine installation areas with Installer/Applicator present, for compliance with requirements affecting Work performance.
  - a. Verify that field measurements, surfaces, substrates, structural support, utility connections, tolerances, levelness, plumbness, humidity, moisture content level, cleanliness and other conditions are as required by the manufacturer, and ready to



receive Work.

b. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.3 PREPARATION

#### A. Preparation:

1. Layout installation by marking extents of each item, and anchoring / fastening locations coordinated with blocking or other structural support.
  - a. Marks shall be covered up and hidden by installation.
  - b. GC to locate areas out-of-level and correct.
2. Protect adjacent conditions:
  - a. Protect adjacent substrates, installed work and existing items from damage by construction operations with temporary but effective means.
3. Surface Preparation for Coating System:
  - a. Remove hardware and hardware accessories, plates, and similar items in places that are not to be coated, or provide surface-applied protection prior to surface preparation and painting.
    - 1). Remove items if necessary for complete sealing or finishing of items and adjacent surfaces.
    - 2). Clean surfaces, before applying paint or surface treatments, removing oil, grease and all other foreign substances.
    - 3). Schedule cleaning and painting so that dust and other contaminants from the cleaning process will not fall on wet, newly-coated surfaces.
    - 4). Following completion of coating operations in each space or area, items shall be reinstalled in the same manner that they were removed.
  - b. Unfinished Wood Surfaces: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper. Sand smooth surfaces exposed to view and dust off.
    - 1). Scrape and clean small, dry, seasoned knots.
    - 2). Prime, stain, or seal wood to be painted immediately upon delivery. Prime edges, ends, faces, undersides, and backsides of wood. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
    - 3). When transparent finish is required, backprime with spar varnish.
4. Product Preparation: Handle products in accordance with manufacturer's instructions and warranty requirement including, but not limited to:
  - a. Remove shipping / storage protection
  - b. Acclimatize product to installation location.
  - c. Strictly adhering to manufacturer's handling and installation safety requirements.

#### B. Door and Window Openings

1. Examine if rough openings are square, plumb and correctly sized.
  - a. Correct rough openings more than 1/2 inch in. out of plumb and adjust sole plate.
  - b. Shim rough opening to doorframe as needed to make plumb and compensate for twist.

### 3.4 INSTALLATION

#### A. Installation:

1. General:
  - a. Place finish carpentry to indicated levels and lines, with members plumb, aligned, cut, and fitted.
  - b. Fit finish carpentry to other construction; scribe and cope as needed for accurate fit.
    - 1). Provide flush hairline joints.
    - 2). Fit scribe wood to irregularities of adjacent surfaces.
  - c. Shim using concealed shims.

- d. Allow for expansion and contraction movement of wood material joints due to moisture.
- e. Abut and align top and face edge surfaces in one true plane, with internal supports placed to prevent deflection. Plane solid wood when necessary to make top and face planes aligned and flush.
- f. Fasten or anchor materials and units in a concealed manner with fasteners appropriate to use and anticipated durability.
  - 1). Do NOT use chromium-plated metal fasteners and anchors.
  - 2). Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials.
  - 3). Make tight connections between members.
  - 4). Install fasteners without splitting wood; pre-drill hardwood and countersink nail heads, fill flush and sand smooth, unless otherwise indicated.
  - 5). Place fasteners, when exposed, aligned in straight rows parallel with edges of members for exposed work, with fasteners evenly spaced, and with adjacent rows staggered.
- g. Wood with Transparent Finish: Match color and grain pattern.

2. Trim:

- a. Inside Corner: Butt one side-piece to wall, and cope second side piece to fit tight to profile of the first piece.
- b. Outside Corner: Miter both pieces.

### 3.5 FIELD QUALITY CONTROL

A. Site Tests and Inspections:

- 1. Allow and facilitate unscheduled inspections of timber source stands, complete forestry operations, and sawmill to meet FSC or other sustainability standards.

B. Non-Conforming Work per General Conditions and as follows:

- 1. Remove, Repair and Reinstall or Restore in Place damaged items.
  - a. Finish touch-up damaged surface finishes.
  - b. Apply EPA registered treatment to water-damaged treated lumber.
- 2. Replace damaged materials or items with New if repair not acceptable to Architect.

### 3.6 CLEANING

A. Waste Management:

- 1. Disposal Requirements:
  - a. Handle hazardous waste in strict accordance with manufacturers' recommendations and AHJ rules and regulations for materials regulated under RCRA (Resource Conservation and Recovery Act).
  - b. On-site incineration not allowed.
- 2. Coordinate take-back program with manufacturer, if applicable.
  - a. Store and return pallets, containers and packaging to manufacturer or fabricator or recycler for reuse or recycling.
  - b. Store scrap materials to be returned to manufacturer for recycling into new product.

B. Provide Progress Cleaning:

- 1. Work Areas: Continuously clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
  - a. Clean and maintain completed construction until Substantial Completion.
- 2. Site: Continuously maintain Project site free of waste materials and debris.

C. Provide Final Cleaning immediately prior to Substantial Completion inspection per Division 01.

### 3.7 CLOSEOUT ACTIVITIES

A. Substantial Completion Requirements per Division 01.

3.8 PROTECTION

A. Protect installed work from weather, vandalism and construction operations damage until Final Completion or Owner occupancy, whichever comes first.

END OF SECTION



SECTION 06 6400  
FIBERGLASS-REINFORCED PLASTIC PANELS

## PART 1 - GENERAL

## 1.1 SUMMARY

A. Provide fiberglass reinforced plastic (FRP) panels for wall applications.

## 1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's literature including product characteristics, accessories and limitations.
- B. Selection Samples: Submit samples of colors and finishes if requested by Architect.
- C. Verification Samples: Submit samples of selected materials specified to verify color and finish.
- D. Industry Certifications and Standards: Submit copy of documentation indicating compliance.

## 1.3 QUALITY ASSURANCE

A. Manufacturer: Minimum of 5 years experience manufacturing similar products.

## 1.4 DELIVERY, STORAGE AND HANDLING

A. Deliver materials and products in unopened factory labeled packages. Store and handle in strict compliance with manufacturer's instructions and recommendations.

## 1.5 WARRANTY

A. Manufacturer's Warranty: Provide manufacturer's standard warranty against defects in manufacturing.

## PART 2 - PRODUCTS

## 2.1 FIBERGLASS REINFORCED PLASTIC PANELS

A. Manufacturer: Panolam FRP by Panolam Industries International, Inc., 20 Progress Drive, Shelton, CT 06484.. Tel: 877-726-6526, Fax: 203-225-0050. Web: www.panolam.com. Panels shall comply with the following:

1. Classic Collection: White color.
2. Surface Texture: Smooth.
3. Fire Rating ASTM E 84: Class A.
4. Sustainability, Indoor Air Quality: GREENGUARD Gold Certification.
5. Thickness: 0.090 inches.
6. Barcol Hardness ASTM D2538: 35 typical.
7. Water Absorption ASTM D570: 0.2 percent typical.
8. Accessories: Color matched dividers, outside corners, inside corners, end caps and fastening rivets.
10. Adhesive: As recommended by manufacturer.

B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

## PART 3 - EXECUTION

## 3.1 EXAMINATION

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

## 3.2 INSTALLATION

A. Install products in strict accordance with manufacturer's instructions and approved submittals.

1. Clean substrate of dirt, dust, waxes, and other bond breaking substances prior to beginning installation.
2. Install panels with bottom edge located to clear top of resilient base.

3. Apply adhesive uniformly using adhesive manufacturers recommended trowel to the entire back of panels completely to the edge (100% coverage).
4. Lay FRP panels in place leaving approximately 1/8 inch between panels and 1/4 inch space top and bottom.
5. Follow adhesive manufacturer's recommendations for set and application times.
6. Apply pressure to entire panel face with laminate type roller, removing trapped air and ensure proper adhesion between surfaces.

### 3.3 ADJUSTING AND CLEANING

- A. Replace installations out of plumb and not aligned with adjacent panels and construction.
- B. Clean panel face to remove soiling, stains, dust, and dirt using clean rags, and cleaning agents as instructed by manufacturer.
- C. Leave installation clean, free of residue and debris resulting from work of this Section.

END OF SECTION

SECTION 07 2119  
SPRAY FOAM INSULATION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Spray-in-place semi-rigid open-cell polyurethane foam insulation in assemblies indicated on the Drawings, to provide an air barrier and improved thermal resistance.
- B. Spray-in-place rigid closed-cell polyurethane foam insulation in assemblies indicated on the Drawings, to provide an air barrier and improved thermal resistance.

1.2 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Before commencing work, submit in accordance with local code:
  - 1. Technical data sheet from the manufacturer showing the test results from the ASTM E84 (Surface Burning Characteristics).
  - 2. Other technical data sheets and samples as required by local code officials.
- C. Product Data: 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.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications:
  - 1. Contractor performing work under this section shall be trained by Demilec in the art of applying spray polyurethane foam insulation.
  - 2. Provide current Demilec Authorized Contractor Certification.
- B. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
  - 1. Finish areas designated by Architect.
  - 2. Do not proceed with remaining work until installation is approved by Architect.
  - 3. Rework mock-up area as required to produce acceptable work.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Materials shall be delivered in manufacturer's original containers clearly labeled with manufacturer's name, product identification, safety information, net weight of contents and expiration date.
- B. Material shall be stored in a safe manner and where the temperatures are in the limits specified by the material manufacturer.
- C. Empty containers shall be removed from site on a daily basis.

1.5 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 recommended limits.

- B. Ventilate area to receive insulation to maintain safe working conditions.
- C. Protect workers as recommended by standards and manufacturer's recommendations.
- D. Protect adjacent surfaces, windows, equipment and site areas from damage of overspray.

## 1.6 WARRANTY

- A. Manufacturer's Warranty: Demilec warrants spray-in-place urethane foam insulation, when installed by authorized contractors using factory-trained applicators and applied in accordance to the Installation Instructions, will perform as stated in the Product Technical Data Sheet.
  - 1. This warranty is in effect throughout the life of the building provided the original purchaser registers with the Warranty Department of the Manufacturer within thirty days of occupancy.
  - 2. Manufacturer's sole responsibility under this Limited Lifetime Warranty shall be to repair or replace any defective Product at the cost of the material only.
  - 3. Manufacturer shall not be responsible for labor cost or any other costs whatsoever related to, or in connection with the removal or installation of either the original or replacement product.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Demilec, which is located at: 3315 E. Division St.; Arlington, TX 76011; Toll Free Tel: (888) 224-1533; Tel: (817) 640-4900; Fax: (817) 633-2000; Email: [buildingsscience@demilec.com](mailto:buildingsscience@demilec.com); Web: [www.demilec.com](http://www.demilec.com)
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

### 2.2 SPRAY FOAM INSULATION

- A. Spray Applied Rigid Polyurethane Closed Cell Foam Insulation System:
  - 1. Product: HEATLOK SOY 200 PLUS manufactured by Demilec, Arlington, TX
  - 2. Product Approval:
    - a. International Code Council Evaluation Services Report #3210.
    - b. Approved for non-structural walls in building types I, II, III, IV, and V construction under IBC and dwellings for IRC.
    - c. Approved for exterior walls in building types I, II, III, and IV construction. (In progress.)
    - d. Passed AC 377 Appendix X compliant NFPA 286.
  - 3. Installation:
    - a. Application with a prescriptive Thermal Barrier:
      - 1) Up to 9-1/4 inches (235 mm) for wall cavities and 11-1/4 inches (286 mm) in floors or ceilings with 1/2 inch gypsum wall board or equivalent 15 minute thermal barrier in accordance with IBC 2603.4 or IRC R316.4.
    - b. Application without a Thermal or Ignition Barrier (exposed foam)
      - 1) Up to 9-1/4 inches (235 mm) in walls and 11-1/4 inches (286 mm) in floors and ceilings with all foam surfaces covered with BLAZELOK TBX intumescent coating.
    - c. Application without a Thermal or Ignition Barrier (exposed foam)
      - 1) Up to 5-1/2 inches (171 mm) in walls and 7-1/2 inches (190 mm) in floors and ceilings with all foam surfaces covered with 12 dry mils (18 wet mils) of BLAZELOK TBX intumescent coating.
      - 2) Refer to ESR 3210 Section 4.3 Thermal Barrier.



- d. Attics and Crawlspace: Passed AC 377 Appendix X compliant NFPA 286.
  - 1) Up to 7-1/2 inches (190.5 mm) on vertical surfaces and 11-1/2 (292 mm) inches on the underside of the space with no intumescent coating.
- e. Use on Attic Floors:
  - 1) Up to 7-1/4 inches (190.5 mm) between and over the joists in attic floors.
- f. Use as Water-Resistive Barrier:
  - 1) Minimum 1-1/2 inches (38 mm) continuous layer applied to suitable exterior substrate.
  - 2) Refer to ESR # 3210 Section 4.5.
- g. One-hour Fire-resistance-rated Wall Assembly: Nonload-bearing:
  - 1) Refer to ESR #3210 Section 4.6.
- 4. Physical Properties:
  - a. Density (ASTM D 1622): 2.1 lb/ft<sup>3</sup> (34 Kg/m<sup>3</sup>).
  - b. Thermal Resistance (ASTM C 518): Aged R value at 1 inch (180 days at 76 degrees F (23 degrees C)) - R-7.4 (sf.h degree F/BTU).
  - c. Water Vapor Permeance at 1.2 inches (ASTME 96-05): Less than 1 perms (is a vapor barrier per IBC Section 202 definitions at 1.2 inches)
  - d. Air Permeance at 75 Pa at 1 inch (ASTME 2178-03): 0.02 L/sm<sup>2</sup>.
  - e. Air Leakage of Air Barrier Assembly (static loading to 600 Pa and gust loading to 1,200 PA) Complies with ABAA requirements (ASTME 2357-05): Less than 0.02L/sm<sup>2</sup> .
  - f. Compressive Strength (ASTM D 1621): 28.7 psi (198 kPa).
  - g. Tensile Strength (ASTM D 1623): 46.2 psi
  - h. Off Gassing Test (VOC Emissions) (CGSB 51.23-92): Pass (no toxic vapor).
  - i. Surface Burning Characteristics (ASTM E 84) 4 inches: Class I. Flame Spread Index 20, Smoke Developed Index 400.
  - j. Closed Cell Content (ASTM D2856) : Greater than 90%.
- 5. Equipment used to apply the foam insulation shall have fixed ratio positive displacement pumps and approved by foam manufacturer.

## 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.
- C. Commencement of work outlined in this section shall be deemed as acceptance of existing work and conditions.

### 3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Apply only when surfaces and environmental conditions are within limits prescribed by the material manufacturer.
- C. 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. Install in accordance with manufacturer's instructions. Apply as recommended by manufacturer to thickness as indicated on drawings.

- B. Apply thermal barrier as required by applicable codes noting the following:
  - 1. Except as provided in Section 314.5 and Section 314.6 of the 2006 International Residential Code, Section 316.5 and Section 316.6 of the 2009 International Residential Code and Section 2603.4.1 and Section 2603.9 of the International Building Code, all plastic insulation shall be separated from the interior of the building by an approved thermal barrier of 1/2 inch (13 mm) gypsum wallboard or equivalent thermal barrier material.
  - 2. Code compliant fire protection may be achieved with the use of BLAZELOK IB4 and BLAZELOK TBX depending on the details of the application.

#### 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

SECTION 07 2120  
INSULATING FOAM SEALANT

## PART 1 GENERAL

## 1.1 SECTION INCLUDES

- A. Low pressure foam sealants of the following types:
  - 1. Foam sealants.

## 1.2 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: 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.

## 1.3 QUALITY ASSURANCE

- A. Installer Qualifications:
  - 1. For professional use only.
  - 2. Provide qualified installers, familiar with the application and products being used per manufacturer's guidelines.

## 1.4 ENVIRONMENTAL REQUIREMENTS

- A. Comply with manufacturer's recommended temperature and substrate requirements during application and curing of the product. Substrate must be clean, dry, firm, free of loose particles and free of dust, grease and mold release agents. Protect surfaces not to be foamed.
- B. Provide adequate ventilation where the product is being applied to help control worker exposure to airborne contaminants.
- C. Consult the manufacturer's Safety Data Sheets, product stewardship guidelines and operating instructions before use.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store in a dry location. Comply with manufacturers operating and technical instructions for storage, handling and personal protection information prior to and during product installation.

## 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 recommended limits.

## PART 2 PRODUCTS

## 2.1 MANUFACTURERS

- A. As listed below.

- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

## 2.2 SEALANT FOAMS

- A. Product: DOW GREAT STUFF PRO™ Window & Door Insulating Foam Sealant.

## 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. Substrate shall be clean, dry, firm, free of loose particles and free of dust, grease and mold release agents.
- 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. Install in accordance with manufacturer's instructions.
- B. Product shall be installed according to local code.
- C. Follow ambient and substrate temperature range recommendations when applying the product.

### 3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. For exterior applications, provide a coating or painting for protection from UV radiation.
- C. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 07 2125  
CELLULOSE BLOWN INSULATION

PART 1 – GENERAL

1.01 Work Included

A. Work under this section consists of the furnishing of all labor, materials and equipment necessary for or incidental to the complete and proper installation of all cellulose insulation as shown on the drawings or specified herein, all in accordance with the contract documents.

B. Material and installation shall conform to applicable building code requirements of all authorities having jurisdiction.

1.02 Quality Assurance

A. Manufacturer shall furnish evidence of conformance with Consumer Products Safety Commission Interim Safety Standard 16 CFR Part 1209 and with the applicable ASTM material standard for the specific type of cellulose insulation.

B. If required by the insulation manufacturer applicator shall furnish evidence of training, experience and approval of the manufacturer.

1.03 Delivery, Storage and Handling

A. Materials shall be delivered to the site in clearly labeled packaging conforming with the labeling requirements of Consumer Products Safety Commission Interim Safety Standard 16 CFR Part 1209 and 1404, Federal Trade Commission R-Value Rule 16 CFR Part 460, and with the applicable ASTM material standard for the specific type of cellulose insulation.

B. Materials shall be protected from the weather and other damage.

C. Damaged materials found unsuitable for use will be rejected and shall be removed from the site.

1.04 Project, Site Conditions

A. Cellulose insulation shall not be installed under temperature and humidity conditions not approved by the manufacturer.

B. In the case of materials installed with added moisture provide natural ventilation to properly cure the insulation during and subsequent to its application.

1.05 Cleaning

A. After completion of insulation work in an area, equipment shall be removed and all surfaces shall be cleaned of all deposits of insulation material.

PART 2 - PRODUCTS

2.01 Materials

A. Insulation shall be cellulose insulation.

B. Insulation shall conform with Consumer Products Safety Commission Interim Safety Standard 16 CFR Part 1209 and with the applicable ASTM material standard for the specific type of cellulose insulation.

C. Retention membranes, if required, shall conform with the requirements of the insulation manufacturer and building codes.

D. Ventilation baffles are to be installed as indicated on the drawings.

PART 3 - EXECUTION

3.01 Preparatory Work

A. Installer shall verify by inspection and with the general contractor that preparatory work specified has been properly done, including, but not limited to assuring that stud and joist spaces are accessible, free of debris and contain all scheduled pipes, conduits and non-heat producing devices and that heat-producing devices and elements that are not inherently fireproof are shielded such that insulation will be held 3" away.

### 3.02 Application

A. Insulation shall be installed in conformance with applicable codes, the manufacturer's published instructions or Cellulose Insulation Manufacturers Association Technical Bulletins 2, 3, or 5; and ASTM Standard Designation C1015.

### 3.03 Field Quality Control

A. Installation in attic space: specified R-value shall be based on the manufacturer's coverage chart, developed in conformance with the requirements of 16 CFR Part 460. Contractor shall affix thickness markers labeled in inches or R-values to trusses with at least one marker per 300 square feet throughout the attic area. Each marker shall face the attic access. Contractor shall verify installed R-value with a bag count and shall provide a certificate indicating the number of bags installed and the installed R-value. The installer shall post the certificate in a conspicuous location where it is visible and readable from the attic access.

B. Continuity: at the architect's or general contractor's discretion, an infrared thermographic inspection may be required. If the test proves the installation is satisfactory, its cost will be borne by the owner. If the test shows discontinuity, its cost and the cost of achieving continuity shall be borne by the contractor.

C. It is recommended, but not within the scope of this specification, that blower door testing be done to verify that adequate air sealing has been done to assure the thermal performance of the building envelope.

END OF SECTION

SECTION 07 2126  
FIBERGLASS BLOWN INSULATION

## PART 1 GENERAL

## 1.1 SECTION INCLUDES

- A. Fiberglass blown insulation (Blown In Blanket System, BIBS) in assemblies indicated on the Drawings, to provide thermal resistance.

## 1.2 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: 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.

## 1.3 QUALITY ASSURANCE

- A. Installer Qualifications:
  - 1. Contractor performing work under this section shall be certified in the art of installing BIBS insulation.
  - 2. Provide current Contractor Certification.

## 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Materials shall be delivered in manufacturer's original containers clearly labeled with manufacturer's name, product identification, safety information, net weight of contents and expiration date.
- B. Material shall be stored in a safe manner and where the temperatures are in the limits specified by the material manufacturer.
- C. Empty containers shall be removed from site on a daily basis.

## 1.5 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 recommended limits.
- B. Ventilate area to receive insulation to maintain safe working conditions.
- C. Protect workers as recommended by standards and manufacturer's recommendations.
- D. Protect adjacent surfaces, windows, equipment and site areas from damage of overspray.

## 1.6 WARRANTY

- A. Manufacturer's Standard Warranty:
  - 1. This warranty is in effect throughout the life of the building provided the original purchaser registers with the Warranty Department of the Manufacturer within thirty days of occupancy.
  - 2. Manufacturer's sole responsibility under this Limited Lifetime Warranty shall be to repair or replace any defective Product at the cost of the material only.

3. Manufacturer shall not be responsible for labor cost or any other costs whatsoever related to, or in connection with the removal or installation of either the original or replacement product.

**PART 2 PRODUCTS**

**2.1 MANUFACTURERS**

- A. Acceptable Fiber Manufacturers and Systems:
  1. BIBS, 14100 E. 35th Place, #104, Aurora, CO 80011, 1-800.525.8992
- B. Acceptable Fiber Manufacturers and Systems:
  1. Certainteed InsulSafe®SP & Optima®
  2. Johns Manville Climate Pro® & Spyder™
  3. Knauf Perimeter Plus™
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

**2.2 FIBERGLASS BLOWN INSULATION**

- A. BIBS System:
  1. Product: See above
  2. Installation: Roof rafters cavities where indicated on drawings.
  3. Thermal Properties:

**STANDARD DENSITIES - Sidewalls, Cathedral Ceilings and Other Closed Cavities**

Thickness (inches)	Framing	R-Value	Density (lbs per cu ft)*
3-1/2"	(2 x 4)	15	1.8 - 2.3
5-1/2"	(2 x 6)	23	1.8 - 2.3
7-1/4"	(2 x 8)	30	1.8 - 2.3
9-1/4"	(2 x 10)	39	1.8 - 2.3
11-1/4"	(2 x 12)	47	1.8 - 2.3
13-1/4"	(2 x 14)	56	1.8 - 2.3

\* Refer to the recommended fiber density by the specific manufacturer and product

**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.
- C. Commencement of work outlined in this section shall be deemed as acceptance of existing work and conditions.

**3.2 PREPARATION**

- A. Clean surfaces thoroughly prior to installation.
- B. Apply only when surfaces and environmental conditions are within limits prescribed by the material manufacturer.
- C. 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. Install in accordance with manufacturer's instructions. Apply as recommended by manufacturer to thickness as indicated on drawings.

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



SECTION 07 3010  
ROOFING UNDERLAYMENT

**PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. Roofing underlayments.

**1.2 SUBMITTALS**

- A. Submit under provisions of Section 01 30 00.
- B. Product Data: 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 and maintenance methods.
- C. Test Results: Submit copies of test results showing performance characteristics equaling or exceeding those specified.
- D. Verification Samples: For each finish product specified submit 12 inch (30.5 cm) square sample for approval by the Architect.

**1.3 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Obtain primary materials from a single manufacturer regularly engaged in manufacturing building wraps. Obtain secondary materials from a source acceptable to the primary materials manufacturer.
- B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of two years demonstrated experience in installing products of the same type and scope as specified.

**1.4 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver materials and products in unopened factory labeled packages.
- B. Store and handle in strict compliance with manufacturer's instructions and recommendations.
- C. Prevent damage or contamination to materials by construction activities.

**PART 2 PRODUCTS****2.1 MANUFACTURERS**

- A. As listed below.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.
- C. Obtain products from a single manufacturer.

## 2.2 MATERIALS

- A. Self-Adhering Sheet Membrane Roofing Underlayment: Grace Ice & Water Shield.
  - 1. Roof edge – 36"wide, valleys – 36"wide each side of valley and in the center, and all side wall conditions - 36" wide.
- B. Roofing Underlayment: Grace TriFlex.
  - 1. Entire roof surface.

## 2.3 ACCESSORIES

- A. Mechanical Fasteners: As recommended by manufacturer.
- B. Flashing: As recommended by manufacturer..

## 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. Install in accordance with manufacturer's instruction.

### 3.4 PROTECTION

- A. Protect installed products until completion of project.

END OF SECTION

SECTION 07 4600  
RAINSCREEN

## PART 1 GENERAL

## 1.1 SECTION INCLUDES

- A. Rainscreen for use in sidewall construction.

## 1.2 SUBMITTALS

- A. Submit under provisions of Section 01 30 00.
- B. Product Data: Submit manufacturer's product data and installation instructions.
- C. Samples: Submit selection and verification samples.

## 1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Obtain primary materials from a single manufacturer regularly engaged in manufacturing building wraps. Obtain secondary materials from a source acceptable to the primary materials manufacturer.
- B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of two years demonstrated experience in installing products of the same type and scope as specified.

## 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials and products in unopened factory labeled packages.
- B. Store and handle in strict compliance with manufacturer's instructions and recommendations.
- C. Prevent damage or contamination to materials by construction activities.

## PART 2 PRODUCTS

## 2.1 MANUFACTURERS

- A. Benjamin Obdyke Incorporated. Contact: 400 Babylon Road, Suite A, Horsham, PA 19044; Telephone: (800) 523-5261; Fax: (215) 672-3731; E-mail: [info@benjaminobdyke.com](mailto:info@benjaminobdyke.com); website: [www.benjaminobdyke.com](http://www.benjaminobdyke.com).)
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

## 2.2 MATERIALS

- A. Rainscreen: Home Slicker® Plus Typar® a. Description: Vertically-channeled three-dimensional matrix bonded to a water-resistive barrier in roll form.
  - 1. Material: Polypropylene (up to 40% post-industrial recycled content)
  - 2. Width: 39.37 inches (1 m)
  - 3. Length: 61 1/2 feet
  - 4. Thickness: 0.25 inches (6.4 mm)
  - 5. Weight: 15 lbs/roll; 10 oz/yd<sup>2</sup>.
  - 6. Matrix Design: 8 channels per 4 inches (102 mm); 2 channels per inch (25.4 mm).

## 2.3 ACCESSORIES

- A. Mechanical Fasteners: As recommended by manufacturer.
- B. Flashing: As recommended by manufacturer.
- C. Screening Material: Charcoal aluminum insect screen. Install at top edge, bottom edge, and other exposed edges.

### 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. Install in accordance with manufacturer's instruction.

#### 3.4 PROTECTION

- A. Protect installed products until completion of project.

END OF SECTION

SECTION 07 5400  
TPO ROOFING

## PART 1 GENERAL

## 1.1 SECTION INCLUDES

- A. TPO Thermoplastic Single-Ply Roofing.
- B. Membrane Flashings.
- C. Metal Flashings.
- D. Roof Insulation.

## 1.2 DESIGN CRITERIA

- A. Wind Uplift Performance:
  - 1. Carlisle offers a standard 55 mph wind speed warranty. Please contact Carlisle if a higher wind speed warranty is desired.
- B. Fire Resistance Performance:
  - 1. Roof system will achieve a UL Class A rating when tested in accordance with UL-790.
  - 2. Roof system will achieve a UL Class B rating when tested in accordance with UL-790.
- C. Thermal Performance: Roof system will achieve a minimum R value not less than 30.
- D. Drainage: Provide a roof system with positive drainage where all standing water dissipates within 48 hours after precipitation ends.
- E. Building Codes:
  - 1. Roof system will meet the requirements of all federal, state and local code bodies having jurisdiction.

## 1.3 SUBMITTALS

- A. Submit under provisions of Section 01 30 00.
- B. Product Data: 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.
- C. Detail Drawings:
  - 1. Submit approved plan, section, elevation or isometric drawings which detail the appropriate methods for all flashing conditions found on the project.
  - 2. Coordinate approved drawings with locations found on the Contract Drawings.
- D. Selection Samples: For each finish product specified, two complete sets of chips representing manufacturer's full range of available colors, membranes, and thicknesses.
- E. Verification Samples: For each finish product specified, two samples, minimum size 4 inches (100 mm) square representing actual product, color, and patterns.

## 1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: All primary products specified in this section will be supplied by

a single manufacturer with a minimum of twenty (20) years experience.

- B. Installer Qualifications:
  - 1. All products listed in this section are to be installed by a single installer with a minimum of five (5) years demonstrated experience in installing products of the same type and scope as specified.
  - 2. Installer must be capable of extending the Manufacturer's Labor and Materials guarantee.
  - 3. Installer must be capable of extending the Manufacturer's No Dollar Limit guarantee.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation, installation techniques and workmanship.
  - 1. Finish areas designated by Architect.
  - 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
  - 3. 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 hazardous materials, and materials contaminated by hazardous materials, in accordance with requirements of local authorities having jurisdiction.
- C. Material Safety Data Sheets (MSDS) must be on location at all times during the transportation, storage and application of materials.
- D. When loading materials onto the roof, the Carlisle Authorized Roofing Applicator must comply with the requirements of the building owner to prevent overloading and possible disturbance to the building structure.

#### 1.6 PROJECT CONDITIONS

- A. Proceed with roofing work only when weather conditions are in compliance with the manufacturer's recommended limitations, and when conditions will permit the work to proceed in accordance with the manufacturer's requirements and recommendations.
- B. Proceed with work so new roofing materials are not subject to construction traffic. When necessary, new roof sections shall be protected and inspected upon completion for possible damage.
- C. Provide protection, such as 3/4 inch thick plywood, for all roof areas exposed to traffic during construction. Plywood must be smooth and free of fasteners and splinters.
- D. The surface on which the insulation or roofing membrane is to be applied shall be clean, smooth, dry, and free of projections or contaminants that would prevent proper application of or be incompatible with the new installation, such as fins, sharp edges, foreign materials, oil and grease.
- E. New roofing shall be complete and weather tight at the end of the work day.
- F. Contaminants such as grease, fats and oils shall not be allowed to come in direct contact with the roofing membrane.

#### 1.7 WARRANTY

- A. At project closeout, provide to Owner or Owners Representative an executed copy of the manufacturer's Total System warranty, outlining its terms, conditions, and exclusions from



coverage.

1. Duration: 25 Years.
  2. Coverage to be extended to include accidental punctures in accordance with terms stated in the Warranty document.
  3. Coverage to be extended to include hail damage in accordance with terms stated in the Warranty document.
- B. When positioning membrane sheets, exercise care to locate all field splices away from low spots and out of drain sumps. All field splices should be shingled to prevent bucking of water.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Carlisle SynTec Systems, which is located at: P. O. Box 7000; Carlisle, PA 17013; Toll Free Tel: 800-4-SYNTEC; Tel: 717-245-7000; Fax: 717-245-7053; Email:[request info \(Paige.Morey@carlisleccm.com\)](mailto:request info (Paige.Morey@carlisleccm.com)); Web:[www.carlisle-syntec.com](http://www.carlisle-syntec.com)
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

### 2.2 SCOPE / APPLICATION

- A. Roof System: Provide a waterproof roof system, capable of withstanding uplift forces as specified in the Design Criteria article of this section.
1. Membrane Attachment: Fully Adhered.
  2. Membrane Attachment: Asphalt Adhered.
- B. Base Flashing: Provide a waterproof, fully adhered base flashing system at all penetrations, plane transitions and terminations.
- C. Insulation: Provide a roof insulation system beneath the finish membrane.

### 2.3 INSULATION

- A. Polyisocyanurate HP-H: Rigid board with fiber reinforced facers on both sides, meeting or exceeding the requirements of ASTM C 1289. Carlisle HPH.
1. Compressive Strength: 20 psi (138 kPa).
  2. Density: 2 lb per cubic foot (24 kg/cu m) minimum.
  3. Density (Polyiso): 2 lb per cubic foot (24 kg/cu m) minimum.

### 2.4 THERMOPLASTIC POLYOLEFIN (TPO) MEMBRANE

- A. Sure-Weld Membrane:
1. Color: Gray.
  2. Membrane Thickness: 60 mil nominal.
    - a. Thickness over Scrim: 0.020 inches (0.508mm).
    - b. Breaking Strength (ASTM D 751): 250 lbf/in (1.1 kN/m) minimum.
    - c. Tear Resistance (ASTM D 751): 55 lbf/in (245 N/m) minimum.
    - d. Elongation (ASTM D 751): 25 percent.

### 2.5 FLASHING ACCESSORIES

- A. Inside Corners: Pre-molded corner flashing for inside corners. 60 mil thickness. Color to match membrane. Special colors require custom fabrication process.
- B. Outside Corners: Injection molded corner used for flashing outside corners. 60 mil

thickness. Color to match membrane. Special colors require custom fabrication process.

- C. TPO T-Joint Covers: Injection molded 60 mil thick TPO formed into a 4.5 inch (114mm) diameter circle used to seal step-offs at splice intersections. Color to match membrane. Special colors require custom fabrication process.
- D. TPO Curb Wrap Corners: Pre-fabricated corner flashings made from 45 mil thick reinforced Sure-Weld membrane. 6 inch (152mm) wide base flange and a 12 inch (305mm) overall height. Sizes available to fit curbs up to 6 foot by 6 foot (1828 x 1828 mm) in size. Color to match membrane. Gray, tan and special colors require custom fabrication process.
- E. Molded Pipe Seals: A pre-molded flashing and clamping ring used for pipe penetrations. Available for 0.75 inch to 8 inch (19 - 203.2mm) diameter pipes. Color to match membrane. Special colors not available.
- F. Split Pipe Seals: Pre-fabricated flashing consisting of 45 mil thick reinforced Sure-Weld Membrane for pipes 1 inch to 6 inch (25.4 - 152.4mm) in diameter. A split (cut) and overlapped tab is incorporated to allow the pipe seal to be opened and wrapped around the pipe when it is not possible to pull a standard pipe flashing over a round penetration. Gray, tan and special colors require custom order fabrication. Custom sizes available on a special order basis.
- G. TPO Square Tubing Wraps: Pre-fabricated flashings made of 45 mil thick reinforced Sure-Weld membrane for square tubing. A split (cut) and overlap tab are incorporated into these parts to allow the seals to be opened and wrapped around a square tubing penetration with an obstruction. Stock sizes include 3- inch, 4-inch, 5-inch and 6 inch (76, 102, 127, 152 mm) diameter square tubing. Gray, tan and special colors require custom order fabrication. Custom sizes available on a special order basis.
- H. TPO Molded Sealant Pockets:
  - 1. A two-piece, interlocking injection molded, flexible pocket with a rigid polypropylene vertical wall and pre-formed deck flanges. Color to match membrane. Special colors not available.
  - 2. Used with Thermoplastic One-Part Pourable Sealer as specified in this section for waterproofing pipe clusters or other odd shaped penetrations. The removable built-in extension legs allow the oval pocket to adjust from 7.5 inches to 12 inches (191mm - 305mm) in length while maintaining a 6-inch width (152mm).
- I. Pre-Fabricated Sealant Pockets: A two-piece, pre-fabricated sealant pocket that utilizes reinforced TPO membrane and coated metal to form a rigid, oversized sealant pocket with a weldable horizontal deck flange. Color - White. Gray, tan and special colors require custom order fabrication. Custom sizes available on a special order basis.
  - 1. 12 inch (305mm) - Total volume of 1.87 gallons.
  - 2. 16 inch (406mm) - Total volume of 2.77 gallons.
  - 3. 20 inch (508mm) - Total volume of 3.81 gallons.
- J. Sealant Pocket Extension Legs: Designed for use with the TPO Molded Sealant Pocket and the Pre-Fabricated Sealant Pocket to extend the length in increments of 10 inches (254mm). Fabricated from 45 mil thick reinforced TPO membrane and TPO coated metal. Can be used full length, cut to size for customized lengths or welded to each other for extra long applications. Color - White. Gray, tan and special colors require custom order fabrication.
- K. Pressure-Sensitive Cover Strip: A nominal 6 inch (152mm) wide by 40 mil thick non-reinforced TPO membrane laminated to nominal 35-mil thick cured synthetic rubber pressure-sensitive adhesive. Used in conjunction with TPO Primer to strip in flat metal flanges (i.e., drip edges or rows of fasteners and plates). Color to match membrane. Special colors not available.

- L. Sure-Weld Heat Weldable Walkway Rolls: Superior tear, puncture and weather resistance and designed to protect Sure-Weld membrane in those areas exposed to repetitive foot traffic or other hazards. Walkway material may be heat welded to Sure-Weld membrane using an automated heat welder or hand held heat welder. Walkway Rolls are 34 inches (864mm) wide by 50 feet (15.2 m) long and are nominal 180 mils thick. Color - White, gray and tan.
- M. Non-Reinforced Flashing: Non-reinforced TPO flashing is a 60-mil thick non-reinforced TPO based membrane used for detail work where the use of pre-molded or pre-fabricated accessories are not feasible. Color - White, gray and tan. Special colors require lead time and 5,000 square foot minimum.

## 2.6 CLEANERS, PRIMERS, ADHESIVES AND SEALANTS

- A. Sure-Weld Bonding Adhesive: A high-strength solvent-based contact adhesive used for bonding Sure-Weld membrane to various porous and non-porous substrates.
  - 1. Base: Synthetic Rubber.
  - 2. Color: Yellow.
  - 3. Solids: 20.0 percent.
  - 4. VOC: 670 grams/liter.
- B. Low VOC Bonding Adhesive: A high strength, solvent-based contact adhesive that allows bonding of Sure-Weld membrane to various porous and non-porous substrates. It is specially formulated using a blend of VOC exempt and non-exempt solvents to be in compliance with the state of California Clean Air Act of 1988 (updated in 1997) and as further regulated by California's Air Quality Control Districts listing VOC grams per liter limitations.
  - 1. Base: Synthetic Rubber.
  - 2. Color: Yellow.
  - 3. Solids: 20.3 percent.
  - 4. VOC: 250 grams/liter.
- C. FAST 100 or 100-LV Adhesive: A spray or extruded applied, two-component, polyurethane, low-rise expanding foam adhesive used to securely bond FleeceBACK membranes to a variety of substrates.
- D. FAST Dual Cartridge Adhesive: A two-component, polyurethane construction grade, low-rise expanding adhesive used to securely bond FleeceBACK membranes to a variety of substrates. The adhesive is extrusion applied 4 inch (102mm), 6 inch (152mm) or 12 inch (305mm) on center (depending on project conditions) using a portable applicator.
- E. FAST Adhesive Box Sets: A spray applied, two-component, polyurethane construction grade, low-rise expanding adhesive used to securely bond FleeceBACK membranes to a variety of substrates.
- F. FAST Bag in a Box: A two-component, polyurethane construction grade, low-rise expanding adhesive designed for bonding insulation to various substrates, packaged for use with the PaceCart 2.
- G. Aqua Base 120 Bonding Adhesive: a semi pressure-sensitive water based adhesive. Used as a one-sided, wet lay-in adhesive with Sure-Seal, Sure-White or Sure-Weld FleeceBACK 100 or 115 mil membranes or as a two-sided contact adhesive with non-fleece backed Sure-Weld TPO, Sure-Flex PVC, or Sure-Seal EPDM membranes. Adhesive is limited to 15 year warranty.
- H. Cut Edge Sealant: A medium solids content, free flowing polymeric material designed for sealing cut edges (exposed fabric) of Sure-Weld reinforced membrane.

- I. Water Cut-Off Mastic: A one-component, low viscosity, self wetting, Butyl blend mastic used as a compression sealing agent between membrane and applicable substrates.
- J. Low VOC Primer: Manufacturer's recommended low VOC primer.
- K. TPO Primer: Solvent-based product designed to prepare TPO membrane for improved adhesion to TPO surfaces prior to the application of pressure-sensitive products and sealant pockets.
- L. Universal Single-Ply Sealant: A 100 percent solids, solvent free, VOC free, one-part polyether sealant that provides a weather tight seal to a variety of building materials. It is used for general caulking such as above termination bars and metal counter flashings and at scupper details.. Available in white only.
- M. Thermoplastic One-Part Sealant: Single component, moisture curing, elastomeric polyether sealant that is compatible with Carlisle's Thermoplastic membranes. Provides a flexible, durable and long lasting seal around hard-to-flash penetrations in Thermoplastic Roofing Systems.
- N. Carlisle Weathered Membrane Cleaner: Clear, solvent-based cleaner used to loosen and remove contaminants from the surface of exposed membrane.
- O. 702 Primer: A single component, solvent based, high tack primer used to provide maximum adhesion between Carlisle 725 Air & Vapor Barrier and an approved substrate. Applied by spray or long nap roller with a coverage rating ranging from approximately 250 square feet per gallon on smooth finishes (i.e., concrete) to 75 square feet per gallon on porous surfaces (i.e., DensDeck Prime gypsum board). Available in 5-gallon containers.
- P. Cav-Grip: A multi-purpose contact adhesive recommended for enhancing bond of CCW self-adhering sheet products and for bonding MiraDRAIN and board insulation to various substrates.

## 2.7 FASTENING COMPONENTS

- A. HP Fastener: Threaded, coated (E-Coat) fastener for use with steel, wood plank or oriented strand board (OSB). For insulation fastening only on TPO Mechanically Fastened Roofing Systems.
- B. HP-X Fasteners: Heavy-duty #15 threaded fastener with a Phillips head for standard TPO seam fastening (Mechanically Fastened Roofing Systems) and where increased pullout resistance is necessary for steel and wood decks (Fully Adhered Roofing Systems).
- C. HP-Xtra Fasteners: An oversized diameter #21 steel threaded fastener used with HP Extra Polymer Seam Plates for membrane securement on Mechanically Fastened Roofing Systems.
- D. HD 14-10 Concrete Fastener: A #14 threaded fastener used for minimum 3,000 psi concrete decks.
- E. CD-10 Concrete Fastener: A hammer-driven, non-threaded E-Coat fastener for use with structural concrete decks rated 3,000 psi or greater.
- F. InsulFast Fasteners: Threaded, #12 fastener with a #3 Phillips head used with 3 inch (76mm) diameter Insulation Plates. For insulation attachment into steel or wood decks.
- G. Pre-Assembled ASAP Fasteners: InsulFast Fastener and pre-assembled 3 inch (76mm) diameter Plastic Insulation Plate for insulation attachment on adhered and mechanically-fastened roofing systems.

- H. HP-NTB Fastener: A non-penetrating, plastic fastener and plate for cementitious wood fiber and gypsum.
- I. Lite-Deck Fastener: An oversized diameter metal fastener and associated 3 inch diameter Lite-Deck metal plate for use on adhered roofing systems to attach insulation to dense gypsum decks, cementitious wood fiber and lightweight insulating concrete.
- J. HP Term Bar Nail-In: A 1 1/4 inch (32mm) long expansion anchor with threaded drive pin used for fastening Termination Bar or Seam Fastening Plates to concrete, brick or block walls.
- K. Base Sheet Fasteners And Plates:
  1. Carlisle Dual-Prong Fastener - A factory pre-assembled, 1.8 inch (46mm) long fastener consisting of a precision tube formed from galvanized (G-90) coated steel, a 2.7 inch (69mm) diameter disk formed from Galvalume (AX-55) coated steel and a locking staple of high tensile steel wire used to secure base sheets to fibrous cement, lightweight concrete and gypsum providing 70 lbs. of pullout resistance is achieved (40 lbs. Min.).
  2. Carlisle Metal Cap: For use on projects limited in height 30 feet (9.14 M) or 40 feet (12.2 M) depending on base sheet used, 1 inch (25mm) Carlisle Metal Cap in conjunction with a ring shank nail may be use to attach base sheets to wood plank, plywood or OSB decks per Carlisle's approved fastening pattern.
  3. Base Sheet fasteners and plates by others must be FM approved and the respective manufacturers' published recommendations for proper installation must be followed.
- L. Piranha Plates: A 2 3/8 inch (60mm) diameter metal barbed fastening plate used with Carlisle HP-X, CD-10 or HD 14-10 Fasteners for membrane securement. This plate can be used for insulation securement.
- M. Piranha Extra Plates: A 2 3/8 inch (60mm) diameter metal barbed fastening plate with an oversized hole for use with Carlisle HP-Xtra Fasteners for membrane securement.
- N. Seam Fastening Plates: A 2 inch (52mm) diameter metal plate used for insulation attachment on Mechanically Fastened Roofing Systems or membrane securement on Adhered Roofing Systems in conjunction with the appropriate Carlisle Fastener. Not for use on Sure-Weld systems.
- O. Insulation Fastening Plates: A nominal 3 inch (76mm) diameter metal plate used for insulation attachment in conjunction with the appropriate Carlisle Fastener.

## 2.8 EDGINGS AND TERMINATIONS

- A. SecurEdge 200: A snap-on edge system consisting of a 24 gauge galvanized metal water dam. Finish as noted on the Finish Schedule of the Contract Drawings.
- B. SecurEdge 300: A 24 gauge galvanized metal water dam. Finish as noted on the Finish Schedule of the Contract Drawings.
- C. SecurEdge 400: A 24 gauge galvanized metal water dam. Finish as noted on the Finish Schedule of the Contract Drawings.
- D. SecurEdge 1000: A metal anchor bar fascia system consisting of a formed quarter hard 0.050 inch (1.25 mm) aluminum retainer bar, corrosion resistant fasteners and a 0.040 inch (1 mm) aluminum or 24 gauge steel snap-on fascia cover.
- E. SecurEdge 2000: An anchor bar roof edge fascia system consisting of 0.100 inch (2.5 mm) thick extruded aluminum bar, corrosion resistant stainless steel fasteners and snap-on fascia cover.

- F. SecurEdge 3000: A metal anchor bar fascia system consisting of a 20 gauge steel retainer bar, corrosion resistant fasteners and aluminum or 24 gauge steel snap-on fascia cover.
- G. SecurEdge 4000: A metal anchor bar fascia system consisting of a 20 gauge steel retainer bar, corrosion resistant fasteners and aluminum or 24 gauge steel snap-on fascia cover.
- H. Sure-Seal Drip Edge: A 22 gauge pre-punched 90-degree angle cleat and 12 foot (3658mm) long fascia sections. Kynar 500 or aluminum finish as noted on the Finish Schedule of the Contract Drawings.
- I. SecurEdge 200 Coping: An anchor cleat with pre-slotted holes, a concealed joint cover, and 10 or 12 foot sections of coping cap. Kynar 500 finish as noted on the Finish Schedule of the Contract Drawings.
- J. SecurEdge 300 Coping: An anchor cleat with pre-slotted holes, a concealed joint cover, and 10 or 12 foot sections of coping cap. Kynar 500 finish as noted on the Finish Schedule of the Contract Drawings.
- K. SecurEdge 400 Coping: An anchor cleat with pre-slotted holes, a concealed joint cover, and 10 or 12 foot sections of coping cap. Kynar 500 finish as noted on the Finish Schedule of the Contract Drawings.
- L. Sure-Seal Ballast Retaining Bar: A ballast retaining perimeter securement system comprised of a slotted extruded aluminum retention bar with integrated compression fastening strip.
- M. Sure-Seal Termination Bar: 1 inch (13 mm) wide, .098 inch (2.5mm) thick extruded aluminum bar pre-punched 6 inches (152 mm) on center with sealant ledge to support Lap Sealant.
  - 1.

### 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.
- C. Do not commence work until all other work trades have completed jobs that require them to traverse the deck on foot or with equipment.
- D. A vapor retarder / temporary roof (Carlisle 725 TR Air & Vapor Barrier/Temporary Roof) may be applied to protect the inside of the structure prior to the roof system installation.

#### 3.3 INSULATION PLACEMENT

- A. Install insulation or membrane underlayment in multiple layers over the substrate with boards butted tightly together with no joints or gaps greater than 1/4 inch (6 mm). Stagger joints both horizontally and vertically if multiple layers are provided.

- B. Secure insulation to the substrate with the required mechanical fasteners or insulation adhesive in accordance with the manufacturer's current application guidelines.
- C. Do not install wet, damaged or warped insulation boards.
- D. Stagger joints in one direction unless joints are to be taped. Install insulation boards snug. Gaps between board joints shall not exceed 1/4 inch (6 mm). Fill all gaps in excess of 1/4 inch (6 mm) with same insulation material.
- E. Wood nailers must be at least 3 1/2 inches (89 mm) wide or 1 inch (25 mm) wider than adjacent metal flange. Thickness must equal that of insulation but not less than 1 inch (25 mm) thickness.
- F. Miter and fill the edges of the insulation boards at ridges, valleys and other changes in plane to prevent open joints or irregular surfaces. Avoid breaking or crushing of the insulation at the corners.
- G. Do not install any more insulation than will be completely waterproofed each day.

### 3.4 INSULATION ATTACHMENT

- A. Securely attach insulation to the roof deck for Adhered or Mechanically Fastened Roofing Systems. Attachment must have been successfully tested to meet or exceed the calculated uplift pressure required by the International Building Code (ASCE-7) or ANSI/SPRI WD-1.
- B. Enhance the perimeter and corner areas in accordance with the International Building Code (ASCE-7) or ANSI/SPRI WD-1.

### 3.5 MEMBRANE PLACEMENT AND ATTACHMENT (Sure-Weld Fully Adhered)

- A. Position Sure-Weld membrane over the acceptable substrate. Fold membrane sheet back lengthwise so half the underside of the membrane is exposed.
- B. Apply Sure-Weld Bonding Adhesive in accordance with the manufacturer's published instructions, to the exposed underside of the membrane and the corresponding substrate area. Do not apply Bonding Adhesive along the splice edge of the membrane to be hot air welded over the adjoining sheet. Allow the adhesive to dry until it is tacky but will not string or stick to a dry finger touch.
  - 1. Roll the coated membrane into the coated substrate while avoiding wrinkles. Brush down the bonded section of the membrane sheet immediately after rolling the membrane into the adhesive with a soft bristle push broom to achieve maximum contact.
  - 2. Fold back the unbonded half of the sheet lengthwise and repeat the bonding procedures.
- C. Position adjoining sheets to allow a minimum overlap of 2 inches.
- D. Hot-air weld the Sure-Weld membrane sheets using the Automatic Hot Air Welding Machine or Hot Air Hand Welder in accordance with the manufacturer's hot air welding procedures. Carlisle recommends a test weld sample be made from a piece of scrap TPO to eliminate the need to remove a section from a completed seam. At all splice intersections, roll the seam with a silicone roller to ensure a continuous hot air welded seam.
- E. Continue to install adjoining membrane sheets in the same manner, overlapping edges a minimum of 2 inches and complete the bonding procedures as stated previously.

### 3.6 SEAM WELDING

- A. Hot-air weld membrane using an Automatic Hot Air Welding Machine or Hot Air Hand Welder in accordance with the manufacturer's current guidelines. At all splice intersections, roll the seam with a silicone roller to ensure a continuous hot air welded seam.
- B. Overlay all splice intersections with Sure-Weld T-Joint Cover.
- C. Probe all seams once the hot air welds have thoroughly cooled (approximately 30 minutes).
- D. Repair all seam deficiencies the same day they are discovered.
- E. Apply Cut Edge Sealant on all cut edges of reinforced membrane (where the scrim reinforcement is exposed) after seam probing is complete. Cut Edge Sealant is not required on vertical splices.

### 3.7 FLASHING

- A. Flashing of parapets, curbs, expansion joints and other parts of the roof must be performed using Sure-Weld reinforced membrane or prefabricated accessories. Sure-Weld non-reinforced membrane may be used for flashing pipe penetrations, Sealant Pockets, and scuppers, as well as inside and outside corners, when the use of pre-molded or prefabricated accessories is not feasible.
- B. Follow manufacturer's typical flashing procedures for all wall, curb, and penetration flashing including metal edging/coping and roof drain applications.

### 3.8 WALKWAYS

- A. Install walkways at all traffic concentration points (such as roof hatches, access doors, rooftop ladders, etc.) and all locations as identified on the Contract Drawings.
- B. Hot-air weld walkway pads to the membrane in accordance with the manufacturer's current application guidelines.
- C. Loose lay concrete pavers over an approved protection sheet in accordance with the manufacturer's current application guidelines.

### 3.9 DAILY SEALS

- A. On phased roofing, when the completion of flashings and terminations is not achieved by the end of the work day, a daily seal must be performed to temporarily close the membrane to prevent water infiltration.
- B. Complete an acceptable membrane seal in accordance with the manufacturer's requirements.

### 3.10 CLEAN UP

- A. Perform daily clean-up to collect all wrappings, empty containers, paper, and other debris from the project site. Upon completion, all debris must be disposed of in a legally acceptable manner.
- B. Prior to the manufacturer's inspection for warranty, the applicator must perform a pre-inspection to review all work and to verify all flashing has been completed as well as the application of all caulking.

### 3.11 PROTECTION

- A. Protect installed products until completion of project.



- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION



SECTION 07 6113  
STANDING SEAM METAL ROOFING

## PART I GENERAL

## 1.01 WORK INCLUDED

- A. Providing all labor, materials, tools, equipment and services to furnish and install metal roofing, wall panels/siding, including soffit, flashing, trim and such other accessories to make the system complete and weathertight, as indicated on the drawings and specified herein.

## 1.02 QUALITY ASSURANCE

- A. Installation: By a roofing/sheet metal contractor with at least a minimum of five years experience in similar type of construction and documenting successful completion of contracts for projects similar in size, scope and products.
- B. Before Fabrication: The contractor shall take field measurements of the structure and substrates indicated and specified to ensure that panel lengths and brakeformed flashings are dimensioned accurately to facilitate easy installation. Fabrication shall not begin until all field conditions have been verified. Allow for sufficient trimming of panel units at eaves, valleys, and gables prior to fabrication.

## 1.03 SUBMITTALS

- A. Submit product literature, shop drawings, and samples in accordance with Section 01340.
- B. Product Literature:
  - 1. Manufacturer's descriptive literature.
  - 2. Manufacturer's standard color chart.
- C. Shop drawings are to be a scaled layout of roof plan and elevation, indicating the extent of work to be performed. Include sections of roof, fascia, walls, siding and soffits, for each condition, detailing flashing and trim for different conditions, such as eaves, outside/inside corners, ridge, valleys, gutters, end wall terminations, closures, etc., showing a full and complete installation. Show securement of panels and clips, spacing, type and number of fasteners, as recommended by the Manufacturer.
- D. Submit 2'0" long sample panel indicating the metal, gauge, color, texture, and finish proposed.
- E. Submit Manufacturer's warranty covering the substrate (metal) against rupture, perforation, and structural failure due to normal atmospheric corrosion for twenty (25) years.
- F. Submit Manufacturer's thirty (35) year warranty on paint finish against cracking, peeling, blistering, chalk, and color change.
- G. Submit test reports complying with finish specifications per section 2.05.1 through 2.05.8.

## 1.04 DELIVERY, STORAGE, AND HANDLING

- A. Unload and store materials at job-site to protect them from any damage.
- B. Inspect delivered material. Prevent interference by other trades or any other adverse job conditions.
- C. Store materials above ground, on skids. Protect material with waterproof covering and allow sufficient ventilation to prevent condensation build-up or moisture entrapment in the materials.

## 1.05 WARRANTY

- A. Manufacturer shall warrant the metal roof against rupture or perforation or from structurally failing due to normal atmospheric conditions for a period of twenty (25) years. In addition, Manufacturer shall provide a 35-year finish warranty against peeling and blistering, chalk, and fade (color change).
- B. Installer shall provide a written warranty for two (2) years from the date of final completion and acceptance, guaranteeing materials and workmanship for watertightness, weathertightness, and against all leaks. During the initial two (2) year period, the Installer shall assure weathertightness and watertightness of the roof, without any cost to the building owner.

## PART II - PRODUCTS

## 2.01 GENERAL

- A. Panel System shall have 16" or 20" wide panels, 1" or 1-1/2" high double lock seams, with sealant applied at the panel interlock. Manufacturer shall offer at least a minimum of 12 standard colors to choose from.
- B. Material:
  - a. 26 Gauge prefinished Galvalume ASTM A-792-83, AZ50, 50 KSI yield point, 52 KSI tensile strength (a coating of aluminum zinc alloy applied by a continuous hot dipping process, offering corrosion resistance, high temperature oxidation resistance, and heat reflectivity).
- C. Performance:
  - 1. ASTM E-283-84 Air Infiltration: Maximum of 0.003 CFM/Ft.2 at 10 psf pressure differential on 180 degrees seamed profile and 0.006 CFM/Ft.2 at 20 psf pressure differential.
  - 2. ASTM E-331-70 Water Penetration: No evidence of uncontrolled leakage on 180 degrees seamed panel at 20 psf pressure differential.
  - 3. Panel shall display a flame spread classification of a (Class 1) when tested in accordance with ASTM E-84-87.
  - 4. Panel shall meet the requirements of UL-580, Class-90 wind uplift resistance.
  - 5. Panel shall be tested and conform to the requirements of the Dade County Florida non-structural roofing system criteria, product approval number must be supplied for records.
  - 6. Panel system shall be tested in accordance with ASTM-E-1680-95 standard test method for rate of air leakage through exterior metal roof panel systems.
  - 7. Panel system shall be tested in accordance with ASTM-E-1646-95 standard test method for water penetration of metal roof panel system by uniform static air pressure difference.
  - 8. Panel system shall be tested in accordance with ASTM-E-1592 wind uplift criteria.
- D. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

## 2.03 FABRICATION

- A. Panel Construction: Panels shall be uniformly dimensioned, rollformed to exact lengths to avoid trimming. The panel system shall be anchored as recommended by the Manufacturer. All fasteners shall be concealed. Panels shall be continuous from ridge to eaves with no end laps. There shall be no face penetration of panels, except as approved by the architect for securing panels to facilitate directional expansion/contraction.
- B. Flashing and Trim: All exposed standard flashing (drip edge, ridge vent, ridge cap) or special flashing/trim and such other brakeformed in the same gauge, color, and finish to match roofing panels, furnished with protective strippable film to be removed upon installation.
  - 1. Valleys shall be 48" min. wide.
  - 2. Wall flashing shall be 18" min. up side wall.
  - 3. Step flashing shall be max. 8'-0" sections.
- C. Accessories such as clips, closures, fasteners, etc., shall be as recommended by the Manufacturer.
- D. Roofing underlayment shall be per Section 07 3010.

## PART III - EXECUTION

## 3.01 INSPECTION

- A. Verify substrate is uniform, even and symmetrical by running a string test. Inspect to assure that all purlins or substructure/framing members are flat and insulation is embedded symmetrically so when the metal panels are applied, they will not appear wavy or distorted.
- B. Provide a written report of discrepancies or variations in the substrate to the Architect.
- C. Do not begin installation until unsatisfactory conditions are corrected.

- D. Do not proceed with installation until adjoining areas scheduled for stucco treatment have been stuccoed and washed down. Do not wash down acid residues from stucco directly over the metal panels.
- E. Commencement of installation shall signify acceptance of the substrate and adjacent conditions as being proper and acceptable for treatment of roofing.
- F. After beginning installation, submit approximately 500 square feet of product in place for Architect's approval, before proceeding with substantial work.

### 3.02 INSTALLATION

- A. The metal panel system shall be installed plumb, level, and straight over a layer of 30 lb. felt, (dry) with a minimum 6" for horizontal lap and 12" for end lap.
- B. The standing seam shall be equidistant and shall align for corners, hips, valleys, mullions, and columns in accordance with architectural design parameters as shown on the drawings.
- C. Installation shall be made in accordance with Manufacturer's recommended procedures and layout drawings. Manufacturer's of construction Details Handbook, SMACNA Architectural Sheet Metal manual, NRCA Roofing and Waterproofing Manual and Handbook of Roofing Knowledge shall be used as guides and details whenever applicable.
- D. No face penetrations or perforation shall be made in metal panels by fasteners without architect's specific approval. All panels shall be continuous from ridge to eaves with no horizontal end laps.
- E. End lap all flashing and trim at least 3". All gutters must be mitered, soldered and caulked with a lining of Ice and Watershield applied at the laps to make it watertight. All butt joints must be caulked. Soldered areas shall be counterflashed or painted to match. All valleys shall be treated with a layer of Ice and Watershield spread out at least 24" each side from the center of the valley, on both sides, before applying valley flashing. End lap at least 6" at joints.
- F. Exercise proper care during installation to avoid damage or scratching of the panels. Avoid walking over the metal roof after installation is completed.

### 3.03 CLEANING AND PROTECTION

- A. Peel of any strippable film on flashing as they are installed.
- B. Complete all items on punch list.
- C. Touch up all minor scratches and spots.
- D. Remove all debris resulting from work under this Section.

END OF SECTION



SECTION 07 6200  
SHEET METAL FLASHING AND TRIM

## PART 1 - GENERAL

## 1.1 SUMMARY

## Section Includes:

1. Metal flashing, metal coping, and sheet metal work.

## 1.2 SUBMITTALS

Submit under provisions of Division 01 Section "General Requirements."

## Product Data:

1. Specifications, materials list and schedule for surface preparation procedures.
2. Material safety data sheets.

Shop Drawings: Details showing each condition separately and cross-referenced with applicable details on the Drawings.

## Closeout Submittals:

3. Material Safety Data: Sealant and adhesive quantity use in accordance with requirements of BAAQMD Regulation 8-51.
4. Signed guaranty.

## 1.3 QUALITY ASSURANCE

Regulatory Requirements: Comply with requirements of Bay Area Air Quality Management District Regulation 8-51.

Comply with pertinent recommendations contained in "Architectural Sheet Metal Manual," latest edition, of the Sheet Metal and Air Conditioning Contractors National Association, Inc.

Take field measurements required for proper and adequate fabrication and installation of the work. Exact measurements are the Subcontractor's responsibility. Furnish templates for exact locations of items to be embedded.

## 1.4 GUARANTEE

Guarantee sheet metal and flashing work provided under this section to be watertight for 5 years after substantial completion. Guarantee shall include that other work and materials damaged by leaks shall be promptly repaired at no cost to University.

## PART 2 - PRODUCTS

## 1.5 MATERIALS

- A. General: Furnish sheet metal in minimum 26 Gauge prefinished Galvalume ASTM A-792-83, AZ50, 50 KSI yield point, 52 KSI tensile strength (a coating of aluminum zinc alloy applied by a

continuous hot dipping process, offering corrosion resistance, high temperature oxidation resistance, and heat reflectivity).

1. Pre-manufactured Reglets: Snap-on type, for two piece flashing, metal to match flashing and sheet metal, factory formed and sealed corners.
  2. Pre-manufactured Roof Curbs: Box section design, custom heights, continuous mitered and welded corner seams, integral base plate, single and compound roof pitch requirements, combustible materials and wood of any kind are not permitted.
- B. Nails and Screws: Same metal as flashing/sheet metal, or other non-corrosive metal as recommended by sheet manufacturer, Stronghold type, with large flat heads and sharp points. Use length sufficient to penetrate wood framing a minimum of 7/8-inch (22 mm). Use lead or neoprene washers where indicated. Use sheet metal screws or self-tapping screws to fasten sheet metal to other metal. Match finish of exposed heads with finish of material being fastened.
- C. Mastic: FS SS-S-153, Type 1, black plastic cement.
- D. Lap Joint Sealer: Polyisobutylene non-hardening, non-skinning, non-drying, non-migrating sealant.
- E. Coating for Dissimilar Metals: Bitumastic paint or as required to be compatible with adjacent materials and finishes. Coordinate requirements with paint systems and coatings furnished under Division 09 Section "Painting".
- F. Epoxy Seam Sealer: Two-part non-corrosive metal seam cementing compound recommended by metal manufacturer for exterior/interior non-moving joints including riveted joints.
- G. Adhesives: Type recommended by flashing sheet manufacturer for waterproof/weatherproof seaming and adhesive application of flashing sheet.
- H. Paper Slip-Sheet: 5-lb (2.27 kg) rosin-sized building paper.
- I. Polyethylene Underlayment: Minimum 6-mil carbonated polyethylene film.
- J. Metal Accessories: Sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of work, matching or compatible with material being installed, non-corrosive, size and gage as required for performance.
- K. Other materials are described under Part 3, Execution.
- L. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

## PART 3 - EXECUTION

### 1.6 COORDINATION

Review drawings for sheet metal work. Coordinate to achieve proper incorporation of this work within membrane waterproofing work.

### 1.7 FABRICATION AND INSTALLATION

Perform work in accordance with Drawings and Specifications.



Fabricate shapes as detailed and approved.

Accurately fabricate and fit parts, with surfaces free from warp, wave, buckle, dent or other defects, and with square corners and angles, unless otherwise shown.

Install water and weather tight where exposed to the weather, with the provision for free expansion and contraction without causing leaks.

Clean soldered surfaces prior to soldering. Fully flow soldered joints fully. Scrape and finish exposed solder smooth. Remove traces of flux or acid.

Provide locked-butt joints. Where impractical and unless otherwise detailed, provide joints with full backup strips, riveted to one end and soldered; lap other end and seal with lap joint sealer. Turn lock joints, where exposed, in direction of flow.

1. Solder joints and miters.
2. Make ample provisions for expansion and contraction in sheet metal assemblies, and provide by slip joints. In long runs, provide slip joints every 20 feet (6 m) minimum, unless otherwise shown on Drawings. In runs less than 20 feet (6 m), provide one slip joint.
3. Provide reinforcements as required.
4. Shop fabricate corners at parapet wall copings with miters and all joints soldered.

Exposed fasteners are not permitted .

Provide heavy coating of bitumastic paint to insulate dissimilar metals from each other.

Fold, bead, hem or return exposed edges of fabricated sheetmetal; no raw edges will be permitted.

Close all ends.

Etch sheet metal surfaces which will be concealed in the finish work with an approved acid wash, and then shop paint with one coat of approved galvanized primer. Sheet metal surfaces which will be exposed in the finished work are specified to be treated and prime-painted under Division 09 Section "Painting".

5. Confirm compatibility of shop primers and surface preparation used on concealed surfaces with paints and coatings provided in Division 09 Section "Painting".

Underlayment: Where stainless steel is to be installed directly on cementitious or wood substrates, install a slip sheet of red rosin paper and a course of polyethylene underlayment.

Install continuous gutter guards on gutters, arranged as hinged units to swing open for cleaning gutters. Install "beehive"-type strainer guards at conductor heads, removable for cleaning downspouts.

## 1.8 CLEANING

Immediately upon completion of this work, remove from site all debris and scrap material and clean up all dust and dirt resulting from this work.

END OF SECTION



SECTION 07 6526  
SELF-ADHERING SHEET FLASHING

## PART 1 GENERAL

## 1.1 SECTION INCLUDES

- A. Self-adhering flashings.
- B. Materials and installation of self-adhering flashing assemblies as indicated on drawings.
- C. Flashing and accessories for installation in the following locations:
  - 1. Parapets
  - 2. Tops of CMU walls
  - 3. Window flanges and sills
  - 4. Metal flashing counterflashing

## 1.2 SUBMITTALS

- A. Provide submittals in accordance with Section 01 33 00
- B. At bid submission, provide evidence to the Architect of installer qualification by Manufacturer.
- C. Shop drawings showing locations of flashings and details of all typical conditions.
- D. Manufacturer's technical data sheets and material safety data sheets for Product and Accessories.
- E. Manufacturer's installation instructions.
- F. Manufacturer's documentation of volatile organic compounds (VOC) content for Product and Accessories.
- G. Certification of compatibility by Manufacturer, listing all materials on the Project with which the Product and Accessories may come into contact.
- H. Samples of products minimum 3 inch by 4 inch size.

## 1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Installer shall be experienced in applying the same or similar materials and shall be specifically approved in writing by Manufacturer.
- B. Product and Accessories shall comply with all state and local regulations

controlling use of volatile organic compounds (VOCs).

- C. Cooperate and coordinate with the Owner's inspection and testing agency. Do not cover any installed Product unless it has been inspected, tested and approved.

#### 1.4 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to Project site in original packages with seals unbroken, labeled with manufacturer's name, product, lot number and directions for storage.
- B. Store materials in their original undamaged packages in a clean, dry, protected location and within temperature range required by Manufacturer.
- C. Protect stored materials from direct sunlight. Do not store cylinders of Aerosol Contact Adhesive above 110 degrees F.
- D. Avoid spillage. Immediately notify Owner, [Architect] [Consultant] if spillage occurs and start clean up procedures. Clean spills and leave area as it was prior to spill.

#### 1.5 PROJECT CONDITIONS

- A. Do not apply during rain or accumulating snowfall.
- B. Applicator shall have full, safe access to area
- C. Apply Product and accessories within temperature range indicated in Manufacturer's literature.

- 1.6 WARRANTIES: Provide the Manufacturer's minimum five year material warranty under provisions of Section 01 78 36 – Warranties.

### PART 2 PRODUCTS

- 2.1.1 PARAPET AND CMU WALL PRODUCTS: Provide as manufactured by Carlisle Coatings & Waterproofing, Incorporated. 900 Hensley Lane, Wylie, TX 75098. Phone 1-800-527-7092. Website <http://www.carlisleccw.com>:

- A. Standard: CCW-705 TWF
- B. Low-Temp: CCW-705 TWF LT

- A.1.2 ACCESSORIES: Provide as manufactured by Carlisle Coatings & Waterproofing, Incorporated.

- B. Contact Adhesive, select one:
  - 1. CCW-702 or CCW-702 LV Solvent-Based
  - 2. CCW-702 WB Water-Based
  - 3. CAV-GRIP™ Aerosol Spray
- C. Mastic:LM 800 XL solvent-based synthetic rubber

- D. Fill Compound:
  - 1. CCW-703 V Modified polyurethane, 2-part
  - 2. LM 800 XL Solvent-based, synthetic rubber, 1-part
  - 3. CCW-201 Polyurethane, 2-part
- E. Termination Bar: SURE-SEAL™ Termination Bar

2.2 WINDOW AND METAL FLASHING COUNTERFLASHING PRODUCTS: Provide as manufactured by Huber Engineered Woods, 10925 David Taylor Drive, Suite 300, Charlotte, NC 28262 Tel.1.800.933.9220

- A. Zip System Flashing Tape: Window flanges, and metal flashing counterflashing.
- B. Zip System Stretch Tape: Window sills, before window installation.

2.3 Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

### PART 3 EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions affecting installation of the flashing and accessory products for compliance with requirements. Verify that surfaces and conditions are suitable prior to commencing Work of this section. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. Surfaces shall be sound, dry and free of oil, grease, dirt, excess mortar or other contaminants.
- C. Surfaces shall be supported and flush at joints without large voids or sharp protrusions.
- D. Ledge, footing, shelf angle or lintel surfaces shall be flat, or preferably sloped to provide drainage to the exterior. Surfaces shall not be oriented so that water can pond on the through-wall flashing.
- E. Inform Architect in writing of anticipated problems applying Product over substrate.

#### 3.2 SURFACE PREPARATION

- A. Fill joints and cracks greater than ¼ inch width with Fill Compound struck flush.
- B. Fill inside corners and angle changes with minimum ½ inch tooled bead of Fill Compound.

#### 3.3 INSTALLATION

- A. Allow Fill compound used in Article 3.02 to cure fully before applying Product.
- B. Apply Product to sound substrate. Do not apply over mechanically- attached water resistive barrier such as felt, paper or house wrap.
- C. Prepare all surfaces accepting Product with Contact Adhesive. Observe installation instructions, including coverage rates and drying times, indicated in Manufacturer's literature.
- D. Apply Product over prepared surfaces according to Manufacturer's instructions and drawings.
- E. Apply Mastic to edges of Product at laps, cuts and penetrations.
- F. Secure vertical terminations according to Manufacturer's instructions and drawings.

#### 3.4 SCHEDULE

- A. Install flashing during or after construction of back-up wall.
- B. Integrate through-wall flashing with adhered membrane air barrier, damp proofing or water-resistive barrier according to Manufacturer's instructions and drawings.

#### 3.5 REPAIR AND PROTECTION

- A. Protect from damage during application and remainder of construction period.
- B. Inspect flashing before covering and make repairs according to Manufacturer's instructions. Remove and replace damaged material.
- C. Product is not designed for permanent exposure. Cover with exterior cladding as soon as schedule allows.
- D. Outdoor exposure of installed Product shall not exceed Manufacturer's instructions.

END OF SECTION

SECTION 07 7253  
SNOW GUARDS

## PART 1 GENERAL

## 1.1 SUMMARY

## A. WORK INCLUDES

1. ASG4025 Snow guard that does not penetrate the roof using clamp to seam.
2. Coordinate with the installation of the roof to assure proper placement of the snow guards.
3. Provide appropriate snow guard and fasteners for the roof system

## 1.2 SYSTEM DESCRIPTION

## A. COMPONENTS:

1. ASG4025 Snow guard system consists of snow guard bracket and (3) set screws.
2. Tubing (Snow Fence).
3. Couplings.
4. End Caps.
5. End Collars.
6. Ice Flags.

## B. DESIGN REQUIREMENTS:

1. Spacing to be recommended by manufacturer or building engineer.
2. Install a minimum of (3) set screws per snow guard.
3. It is important to design new structures or assess existing structures to make sure that they can withstand retained snow loads.

## 1.3 SUBMITTAL

- A. Submit manufacturer's specifications, standard detail drawings, installation instructions, and recommended layout.

## 1.4 QUALITY ASSURANCE

- A. Installer to be experienced in the installation of specified roofing material and snow guards for not less than 5 years in the area of the project.

## 1.5 DELIVERY / STORAGE / HANDLING

- A. Inspect material upon delivery and order replacements for any missing or defective items. Keep material dry, covered and off the ground until installed.

## PART 2 – PRODUCTS

## 2.1 MANUFACTURER

- A. Alpine SnowGuards. A division of Vermont Slate & Copper Services Inc.  
289 Harrel St. Morrisville, VT 05661, (888) 766-4273, [www.alpinesnowguards.com](http://www.alpinesnowguards.com).

## 2.2 MATERIALS

- A. Snow Guard Bracket - 6000 Series Aluminum, powder coated finish.
- B. Tubing: Aluminum – 6000 Series, 1" outside diameter and .120" wall thickness, extruded.
- C. Couplings: Aluminum – 6000 Series, Internal and concealed coupling 3" long.
- D. End Caps: 304 Stainless Steel.
- E. End Collars: 6000 Series Aluminum.
- F. Ice Flags: 6000 Series Aluminum 3" wide.

- 2.3 Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Substrate

1. Inspect structure on which snow guard system is to be installed and verify that it will withstand any additional loading that it may incur. Notify general contractor of any deficiencies before installing Alpine Snow Guards.
2. Verify that roofing material has been installed correctly prior to installing snow guards.

3.2 INSTALLATION

- A. Comply with architectural drawings and snow guard manufacturer's recommendations for location of system. Comply with manufacturer's written installation instructions for installation and layout.

END OF SECTION



SECTION 07 8413  
PENETRATION FIRESTOPPING

## PART 1 GENERAL

## 1.1 SECTION INCLUDES

- A. Firestopping systems including the following:
  - 1. Fire resistive joint fire containment.
  - 2. Penetrations through fire-rated vertical and horizontal assemblies.
  - 3. Firestop sealants.
  - 4. Through penetration firestopping.

## 1.2 PERFORMANCE REQUIREMENTS

- A. Provide systems that are listed by at least one the following:
  - 1. Underwriters Laboratories Inc. (UL), in "Fire Resistance Directory".
  - 2. Any other qualified independent testing and inspection agency that conducts periodic follow-up inspections and is acceptable to authorities having jurisdiction.
- B. Provide firestop products that are flexible enough to allow for pipe vibration in a through penetration application.
- C. Provide firestop sealants and sprays for construction joint applications that are flexible enough to satisfy the movement criteria per the test standards ASTM E 1399, ASTM E 1966 or ANSI/UL 2079.
- D. Provide products that meet the intent of the L rating classification for the movement of smoke per ANSI/UL 1479 for through penetrations and ANSI/UL 2079 for construction joints.
- E. Provide products identical to those tested and listed for classification by UL, Intertek or any other qualified independent testing agency.
- F. Provide products that bear classification marking of qualified independent testing agency.
- G. Where firestop systems not listed by any listing agency are required due to project conditions, submit a substitution proposal with evidence specified.
- H. Use only products specifically listed for use in listed systems.
- I. Provide products that are compatible with each other, with the substrates forming openings, and with the items, if any, penetrating the firestopping, under the conditions represented by this project, based on testing and field performance demonstrated by manufacturer.
- J. Firestopping materials must meet and be acceptable for use by all building codes and NFPA codes cited in this section.

## 1.3 SUBMITTALS

- A. Submit under provisions of Section 01 30 00.
- B. Product Certificates: Submit certificates of conformance signed by firestop system manufacturer certifying that materials furnished comply with requirements.
- C. Product Data: Furnish manufacturer's product data sheets on each material to be used in firestop systems. Information on manufacturer's product data sheet should include:
  - 1. Product characteristics including compliance with appropriate ASTM/UL/ANSI test standards.

2. Storage and handling requirements and recommendations.

D. Installation Instruction: Furnish manufacturer's installation instructions.

#### 1.4 QUALITY ASSURANCE

A. General: All through-penetration firestop systems shall be installed with approved methods using materials that have been tested and classified to produce an approved assembly.

B. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of twenty five (25) years experience.

C. Installer Qualifications: Firm must be qualified by having experience, staff, and be properly trained to install the specified products, and meets the following criteria:

1. Contractor is a 3M Master Contractor.
2. Contractor is a Certified 3M Trained contractor.
3. Contractor is acceptable to manufacturer.
4. Certificate: Contractor should provide certificate of qualification.

D. Codes: Where manufacturer's application procedures are in conflict with those of the code authority having jurisdiction, the more strict guidelines will prevail.

E. Pre-installation Meetings: Meetings to agree on firestop requirements, conditions, manufacturer's instructions.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store products until ready for installation in manufacturer's original unopened packaging, legibly marked with manufacturer's name and product identification, date of manufacture, lot number, shelf life, listing agency's classification marking, curing time, and mixing instructions if applicable.

B. Store and handle in such a manner as to prevent deterioration or damage due to moisture, temperature changes, contaminants, and other causes; follow manufacturer's instructions.

C. Store and dispose of hazardous materials, and materials contaminated by hazardous materials, in accordance with requirements of local authorities having jurisdiction.

#### 1.6 PROJECT CONDITIONS

A. Coordinate construction and cutting of openings so that each particular firestop system may be installed in accordance with its listing, including sizing, sleeves, and penetrating items.

B. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install firestopping under environmental conditions outside manufacturer's absolute limits.

C. Provide ventilation as required by firestopping manufacturer, including mechanical ventilation if required.

#### 1.7 WARRANTY

A. At project closeout, provide to Owner or Owners Representative an executed copy of the manufacturer's standard limited warranty against manufacturing defect, outlining its terms, conditions, and exclusions from coverage.

## PART 2 PRODUCTS

## 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: 3M Fire Protection Products, which is located at: 3M Center Bldg. 223-2N-21; St. Paul, MN 55144-1000; Toll Free Tel: 800-328-1687; Fax: 651-733-8221; Email: firetech1@mmm.com; Web: www.3m.com/firestop
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.
- C. Single Source: To maintain control and integrity of the firestop applications a single manufacturer should be used. Specific UL or approved listing agencies systems applicable to each type of firestop condition should be supplied by one manufacturer.

## 2.2 SCOPE/APPLICATION

- A. Provide installed firestop protects that limit the spread of fire, heat, smoke, and gasses through otherwise unprotected openings in rated assemblies, including walls, partitions, floors, roof/ceilings, and similar locations. restoring the integrity of the fire rated construction to its original fire rating.
- B. Provide firestop systems listed for the specific combination of fire rated construction, type of penetrating item, annular space requirements, and fire rating, and the following criteria:
  - 1. F-Rating: Equal to or greater than the fire-resistance rating of the assembly in which the firestopping will be installed.
  - 2. T-Rating: In habitable areas where penetrating items are exposed to potential contact with materials on fire side(s) of rated assembly, T-rating must equal its F-rating.
  - 3. L-Rating: L-rating of 1 cfm per linear foot (5.5 cu m/h/m) maximum at ambient temperatures.
  - 4. Wall Penetrations: Systems must be symmetrical, with the same rating from both sides of the wall.
  - 5. Testing: Determine ratings in accordance with ASTM E 814 or UL 1479.
- C. Provide firestopping systems listed for construction gaps per the specific combination of fire-rated construction type, configuration, gap dimensions, and fire rating, and the following criteria:
  - 1. Fire resistance rating must be equal to or greater than that of the assembly in which it is to be installed.
  - 2. Movement capability must be appropriate to the potential movement of the gap, demonstrated by testing in accordance with ASTM E 1399 for minimum of 500 cycles at 10 cycles per minute.
  - 3. L-Rating: L-rating of 1 cfm per linear foot (5.5 cu m/h/m) maximum.
  - 4. Determine ratings in accordance with UL 2079.

## 2.3 THROUGH PENETRATION FIRESTOP SYSTEMS

- A. 3M Fire Barrier Ultra Plastic Pipe Device: Intumescent device for firestopping of plastic pipe and cables through rated walls and floors.
  - 1. Configuration: One-piece metal collar, with locking latch and bendable tabs to secure; equipped also for conventional anchoring.
  - 2. Fire Resistance: For use in 1, 2 or 3 hour fire rated systems.
- B. 3M Fire Barrier CP25WB+ Sealant: Intumescent water-based latex caulk. No-sag, fast drying, paintable, red in color.
  - 1. Fire Resistance: For use in 1, 2, 3 or 4 hour fire rated systems.

- C. 3M Fire Barrier Watertight Silicone 3000 WT Sealant: Water-tight intumescent silicone sealant for filling voids in concrete gypsum, metal, plastic, wood and insulation.
  - 1. Fire Resistance: For use in 1, 2, 3 or 4 hour fire rated systems.
- D. 3M Fire Barrier 1000 NS Silicone Sealant: Non-slump firestopping sealant for floor and wall openings.
  - 1. Hardness (ASTM C 661): 1000 NS: 20 - 25.
  - 2. Service Temperature (ASTM C 1299): -60 - 300 degrees F (-51 - 149 degrees C).
  - 3. Fire Resistance: For use in 1, 2 or 3 hour fire rated systems..
- E. 3M Fire Barrier Mortar: For sealing openings in concrete and masonry walls and floors. Self Leveling, non-sag, low VOC.
  - 1. Fire Resistance: For use in 1, 2 or 3 hour fire rated systems.
- F. 3M Fire Barrier Rated Foam FIP 1-Step: Premium two-part, easy-to-handle formulation. Dries to a flexible solid. During a fire, product maintains a tight firestop against smoke and flame.
  - 1. Fire Resistance: For use in 1 or 2 hour fire rated systems.
  - 2. Tested to the criteria of ASTM E 814 / UL 1479.
- G. 3M Fire Barrier Pass Through Devices: One-Piece device for firestopping of cable penetrations through rated walls and floors.
  - 1. Fire Resistance: For use in 1, 2 or 3 hour fire rated systems.

## PART 3 EXECUTION

### 3.1 EXECUTION

- A. Do not begin installation until substrates have been properly prepared.
- B. Conduct tests according to manufacturer's written recommendations to verify that substrates are free of oil, grease, rolling compounds, incompatible primers, loose mill scale, dirt and other foreign substances capable of impairing bond of firestopping.
- C. Verify that items penetrating fire rated assemblies are securely attached, including sleeves, supports, hangers, and clips.
- D. Verify that openings and adjacent areas are not obstructed by construction that would interfere with installation of firestopping, including ducts, piping, equipment, and other suspended construction.
- E. Verify that environmental conditions are safe and suitable for installation of firestopping.
- F. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

### 3.2 PREPARATION

- A. Prepare substrates in accordance with manufacturer's instructions and recommendations.
- B. Install masking and temporary coverings as required to prevent contamination or defacement of adjacent surfaces due to firestopping installation.

### 3.3 INSTALLATION

- A. Install in strict accordance with manufacturer's detailed installation instructions and procedures.

- B. Install so that openings are completely filled and material is securely adhered.
- C. Where firestopping surface will be exposed to view, finish to a smooth, uniform surface flush with adjacent surfaces.
- D. After installation is complete, remove combustible forming materials and accessories that are not part of the listed system.
- E. Repair or replace defective installations to comply with requirements.
- F. At each through penetration, attach identification labels on both sides in location where label will be visible to anyone seeking to remove penetrating items or firestopping.
- G. Clean firestop materials off surfaces adjacent to openings as work progresses, using methods and cleaning materials approved in writing by firestop system manufacturer and which will not damage the surfaces being cleaned.
- H. Notify authority having jurisdiction when firestopping installation is ready for inspection; obtain advance approval of anticipated inspection dates and phasing, if any, required to allow subsequent construction to proceed.
- I. Do not cover firestopping with other construction until approval of authority having jurisdiction has been received.

#### 3.4 CLEANING AND PROTECTION

- A. Remove left over material and debris from Work area. Use necessary means to protect film before, during, and after installation.
- B. Touch-up, repair or replace damaged products before Substantial Completion.
- C. Install identification Labels for Through Penetration and Construction Joint Systems: Pressure sensitive self-adhesive vinyl labels, preprinted with the following information:
  - 1. The words "Warning - Through Penetration Firestop System - Do not Disturb. Notify Building Management of Any Damage."
  - 2. Listing agency's system number or designation.
  - 3. System manufacturer's name, address, and phone number.
  - 4. Installer's name, address, and phone number.
  - 5. General contractor's name, address, and phone number (if applicable).
  - 6. Date of installation.

END OF SECTION



SECTION 07 9200  
JOINT SEALANTS

## PART 1 - GENERAL

## 1.1 SUMMARY

## A. Section Includes:

1. Liquid joint sealants.

## 1.2 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate installation of joint sealants with cleaning of joint sealant substrates and other operations that may impact installation or finished joint sealant work.
- B. Preinstallation Conference: Conduct conference at Project Site.

## 1.3 ACTION SUBMITTALS

## A. Product Data: For each type of joint sealant product specified, including:

1. Preparation instructions and recommendations.
2. Standard drawings illustrating manufacturer's recommended sealant joint profiles and dimensions applicable to Project.

## B. Joint Sealant Schedule: Indicate joint sealant location, joint sealant type, manufacturer and product name, and color, for each application. Utilize joint sealant designations included in this Section.

## C. Samples for Color Selection: For each joint sealant type.

## D. Samples for Verification: For each exterior joint sealant product, for each color selected.

## 1.4 INFORMATIONAL SUBMITTALS

## A. Qualification Data: For qualified applicator.

## B. Sealant, Waterproofing, and Restoration Institute (SWRI) Validation Certificate: For each sealant specified to be validated by SWRI's Sealant Validation Program.

## C. Preconstruction compatibility and adhesion test reports.

## D. Preconstruction field-adhesion test reports.

## E. Field quality control adhesion test reports.

## F. Warranty: Sample of unexecuted manufacturer and installer special warranties.

## 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Experienced Installer equipped and trained for application of joint sealants required for this Project with record of successful completion of projects of similar scope.

- B. Single Source Responsibility: Provide exterior joint sealants by a single manufacturer responsible for testing of Project substrates to verify compatibility and adhesion of joint sealants.
- C. Preconstruction Field-Adhesion Testing: Prior to installing joint sealants, field test adhesion to joint substrates using ASTM C1193 Method A or method recommended by manufacturer. Verify adhesion is adequate. Modify joint preparation recommendations for failed joints and re-test. Submit written report to Architect.
- D. Mockups: Provide joint sealant application within mockups required in other sections identical to specified joint sealants and installation methods.

## 1.6 WARRANTY

- 1. Warranty Period: [Two] years from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint sealant manufacturer agrees to furnish joint sealants to repair or replace those that demonstrate deterioration or failure under normal use within warranty period specified.
  - 1. Warranty Period for Silicone Sealants: [20] years date of Substantial Completion.
- C. Warranty Conditions: Special warranties exclude deterioration or failure of joint sealants in normal use due to structural movement resulting in stresses on joint sealants exceeding sealant manufacturer's written specifications, joint substrate deterioration, mechanical damage, or normal accumulation of dirt or other contaminants.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Basis-of-Design Product: Provide joint sealant products manufactured by Dow Corning Corporation, Midland MI; (877) SEALANT, (877) 732-5268; email: [construction@dowcorning.com](mailto:construction@dowcorning.com); website: [www.dowcorning.com/construction](http://www.dowcorning.com/construction), [or comparable products of other manufacturer approved by Architect in accordance with Instructions to Bidders and Division 01 General Requirements].
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

### 2.2 MATERIALS, GENERAL

- C. Compatibility: Provide joint sealants and accessory materials that are compatible with one another, and with materials in close proximity under use conditions, as demonstrated by sealant manufacturer using ASTM C1087 testing and related experience.
- D. Joint Sealant Standard: Comply with ASTM C 920 and other specified requirements for each liquid-applied joint sealant.
- E. Stain Test Characteristics: Where sealants are required to be nonstaining, provide sealants tested per ASTM C 1248 as non-staining on porous joint substrates indicated for Project.

### 2.3 LIQUID JOINT SEALANTS

- A. Joint Sealant: ASTM C 920, Type S, Grade NS, Class 100/50, for Use T, NT; SWRI validation.



1. Basis of Design Product: DOW CORNING® 790 Silicone Building Sealant.
2. Hardness, ASTM C 661: 15 durometer Shore A.
3. Volatile Organic Compound (VOC) Content: 26 g/L maximum.
4. Staining, ASTM C 1248: None on concrete, granite, limestone, and brick.
5. Color: As selected by Architect from manufacturer's full line of not less than 10 colors.

B. Mildew-Resistant Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT.

1. Basis of Design Product: DOW CORNING® 786 Silicone Sealant.
2. Hardness, ASTM D 2240: 25 durometer Shore A
3. Volatile Organic Compound (VOC) Content: 36 g/L maximum.
4. NSF Standard 51 and FDA Regulation No. 21 CFR 177.2600 compliant.
5. Color: As selected by Architect from manufacturer's standard colors.

## 2.6 ACCESSORIES

- A. Joint Substrate Primers: Substrate primer recommended by sealant manufacturer for application.
- B. Cylindrical Sealant Backing: ASTM C 1330, Type B non-absorbent, bi-cellular material with surface skin, or Type O open-cell polyurethane, as recommended by sealant manufacturer for application.
- C. Bond Breaker Tape: Polymer tape compatible with joint sealant materials and recommended by sealant manufacturer.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine joint profiles and surfaces to determine if work is ready to receive joint sealants. Verify joint dimensions are adequate for development of sealant movement capability. Proceed with joint sealant work once conditions meet sealant manufacturer's recommendations.

### 3.2 PREPARATION

- A. Joint Surface Cleaning: Clean joints prior to installing joint sealants using materials and methods recommended by sealant manufacturer.
  1. Remove laitance, form-release agents, dust, and other contaminants.
  2. Clean nonporous and porous surfaces utilizing chemical cleaners acceptable to sealant manufacturer.

### 3.3 SEALANT APPLICATION

- A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- B. Masking: Mask adjacent surfaces to prevent staining or damage by contact with sealant or primer.
- C. Joint Priming: Prime joint substrates when recommended by sealant manufacturer or when indicated by preconstruction testing or experience. Apply recommended primer using sealant manufacturer's recommended application techniques.

- D. Joint Backing: Select joint backing materials recommended by sealant manufacturer to be compatible with sealant material. Install backing material at depth required to produce profile of joint sealant allowing optimal sealant movement.
  - 1. Install bond breaker tape over substrates when sealant backings are not used.
- E. Liquid Sealant Application: Install sealants using methods recommended by sealant manufacturer, in depths recommended for application. Apply in continuous operation from bottom to top of joint vertically and horizontally in a single direction. Apply using adequate pressure to fill and seal joint width.
  - 1. Tool sealants immediately with appropriately shaped tool to force sealants against joint backing and joint substrates, eliminating voids and ensuring full contact.
  - 2. Using tooling agents approved by sealant manufacturer for application.
- F. Cleaning: Remove excess sealant using materials and methods approved by sealant manufacturer that will not damage joint substrate materials.
  - 1. Remove masking tape immediately after tooling joint without disturbing seal.
  - 2. Remove excess sealant from surfaces while still uncured.

### 3.6 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Perform adhesion tests in accordance with manufacturer's instructions and with ASTM C 1193, Method A.
  - 1. Perform [5] tests for the first [1000 feet (300 m)] of joint length for each kind of sealant and joint substrate, and one test for each [1000 feet (300 m)] of joint length thereafter or 1 test per each floor per building elevation, minimum.
  - 2. For sealant applied between dissimilar materials, test both sides of joint.
- B. Remove sealants failing adhesion test, clean substrates, reapply sealants, and re-test. Test adjacent sealants to failed sealants.
- C. Submit report of field adhesion testing to Architect indicating tests, locations, dates, results, and remedial actions taken.

END OF SECTION

SECTION 08 1113  
METAL DOORS AND FRAMES

## PART 1 GENERAL

## 1.1 SECTION INCLUDES

- A. Flush Metal Doors.
- B. Fire Rated Door Frames.
- C. Steel Door Frames for Drywall.
- D. Hollow Metal Window Frames.

## 1.2 SUBMITTALS

- A. Submit under provisions of Section 01 30 00.
- B. Product Data: Manufacturer's standard details and catalog data indicating compliance with referenced standards, and manufacturer's installation instructions.
- C. Certificates:
  - 1. Manufacturer's certification that products comply with referenced standards.
  - 2. Evidence of manufacturer's membership in the Steel Door Institute.
- D. Shop Drawings: Door, frame, and hardware schedule in accordance with SDI 111D. Show types, quantities, dimensions, specified performance, and design criteria, materials and similar data for each opening required.
  - 1. Indicate frame configuration, anchor types and spacing, location of cutouts for hardware, reinforcement, to ensure doors and frames are properly prepared and coordinated to receive hardware.
  - 2. Indicate door elevations, internal reinforcement, closure method, and cutouts for glass lights and louvers.
- E. Samples: 18 by 24 inches (457 by 610 mm) cut away sample door with provisions for lockset, hinge and corner section of frame.

## 1.3 QUALITY ASSURANCE

- A. Supplier: A direct account of the manufacturer who has on permanent staff, an Architectural Hardware Consultant (AHC), a Certified Door Consultant (CDC) or an Architectural Openings Consultant (AOC), who will be available to consult with the Architect and Contractor regarding matters affecting the door and frame openings.
- B. Fire Rated Doors and Frames: Underwriters' Laboratories and Warnock Hersey, labeled fire doors and frames:
  - 1. Label fire doors and frames in accordance with Underwriters Laboratories standard UL10C Positive Pressure Fire Tests of Door Assemblies.
  - 2. Construct and install doors and frames to comply with current issue of NFPA 80.
  - 3. Manufacture Underwriters' Laboratories labeled doors and frames under the UL Follow Up Service (FUS) and in strict compliance to UL procedures, and provide the degree of fire protection, heat transmission and panic loading capability indicated by the opening class.
  - 4. Manufacture Intertek Testing Services / Warnock Hersey labeled doors and frames under the ITS/WH factory inspection program and in strict compliance to ITS/WH procedures, and provide the degree of fire protection capability indicated by the opening class.

5. Manufacture FM labeled doors and frames under the FM factory inspection program and in strict compliance to FM procedures, and provide the degree of fire protection, heat transmission and panic loading capability indicated by the opening class.
  6. Affix a physical label or approved marking to each fire door or fire door frame, at an authorized facility as evidence of compliance with procedures of the labeling agency. Label embossment is not permitted.
  7. Conform to applicable codes for fire ratings. It is the intent of this specification that hardware and its application comply or exceed the standards for labeled openings. In case of conflict between types required for fire protection, furnish type required by NFPA and UL.
  8. Fire door assemblies in exit enclosures and exit passageways; maximum transmitted temperature end point rating of not more than 250 degrees F (121 degrees C) above ambient at the end of 30 minutes of the standard fire test exposure.
- C. Manufacturer Qualifications: Member of the Steel Door Institute.
- D. Installer: Minimum five years documented experience installing products specified this Section.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Handle, store and protect products in accordance with the manufacturers printed instructions and ANSI/SDI A250.10 and NAAMM/HMMA 840.
- B. Store doors vertically in a dry area, under a proper vented cover. Place on 4 inch (102 mm) high wood sills to prevent rust or damage. Provide 1/4-inch (6 mm) space between doors to promote air circulation.
- C. Store frames in an upright position with heads uppermost under cover. Place on 4 inch (102 mm) high wood sills to prevent rust and damage. Store assembled frames five units maximum in a stack with 2 inch (51 mm) space between frames to promote air circulation.
- D. Do not use non-vented plastic or canvas shelters to prevent rust or damage.
- E. Should wrappers become wet, remove immediately.

#### 1.5 COORDINATION

- A. Coordinate Work with other directly affected sections involving manufacture or fabrication of internal cutouts and reinforcement for door hardware, electric devices and recessed items.
- B. Coordinate Work with frame opening construction, door and hardware installation.
- C. Sequence installation to accommodate required door hardware.
- D. Verify field dimensions for factory assembled frames prior to fabrication.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Steelcraft an Allegion Brand, which is located at: 11819 N. Pennsylvania St.; Carmel, IN 46032; Toll Free Tel: 877-578-1247; Email:[contactus@allegion.com](mailto:contactus@allegion.com); Web:[us.allegion.com/brands/steelcraft/Pages/default.aspx](http://us.allegion.com/brands/steelcraft/Pages/default.aspx)
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

- C. Provide all steel doors and frames from a single manufacturer.

## 2.2 DOORS

- A. General: Construct exterior/interior doors to the following designs and gages:
1. Interior Doors: Zinc-Iron Alloy-Coated galvanized steel, ASTM A 653, Class A60:
    - a. Thickness:
      - 1) 20 gage (0.8 mm).
  2. Include galvanized components and internal reinforcements.
  3. Prime Finish Doors: Clean, phosphatize and factory prime painted doors indicated on Door Schedule as HM.
  4. Hardware Reinforcements:
    - a. Hinge reinforcements for full mortise hinges: minimum 7 gage (4.7 mm).
    - b. Lock reinforcements: minimum 16 gage (1.3 mm).
    - c. Closer reinforcements: minimum 14 gage (1.7 mm) steel, 20-inch (508 mm) long.
    - d. Galvanized doors: include galvanized hardware reinforcements.
    - e. Projection welded hinge and lock reinforcements to the edge of the door.
    - f. Provide adequate reinforcements for other hardware as required.
- B. Flush Metal Doors:
1. Acceptable Product: Steelcraft B Series.
    - a. Performance:
      - 1) Physical performance: 3 million cycles, ANSI A250.4
      - 2) Sound attenuation (gasketed), 40 STC
      - 3) Thermal performance (gasketed): ASTM C1363: 0.69 U-factor
      - 4) Thermal performance (gasketed): ASTM C 236: 2.29 U-factor
  2. Door Thickness: 1-3/4 inches (45 mm).
  3. Door faces reinforced and sound deadened as follows:
    - a. Honeycomb Core: Reinforced, stiffened, sound deadened and insulated with impregnated Kraft honeycomb core completely filling the inside of the doors and laminated to inside faces of both panels using contact adhesive applied to both panels and honeycomb core.
    - b. Polystyrene Core: Full 1-3/4 inches (45 mm) thick rigid polystyrene, adhered to inside of door faces and polystyrene core with waterproof adhesive for bond strength and rust prevention.
    - c. Polyurethane Core: Full 1-3/4 inches (45 mm) thick rigid polyurethane, adhered to inside of door faces and polyurethane core with waterproof adhesive for bond strength and rust prevention.
    - d. Steel Stiffened Core: Vertical stiffeners, hat-shaped, minimum 20 gage (0.8 mm) steel, type same as face sheet material, spaced 6 inches (150 mm) apart and welded to inside of face sheets 5 inches (127 mm) on center; full-thick glass fiber insulation between stiffeners.
  4. Vertical edge seams: Provide doors with continuous vertical mechanical inter-locking joints at lock and hinge edges. Finish edges as follows:
    - a. Visible Interlocked Edge: Continuous vertical mechanical interlocking joints with visible edge seams and continuous bead of structural epoxy in internal vertical connection
    - b. Filled Vertical Edges (F): Continuous vertical mechanical interlocking joints with internal epoxy seal; edge seams epoxy filled and ground smooth.
    - c. Welded Vertical Edges (W): Continuous vertical mechanical interlocking joints; edge seams welded, epoxy filled, and ground smooth.
  5. Bevel hinge and lock door edges 1/8 inch (3 mm) in 2 inches (50 mm). Square edges on hinge and/or lock stiles are not acceptable.
  6. Reinforce top and bottom of doors with galvanized 14 gage (1.7 mm), welded to both panels.

7. Glazing Bead: Formed steel sheet or snap-in Designer trim.
8. Fire Rating: Supply door units bearing Labels for fire ratings indicated in Door Schedule for the locations indicated.

### 2.3 DOOR FRAMES

#### A. Fire Rated Steel Frames:

1. Acceptable Product: Steelcraft F-Series.
  - a. Performance:
    - 1) Physical performance: 5 million cycles per ANSI A250.4
2. Construction: Three-piece knock-down frames; mitered joints, with locking tab at each head and jamb intersection.
3. Construction: Factory-welded three sided frames.
  - a. Full profile welded:
    - 1) Weld miter joints between head and jamb faces completely along their length either internally or externally.
    - 2) Internally weld perimeter profile joints full length of soffit and rabbets with hairline seams on external meeting surfaces. Grind and finish face joints smooth.
4. Profile:
  - a. 2 inches (51 mm) face dimension with 5/8 inch (16 mm) high stop, and types and throat dimensions indicated on the Door Schedule.
5. Provide following reinforcement and accessories:
  - a. Hinge Preparation for 5 inch (127 mm) high, universal standard weight, or heavy weight, full mortise hinges; with plaster guard.
  - b. Strike preparation (single doors) for 4-7/8 inch (123 mm) universal strike; with plaster guard.
  - c. Silencers. Prepare frames to receive inserted type door silencers, 3 per strike jamb on single doors, and 2 per head for pair of doors. Stick-on silencers are not permitted.
6. Fire Rating: Supply frame units bearing Labels for fire ratings indicated in Door Schedule for the locations indicated.
7. Finish: Factory prime finish in accordance with ANSI A 250.10.

#### B. Steel Door Frames for Drywall:

1. Acceptable Product: Steelcraft-DW Series.
2. Performance:
  - a. Physical performance: 2 million cycles per ANSI A250.4
3. Construction: Three-piece knock-down frames; mitered joints, with locking tab at each head and jamb intersection.
4. Profile:
  - a. Profile: 2 inches (51 mm) face dimension, 1/2 inch (13 mm) backbend with 5/16 inch (8 mm) return, 5/8 inch (16 mm) high stop, types and throat dimensions indicated.
5. Provide following reinforcement and accessories:
  - a. Hinge preparation for 5 inches (127 mm) high full mortise hinges, 0.134 inch (3.4 mm) or 0.180 inch (4.6 mm) leaf thickness.
  - b. Strike preparation (single doors) for 4-7/8 inch (125 mm) universal strike; with plaster guard.
  - c. Closer reinforcement: minimum 14 gage (1.7 mm) steel.
  - d. Projection weld hinge and strike reinforcements to the door frame.
  - e. Provide metal plaster guards for all mortised cutouts.
  - f. Include galvanized hardware reinforcements in all galvanized frames.
  - g. Silencers. Prepare frames to receive inserted type door silencers, 3 per strike jamb on single doors, and 2 per head for pair of doors. Stick-on silencers are not permitted.

6. Anchors: Locate adjustable anchors in each jamb 4 inches (102 mm) from the top of the door opening to hold frame in rigid alignment.
  - a. Provide security anchor at strike jambs on all frames 7 foot 6 inches (2286 mm) high and over.
  - b. Base Anchors for DW Series: Lock-in type; adjustable for stud depth.
7. Fire Rating: Supply frame units bearing Labels for fire ratings indicated in Door Schedule for the locations indicated.
8. Finish: Factory prime finish.

#### 2.4 HOLLOW METAL WINDOW FRAMES

##### A. Hollow Metal Framing Systems:

1. Acceptable Product: Steelcraft Architectural Stick Systems.
2. Components: Construct architectural stick frame assemblies of standard frame components, fabricated as specified.
  - a. Interior Frames in stud wall construction: 16 gage (1.3 mm) cold rolled steel, ASTM A 1008/A 1008M steel.
  - b. Include galvanized components and internal reinforcements with galvanized frames.
3. Frame component requirements:
  - a. Prepare required sticks at door openings and frame assemblies for hardware as specified in Section 08 71 53.
  - b. Fabricate frame assemblies from three basic components:
    - 1) Open Sections (perimeter members) identical in configuration to standard frames.
    - 2) Closed sections (intermediate members) with identical jamb depth, face dimensions, and stops as open sections.
    - 3) Sill sections: Fabricated from galvanized steel, flush with both faces of adjacent vertical members. Cut individual components to length and notched to assure square joints and corners.
  - c. Externally welded face joints at meeting mullions or between mullions and other frame members on the face surfaces only. Grind and finish face joints smooth.
  - d. Fabricate frame assemblies for shipment to the jobsite completely welded.
    - 1) Field joints permissible only when the size of the total assembly exceeds shipping limitations.
    - 2) Fabricate oversized frames in sections designated for splicing in the field.
    - 3) Provide frames with joint reinforcements 14 gage (1.7 mm), 8 inches (203 mm) long.
    - 4) Field weld joint reinforcement inside and tack weld outside joint at both faces, grind, and finish smooth and uniform in appearance, after installation.
  - e. Pierced and dimpled glazing beads for use with manufacturers' standard fasteners.
  - f. Provide necessary anchors for jambs, heads, and sills of assemblies.
  - g. Verify field dimensions as required. Do not begin fabrication until these dimensions have been verified, and approved.
4. Accessories:
  - a. Glazing Bead: Formed steel sheet; screw-attached.
  - b. Steel Panels:
    - 1) 1/2 inch (12.5 mm) thick and manufactured from 20 gage (0.88 mm), 18 gage (1.0 mm), 16 gage (1.3 mm), 14 gage (1.7 mm) thick non-galvanized or galvanized steel faces with a mineral board core for fire rated frames.
    - 2) Cores laminated to the inside faces of both panels and honeycomb core, coated with waterproof adhesive for bond strength and rust prevention.

5. Fire Rating: Provide factory assembled welded units bearing Labels for fire ratings indicated on the Drawings.
6. Smoke Rating: Provide factory assembled welded units for smoke ratings indicated on the Drawings.
7. Finish: Factory prime finish in accordance with ANSI A 250.10.

## 2.5 ACCESSORIES

- A. Anchors: Manufacturer's standard framing anchors, specified in manufacturer's printed installation instructions for project conditions.
- B. Door Bottom:
  1. Acceptable Product: Steelcraft Fas-Seal Door Bottom.
  2. Characteristics: Electrometric, continuous strip, screw-attached to recessed bottom door channel for concealed installation; double-sealing; acceptable for fire-rated doors up to 3 hour rating.
- C. Plaster Guards: Same material as door frame, minimum 24 gage (0.5 mm) minimum; provide for all strike boxes.
- D. Silencers: Resilient rubber, Inserted type, three per strike jamb for single openings and two per head for paired openings. Stick-on silencers shall not be permitted except on hollow metal framing systems.
- E. Glazing: Specified in Section 08 8126.

## 2.6 FABRICATION

- A. Steel Frames:
  1. Three-piece knock-down frames: Head and jamb intersecting corners die-cut, mitered at 45 degrees, with locking tabs for rigid connection when assembled.
  2. Factory-welded frames: Head and jamb intersecting corners mitered at 45 degrees, with back welded joints ground smooth.
    - a. Continuous face weld the joint between the head and jamb faces along their length either internally or externally. Grind, prime paint, and finish smooth face joints with no visible face seams.
    - b. Externally weld, grind, prime paint, and finish smooth face joints at meeting mullions or between mullions and other frame members per a current copy of ANSI/SDI A250.8.
    - c. Provide temporary steel spreaders (welded to the jambs at each rabbet of door openings) on welded frames during shipment. Remove temporary steel spreaders prior to installation of the frame.
  3. Provide cutouts and reinforcements required for electrical and security components specified elsewhere in this specification.

## 2.7 FINISHES

- A. Chemical Treatment: Treat steel surfaces to promote paint adhesion.
- B. Factory Prime Finish: Meet requirements of ANSI A 250.10.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify that project conditions are acceptable before beginning installation of frames.
  1. Verify that completed openings to receive knock-down wrap-around frames are of correct size and thickness.



2. Verify that completed concrete or masonry openings to receive butt type frames are of correct size.
- B. Do not begin installation until conditions have been properly prepared.
- C. Correct unacceptable conditions before proceeding with installation.

### 3.2 INSTALLATION

- A. Install doors and frames in accordance with manufacturer's printed installation instructions and with Steel Door Institute's recommended erection instructions for steel frames ANSI A250.11 and NAAMM/HMMA 840.
- B. Fire Doors and Frames: Install in accordance with ANSI/NFPA 80.
- C. Remove temporary steel spreaders prior to installation of frames.
- D. Set frames accurately in position; plumb, align and brace until permanent anchors are set. After wall construction is complete, remove temporary wood spreaders.
  1. Field splice only at approved locations indicated on the shop drawings.
  2. Weld, grind, and finish as required to conceal evidence of splicing on exposed faces.
- E. Provide full height 3/8 inch (9.5 mm) to 1-1/2 inch (38 mm) thick strip of polystyrene foam blocking at frames requiring grouting where continuous hinges are specified. Apply the strip to the back of the frame, where the hinge is to be installed, to facilitate field drilling or tapping.
- F. Grouting Hollow Metal Frames:
  1. Provide and install temporary bottom and intermediate wood spreaders to maintain proper width and avoid bowing or deforming of frame members. Refer to ANSI A250.11-2001 and NAAMM/HMMA 840.
  2. Comply with ANSI/SDI Standard A250.8, paragraph 4.2.2, and HMMA 820 TN01 Grouting Hollow Metal Frames, whereby grout will be mixed to provide a 4 inch (102 mm) maximum slump consistency and hand troweled into place. Do not use grout mixed to a thinner, pumpable consistency.
  3. Provide a vertical wood brace during grouting of frame at openings over 4 foot (1219 mm) wide, to prevent sagging of frame header.
- G. Glaze and seal exterior transom, sidelight and window frames in accordance with HMMA-820 TN03.
- H. Apply hardware in accordance with hardware manufacturers' instructions and Section 08 71 53 - Security Door Hardware.

### 3.3 FIELD QUALITY CONTROL

- A. Fire-Rated Door Assembly Testing:
  1. Upon completion of the installation, test each fire door assembly to confirm proper operation of its closing device and verify that it meets all criteria of a fire door assembly per NFPA 80 2007.
  2. Perform inspections by individuals with documented knowledge and understanding of the operation components of the type of door being tested.
  3. Provide a written record to the Owner with copies available to the Authorities Having Jurisdiction (AHJ).
  4. Record shall list the fire door assembly and include the door number with an itemized list of hardware set components for each door opening and location in the facility.

### 3.4 ADJUST AND CLEAN

- A. Adjust doors for proper operation, free from binding or other defects.
- B. Clean and restore soiled surfaces. Remove scraps and debris and leave site in a clean condition.
- C. Prime Coat Touch-Up: Immediately after erection, sand smooth rusted or damaged areas of prime coat, and apply touch-up of compatible air-drying primer.

3.5 PROTECTION

- A. Protect installed products and finished surfaces from damage during construction.

3.6 SCHEDULES

- A. See drawings.

END OF SECTION

SECTION 08 1416  
FLUSH WOOD DOORS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

A. Section Includes:

1. Solid-core doors with wood-veneer faces.
2. Factory fitting flush wood doors to frames and factory machining for hardware.

## 1.3 ACTION SUBMITTALS

A. Product Data: For each type of door. Include details of core and edge construction, louvers, and trim for openings.

B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following:

1. Dimensions and locations of blocking.
2. Dimensions and locations of mortises and holes for hardware.
3. Dimensions and locations of cutouts.
4. Undercuts.
5. Requirements for veneer matching.
6. Doors to be factory finished and finish requirements.
7. Fire-protection ratings for fire-rated doors.

C. Samples for Initial Selection: For factory-finished doors.

D. Samples for Verification:

1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches (200 by 250 mm), for each material and finish. For each wood species and transparent finish, provide set of three Samples showing typical range of color and grain to be expected in finished Work.
  - a. Provide Samples for each species of veneer and solid lumber required.

## 1.4 INFORMATIONAL SUBMITTALS

A. Sample Warranty: For special warranty.

B. Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.

## 1.5 DELIVERY, STORAGE, AND HANDLING

A. Comply with requirements of referenced standard and manufacturer's written instructions.

B. Package doors individually in plastic bags or cardboard cartons.

C. Mark each door on top and bottom rail with opening number used on Shop Drawings.

## 1.6 FIELD CONDITIONS

## 1.7 WARRANTY

A. Special Warranty: 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 in a 42-by-84-inch section.
  - b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.
2. Warranty Period for Solid-Core Interior Doors: Life of installation.

## PART 2 - PRODUCTS

### 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. ABS- American Building Supply- Doormerica.
2. Algoma Hardwoods, Inc.
3. Ampco Products, LLC.
4. Chappell Door Co.
5. Eggers Industries.
6. General Veneer Manufacturing Co.
7. Graham Wood Doors; ASSA ABLOY Group Company.
8. Haley Brothers, Inc.
9. Ipik Door Company.
10. Lambton Doors.
11. Marlite.
12. Marshfield Door Systems, Inc.
13. Mohawk Flush Doors, Inc.

### 2.2 FLUSH WOOD DOORS, GENERAL

A. Quality Standard: In addition to requirements specified, comply with WDMA I.S.1-A, "Architectural Wood Flush Doors."

1. Provide AWI Quality Certification Labels indicating that doors comply with requirements of grades specified.

B. WDMA I.S.1-A Performance Grade: Heavy Duty unless otherwise indicated.

### 2.3 VENEER-FACED DOORS FOR TRANSPARENT FINISH

A. Interior Solid-Core Doors :

1. Grade: Premium, with Grade AA faces.
2. Species: Fir.
3. Cut: Rift cut.
4. Match between Veneer Leaves: Book match.
5. Assembly of Veneer Leaves on Door Faces: to match existing.
6. Room Match: Provide door faces of compatible color and grain within each separate room or area of building.
7. Core: Either glued or nonglued wood stave or structural composite lumber.
8. Construction: Seven plies, either bonded or nonbonded construction.
9. WDMA I.S.1-A Performance Grade: Heavy Duty.

### 2.4 FABRICATION

A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.

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, BHMA-156.115-W, 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. Transom and Side Panels: Fabricate matching panels with same construction, exposed surfaces, and finish as specified for associated doors. Finish bottom edges of transoms and top edges of rabbeted doors same as door stiles.

1. Fabricate door and transom panels with full-width, solid-lumber, meeting rails. Provide factory-installed spring bolts for concealed attachment into jambs of metal door frames.

D. Openings: Factory cut and trim openings through doors.

1. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Section 088000 "Glazing."

## 2.5 SHOP PRIMING

A. Doors for Transparent Finish: Shop prime faces and all four edges with stain (if required), other required pretreatments, and first coat of finish as specified in Section 099300 "Staining and Transparent Finishing." Seal edges of cutouts and mortises with first coat of finish.

## 2.6 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. Factory finish doors that are indicated to receive transparent finish.

C. Transparent Finish:

1. Grade: Premium.
2. Finish: AWI's, AWMAC's, and WI's "Architectural Woodwork Standards" to match existing.
3. Staining: to match existing.
4. Sheen: to match existing.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

A. Examine doors and installed door frames, with Installer present, before hanging doors.

1. Verify that installed 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 Section 08 7100 "Door Hardware."

B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.

1. Install fire-rated doors according to NFPA 80.
2. Install smoke- and draft-control doors according to NFPA 105.

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 at heads, jambs, and between pairs of doors. Provide 1/8 inch 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 from bottom of door to top of threshold unless otherwise indicated.

a. Comply with NFPA 80 for fire-rated doors.

b. Bevel non-fire-rated doors 1/8 inch in 2 inches at lock and hinge edges.

2. Bevel fire-rated doors 1/8 inch in 2 inches 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.

END OF SECTION 081416

## Part 1 General

### 1.1 Section Includes

- A. Aluminum Clad Wood Commercial Door and Frame, complete with hardware, glazing, weather strip, removable grille, simulated divided lite, stationary sidelite, stationary transom, jamb extension, and standard or specified anchors, trim and attachments.

### 1.2 System Description

- A. Design and Performance Requirement. Design Pressure is applicable to individual units and may vary with unit size. (2 ¼" Door only)
  - 1. Units shall be designed to comply with ASTM E330 for structural performance. SHED DP +40/-40 psf (with removable mullion rim device & vertical locking rods) and SHED DP +25/-25 psf (with removable mullion and rim device)

### 1.3 Submittals

- A. Shop Drawings: Submit shop drawings under provision of Section 01 33 23
- B. Product Data: Submit catalog data under provision of Section 01 33 23
- C. Samples:
  - 1. Submit corner section under provision of section 01 33 23
  - 2. Include glazing system, quality of construction and specified finish
- D. Quality Control Submittals: Certificates: submit manufacture's certification indicating compliance with specified performance and design requirement under provision of section 01 33 26. (2 ¼" Doors only)

### 1.4 Quality Assurance

- A. Requirements: consult local code for IBC [International Building Code] and IRC [International residential Code] adoption year and pertinent revisions

### 1.5 Delivery

- A. Comply with provisions of Section 01 65 00
- B. Deliver in original and protect from weather

### 1.6 Storage and Handling

- A. Prime and seal wood surfaces, including to be concealed by wall construction, if more than thirty (30) days will expire between delivery and installation

- B. Store door panels flat on a level surface in a clean and dry storage area above ground to protect from weather under provision of Section 01660
- C. Condition doors to local average humidity before hanging

### 1.7 Warranty

Complete and current warranty information is available at [marvin.com/warranty](http://marvin.com/warranty). The following summary is subject to the terms, condition, limitations and exclusions set forth in the Marvin Windows and Door Limited Warranty and Products in Coastal Environments Limited Warranty Supplement:

- A. Clear insulating glass with stainless steel spacers is warranted against seal failure caused by manufacturing defects and resulting in visible obstruction through the glass for twenty (20) years from the original date of purchase. Glass is warranted against stress cracks caused by manufacturing defects from (10) years from the original date of purchase.
- B. Standard exterior aluminum cladding finish is warranted against manufacturing defects resulting in chalk, fade and loss of adhesion (peel) per the American Manufacture's Association's (AAMA) Specification 2605-11 Section 8.4 and 8.9 for twenty (20) years from the original date of purchase.
- C. Factory applied interior finish is warranted to be free from the Finish Defects for a period of five (5) years from the original date of purchase.
- D. Hardware and other non-glass components are warranted to be free from manufacturing defects for ten (10) years from the original date of purchase.

### Part 2 Products

#### 2.1 Manufactured Units

- A. Description: Factory assembled Aluminum Clad Commercial Door, as manufactured by Marvin Windows and Doors, Ripley, Tennessee.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

#### 2.2 Frame Description

- A. Finger-Jointed, edge-glued Pine core with non finger-jointed Pine veneer; finger-jointed, edge-glued White Oak core with non finger-jointed White Oak veneer; finger-jointed, edge-glued Cherry core with non finger-jointed Cherry veneer; finger-jointed, edge-glued Mahogany core with non finger-jointed Mahogany veneer; finger-jointed, edge-glued Vertical Grain Douglas Fir core with non finger-jointed Vertical Grain Douglas Fir veneer, edge-glued Mixed Grain Douglas Fir veneer with non finger-jointed Mixed Grain Douglas Fir
  - 1. Kiln dried to moisture content no greater than twelve (12) percent at the time of fabrication
  - 2. Water repellent, preservative treated in accordance with WDMA I.S.4.
- B. Frame width: 4 9/16" (116mm)
- C. Frame thickness: 1 1/16" (27mm)
- D. Exterior extruded aluminum clad 0.050" (1.3mm) thick



- E. Standard factory installed thermal barrier saddle low profile .500" (13mm) by 7.125" (181mm) sill
- F. Optional thermal barrier saddle low profile .250" (6mm) by 7.125" (181mm) sill
- G. Optional No Sill – sill supplied and applied by others. Jambs extended 7/8" (22mm) beyond panel bottom

### 2.3 Panel Description

- A. 1 ¾" Doors: Stiles contain laminated veneer lumber (LVL) core with non finger-jointed Mixed Grain Douglas Fir. Solid wood top, bottom and intermediate rails.
  - 1. Kiln dried to moisture content no greater than twelve (12) percent at time of fabrication.
  - 2. Water repellent, preservative treated in accordance with WDMA I.S.4.
- B. 2 ¼" Doors: Stiles and top rail contain laminated veneer lumber (LVL) core with non finger-jointed Mixed Grain Douglas Fir. Solid wood bottom and intermediate rails.
- C. Composite panel thickness: 1 ¾" (44mm); 2 ¼" (57mm)
- D. Exterior extruded aluminum clad 0.055" (1.4mm) thick
- E. Top rail width: 1 ¾" panel: 6" (152mm) or 2 ¼" panel: 8 1/8" (206mm)
- F. Stile width: 6" (152mm)
- G. Bottom rail height: 11 3/8" (289mm)
- H. Panel corners glued and fastened with 5/8" x 4" (16mm x 102mm) fluted hardwood dowels. Removable interior vinyl glazing stops with non finger-jointed wood covers. 1 ¾" panel: no visible fastener holes; 2 ¼" panel: visible nail fastener on glazing stop.

### 2.4 Glazing

- A. Select quality complying with ASTM C1036. Comply with 16 CFR 1201 Safety Standard for Architectural Glazing Materials. Tempered insulating glass IGMA/IGCC certified to performance level CBA when tested in accordance with ASTM E774.
- B. Glazing Method: Tempered Insulating Glass (Altitude Adjusted)
- C. Glass Type: Clear, Bronze, Gray, Reflective Bronze, Low E2 with or without Argon, Low E3 with or without Argon, Obscure, Laminated
- D. Glazing Seal: Silicone bedding, exterior

### 2.5 Finish

- A. Exterior: Aluminum clad. Fluoropolymer modified acrylic topcoat applied over primer. Meets AAMA 2605 requirements.

1. Standard Colors: Bahama Brown, Bronze, Cadet Gray, Cascade Blue, Cashmere, Clay, Coconut Cream, Ebony, Evergreen, Gunmetal, Hampton Sage, Pebble Gray, Sierra White, Stone White, Suede, Wineberry, Bright Silver (pearlescent), Copper (pearlescent), Liberty Bronze (pearlescent)
  2. Custom Colors – contact your Marvin representative
- B. Interior Finish Options:
1. Prime: Factory applied enamel primer. Available on Pine product only.
  2. Painted interior Finish. Available on Pine product only
  3. Factory applied water – borne acrylic enamel clear coat. Applied in two separate coats with light sanding between coats. Available on Pine, Mahogany, Mixed Grain Douglas Fir, Vertical Grain Douglas Fir, Cherry, White Oak.
  4. Factory applied water borne stain. Stain applied over a wood (stain) conditioner. A water-borne acrylic enamel clear coat applied in two separate coats, with light sanding between coats, applied over the stain. Available on Pine, Mahogany, Mixed Grain Douglas Fir, Vertical Grain Douglas Fir, Cherry, White Oak. Colors available: Wheat, Honey, Hazelnut, Leather, Cabernet, or Espresso.

## 2.6 Hardware

- A. Hinges: 4 ½” x 4 ½” square corner ball bearing hinges.
1. Finish: Satin Chrome (US26D) over brass substrate, Bronze (US10A) over brass substrate, Brass (US3), Stainless Steel (US32D).
- B. Locking System:
1. No lock no bore is standard
  2. Optional Commercial Hardware Package: closer, rim device, mortise lock, removable mullion and kick plate
- C. Optional hardware Routs and Preps.
1. Von Duprin Push pad Rim Devices and Trim Sets
  2. Von Duprin Cross Bar Device and Trim Sets
  3. Schlage L Mortise Lock and Trim Sets
  4. Schlage ND Cylindrical locks
  5. Alarm Lock

## 2.7 Weather Strip

- A. Head jamb and hinge jamb: bulb type weather strip.
1. Color: Beige or optional black
- B. Locking jamb: Gray pile weather strip

C. Surface mounted aluminum panel drip mounted at bottom of panel (shipped loose for field application)

1. Standard colors: Matches panel finish with matching screws
2. Custom colors: Matches panel finish with stainless steel screws

## 2.8 Raised or Flat Panels

A. Stamped Raised Panel

1. 6" (152mm) intermediate rail constructed of 0.080" aluminum to the exterior with foam backing. Available in all aluminum clad colors. Aluminum clad colors meeting AAMA 2605 requirements.
2. Core is medium density fiberboard (MDF) with non finger-jointed wood laminate to the interior.

B. Flat Panel

1. 6" (152mm) intermediate rail constructed of 0.125" aluminum to the exterior with foam backing. Available in all aluminum clad colors. Aluminum clad colors meeting AAMA 2605 requirements.
2. Core is medium density fiberboard (MDF) with non finger-jointed wood laminated to the interior.

C. Two placement option

1. Low Placement: 26" (660mm) on center (OC) of 6" (152mm) intermediate rail from bottom sill for a 10 13/16" (275mm) visible panel height.
2. High Placement: 40 5/16" (1024mm) on center (OC) of 6" (152mm) intermediate rail from bottom sill for a 25 1/8" (638mm) visible panel height.

## 2.9 Simulated Divided Lites (SDL)

A. 5/8" (16mm), 7/8" (22mm), 1 15/16" (49mm), 2 13/32" (61mm) – with or w/out internal spacer bar.

1. Exterior muntins: Extruded aluminum 0.055" (1.4mm) thick. Color matched panel aluminum cladding color.
2. Interior muntins: Wood and finish interior of door
3. Pattern: Rectangular. Custom lite layout
4. Interior muntins: Wood and finish interior of door
5. Standard interior sticking: Ogee
6. Optional interior sticking: Square

## 2.10 Accessories and Trim

## A. Installation and hardware Accessories:

1. Factory installed vinyl nailing fin/drip cap
2. Installation brackets: 6 3/8" (162mm); 9 3/8" (238mm); 15 3/8" (390mm)

## B. Aluminum Extrusions:

1. Profile: Brick Mould Casing; Flat Casing; Mullion Cover; Custom Profiles as indicated on drawings
2. Finish: Fluoropolymer modified acrylic topcoat applied over primer. Meets AAMA 2605 requirements. Available in all aluminum clad colors. Contact your Marvin representative for custom colors.

## Part 3 Execution

## 3.1 Examination

- A. Verification of Condition: Before installation, verify openings are plumb, square and of proper dimensions as required in Section 01 71 00. Report frame defects or unsuitable conditions to the General contractor before proceeding.
- B. Acceptance of Condition: Beginning on installation confirms acceptance of existing conditions.

## 3.2 Installation

- A. Comply with Section 01 73 19.
- B. Assemble and install window/door unit(s) according to manufacturer's instruction and reviewed shop drawing.
- C. Install sealant and related backing materials at perimeter of unit or assembly in accordance with Section 07 92 00 Joint Sealants. Do not use expansive foam sealant.
- D. Install accessory items as required.
- E. Use finish nails to apply wood trim and mouldings.

## 3.3 Cleaning

- A. Remove visible labels and adhesive residue according to manufacturer's instruction.
- B. Leave windows and glass in a clean condition. Final cleaning as required in Section 01 74 00.

## 3.4 Protecting Installed Construction

- A. Comply with Section 01 76 00.
- B. Protecting windows from damage by chemicals, solvents, paint or other construction operations that may cause damage.

End of Section

SECTION 08 4229  
AUTOMATIC SLIDING DOORS

## PART 1 GENERAL

## 1.1 SECTION INCLUDES

- A. Automatic Sliding Doors including Operators and Control Devices.

## 1.2 DESIGN / PERFORMANCE REQUIREMENTS

- A. Certifications: Automatic sliding door systems and options shall be factory certified to meet performance design criteria in accordance with the following standards:
1. ANSI A156.10: For Power Operated Pedestrian Doors; Sliding Doors section.
  2. NFPA 101: Code for Safety to Life from Fire in Buildings & Structures.
  3. ETL Listed: Tested to UL 325 Standard
  4. BOCA: Means of Egress, Power Operated Doors
  5. ICBO/UBC: Egress Through Lobbies
  6. ICC/IBC: Egress Section
- B. Operating Range: Minus 30 degrees F to 130 degrees F (Minus 34 degrees C to 54 degrees C).
- C. Opening Force Requirements For Emergency Egress:
1. Slide-swing panels shall require no more than 50 lbf. (222 N) of force to swing open. Slide-swing panels shall be capable of swinging out 90 degrees from any position of slide movement.
  2. Slide-swing panels and swing-out sidelites shall have torsion spring designed to re-close panel if pushed open in the direction of egress.
  3. If power fails, slide panels can be manually slid open with no more than 15 lbf (222 N) of force.
  4. Units are ETL listed as an exit way and are compliant with NFPA 101.
- D. Closing Force Requirements: Maximum force required to prevent sliding panel from closing 28 lbf. (124.5 N) Adjustable Reversing Circuit will reopen door unit if closing path is obstructed.
- E. Accessibility Requirements: Comply with requirements of Local building code, and Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities.
- F. Electrical: 120 VAC, 50/60 cycle, single phase, dedicated 20 amp circuit per operator. Non-North American voltages can be 240 VAC 50/60 cycle except operator must have 240 volt power supply.

## 1.3 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: 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.
  4. Operation and maintenance data.
- C. Shop Drawings: Indicate layout and dimensions; head, jamb, and sill conditions; elevations; components, anchorage, adjacent construction interface, recesses, materials, and finishes, glazing details, electrical characteristics and connection requirements.

- D. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.
- E. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- F. Manufacturers warranties.
- G. Closeout: Submittals:
  - 1. Manufacturer's Warranty.
  - 2. Parts lists and maintenance instructions including data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
  - 3. American Association of Automatic Door Manufacturers (AAADM) inspection form completed and signed by certified AAADM inspector prior to doors being placed into operation.

#### 1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer to have minimum five years documented experience in the fabrication of automatic doors of the type required for this project and be capable of providing field service representation during installation.
- B. Installer Qualifications: Installer to be experienced in the work of this section who has specialized in the installation of work similar to that required for this project.
- C. Certified Inspector: Copy of current AAADM Certification for AAADM inspector prior inspection.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Package hardware items individually with necessary fasteners and installation templates when necessary; label and identify each package with door opening code to match door schedule.
- B. Store products in manufacturer's unopened packaging until ready for installation.
- C. Protect materials from exposure to moisture. Do not deliver until after wet work is complete and dry.
- D. Store materials in a dry, warm, ventilated weathertight location.

#### 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.

#### 1.7 COORDINATION

- A. Coordinate work with other directly affected components involving manufacture or fabrication of reinforcement for door hardware and recessed items.
- B. Coordinate work with other directly affected components involving electrical wiring and components.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Horton Automatics division of Overhead Door Corporation, which is located at: 4242 Baldwin Blvd.; Corpus Christi, TX 78405-3399; Toll Free Tel: 800-531-3111; Tel: 361-888-5591; Fax: 800-531-3108; Email:[request info \(jed\\_foglesong@overheaddoor.com\)](mailto:jed_foglesong@overheaddoor.com); Web:[www.hortondoors.com](http://www.hortondoors.com)
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

## 2.2 AUTOMATIC SLIDING DOORS

- A. Sliding Door System with Electric Belt Drive Operator: Horton Automatics Profiler Series 2000 with operator, header with roller track, carrier assemblies, framing, sliding door panel(s), sidelite(s), activation, safety devices and accessories required for complete installation.
  - 1. Model:
    - a. Sliding Door System with Electric Linear Drive Operator: Horton Automatics Profiler Series 2000.
  - 2. Configuration:
    - a. Biparting
  - 3. Mounting Type:
    - a. Perimeter mounted within rough opening with sliding panel(s) sliding along sidelite.
  - 4. Door Type:
    - a. Type 110: Slide-swing panel(s) 'SX' shall slide along exterior side.
  - 5. Operator: Profiler Series 2000 Linear Drive. Operator shall be mounted and concealed within the header. Motor 1/8 HP DC permanent magnet working with a threadless, induction hardened stainless steel 1/2 inch (13 mm) diameter linear drive shaft. Maximum current draw shall not exceed 3.15 amps. A linear travel block describes a helical path along the rotating shaft utilizing six aircraft quality ball bearings acting as an integral clutch. Linear drive shaft is self lubricating.
    - a. Master Control: 16 bit microprocessor controller with dual on-board seven-segment alphanumeric diagnostic display and position encoder. Encoder shall monitor revolutions of the operator shaft and send signals to microprocessor controller to define door position and speed. Control shall have minimum of 28 programmable parameters including the following as required by ANSI A156.10:
      - 1) Adjustable opening and closing speeds.
      - 2) Adjustable back-check and latching.
      - 3) Adjustable braking.
      - 4) Adjustable hold-open time between 1 to 30 seconds.
      - 5) Adjustable Reversing Circuit will reopen door unit if closing path is obstructed.
      - 6) Separate day and night modes of operation with security over-ride.
    - b. Finger Safety: Strike rail of sliding panel will stop short of adjacent sidelite; resulting opening is net slide.
    - c. On/Off Switch: When switched OFF or during electrical power failure, unit reverts to free manual operation.
  - 6. Security and Safety Power Fail Options:
    - a. Monitored Power Fail Options (battery back-up):
      - 1) Software Selectable Power Fail Close: If power fails the door slides closed.
  - 7. Profiler Header: Aluminum construction with extruded z-profile reinforcement for dead load and lateral strength. Header has removable face plate for service and adjustment of operator and controls and mounts flush to 4 inch framing jambs.
    - a. Slim 4 inches (102 mm) deep by 6 inches (152 mm) high aluminum construction with extruded z-profile reinforcement for dead load and lateral

- strength.
8. Header Capacity: Header shall be capable of supporting:
    - a. Biparting: Up to 250 lbs. (113.4 kg) per slide panel over spans up to 16 feet 0 inches (4877 mm) without intermediate supports.
  9. Carrier and Header Roller Track: Carrier assemblies support door panels with minimum four rollers per panel. Rollers are steel, high quality ball bearing wheels 1-1/4 inch (32 mm) diameter. Anti-Derailing is accomplished by a continuous aluminum extrusion full length of slide panel travel. Overhead header roller track is continuous aluminum, nylon covered, and replaceable.
  10. Sliding Panel(s) and Sidelite(s): Aluminum, 1-3/4 inches (44 mm) deep with narrow stile rails. An intermediate, horizontal rail (muntin bar), 2-1/4 inches (57 mm) wide, is furnished for safety and division of glass (optional on 010 units). Standard bottom rail shall be 4 inches (102 mm) tall. Sliding panels have concealed bottom guides to stabilize slide travel.
    - a. Weather-stripping: Provide at perimeter of sliding panel(s) and swing-out sidelite(s). Weatherstripping material is captured in extruded aluminum door panel. Surface applied self-adhesive weatherstripping not acceptable. Provide adjustable spring-loaded double astragal weather-stripping at lead edge, double mohair at interlock rails
    - b. Glazing prep to be for 1 inch glass thickness.
    - c. Sliding Panel and Sidelite Options:
      - 1) Prep for glazing 5/16 inch (16 mm) to 1 inch (25 mm) as indicated on the Drawings.
  11. Breakout Panels: Slide-swing panels can swing out minimum of 90 degrees from any position of slide movement and require no more than 50 lbf. (222 N) of force applied at the lock stile to open. Slide-swing panels and swing-out sidelites shall utilize spring loaded ball detent.
    - a. Slide-swing panels and swing-out sidelites shall have torsion spring designed to re-close panel if pushed open in the direction of egress.
    - b. Breakout mechanism shall provide support across full width of the door, in normal operating mode. In breakout mode, torsion assembly shall support weight of the door to minimize drop during emergency egress.
    - c. Slide-swing panels shall include intermediate horizontal rail.
    - d. Units with breakout feature are ETL listed as an exit away and are compliant with NFPA 101.
  12. Jambs/Frame: Aluminum.
    - a. 1-3/4 inches (44 mm) deep by 4 inches (102 mm) wide.
  13. Threshold: Shall be aluminum
    - a. 1/2 inch (25 mm) tall by 4 inches (102 mm) wide.
  14. Hardware:
    - a. ANSI A156.5, Grade 1, 3-Point locking for biparting doors shall include:
      - 1) Hookbolt Lock, 5/8 inch latching into jamb or adjacent strike rail.
      - 2) Maximum Security Lock with 31/32 inch (25 mm) backset.
      - 3) Keyed Cylinder mounted on exterior side with 1-5/32 inches (29 mm) standard size cylinder.
      - 4) Thumbturn mounted on interior side.
      - 5) 3/8 inch lockbolt into breakout carrier frame and threshold.
    - b. Flush Panic Exit Device recessed in 6-1/2 inches muntin bar for door types 110 and 310.
  15. Basic Sensor System: 24 VDC, class II circuit adjusted and installed in compliance with ANSI A156.10. System shall include the following:
    - a. Activation Sensors: Microwave or active infrared sensor shall be header-mounted each side of door unit for detection of traffic from each direction.
    - b. Threshold Presence Sensors:
      - 1) Header mounted sensors shall provide active infrared presence detection on each side of the door unit and shall remain active



- throughout the entire door opening and closing cycle.
- 2) Hold-open beams: Two pulsed infrared photoelectric beams to be mounted in vertical rails of sidelite or in jambs. Sender/receiver arrangement parallels door opening.
16. Activating Device: C520 Wall Mounted Push Button (doors #005 and #008 only)..

### 2.3 MATERIALS

- A. Extruded Aluminum: ASTM B221, 6063-T5 alloy and temper, anodized:
1. Structural Header Sections: Minimum 3/16 inch (5 mm) thickness.
  2. Structural Frame Sections: Minimum 1/8 inch (3 mm) thickness.
  3. Structural Panel Sections: Commercial grade.
- B. Sheet Aluminum: ASTM B 209, 5005 alloy, H15 or H34 temper.
- C. Sheet Steel: ASTM A 924/A 924M; galvanized to minimum G90.
- D. Steel Sections: ASTM A 36/A3 6M; shaped to suit mullion sections, galvanized.
- E. Glass: Glass shall be in accordance with Safety Glazing standard ANSI-Z97.1.2.
1. Insulated sealed double pane units, consisting of fully tempered select glazing quality clear float glass, safety glass, total thickness 1 inch (25 mm), conforming with requirements in Section 08 83 13 - Mirrored Glass Glazing.
- F. Glazing Materials: Entrance manufacturer's standard types to suit application and conforming to requirements specified in Section 08 83 13 - Mirrored Glass Glazing.
- G. Fasteners: Stainless steel or corrosion resistant steel.

### 2.4 FINISH

- A. Aluminum Finish (for all exposed aluminum surfaces): Shall be one of the following:
1. Anodized Aluminum:
    - a. 204-R1 Clear: Arch. Class 1 Clear Anodized Coating, AA-MI2C22A31.
    - b. 204-R1 Clear: Arch. Class 2 Clear Anodized Coating, AA-MI2C22A31.
    - c. 313-R1 Dark Bronze: Arch. Class 1 Anodized Coating, AA-MI2C22A44.
    - d. 312-R1 Medium Bronze: Arch. Class 1 Anodized Coating, AA-MI2C22A44.
    - e. 311-R1 Light Bronze: Arch. Class 1 Anodized Coating, AA-MI2C22A44.
    - f. Champagne: Arch. Class 1 Anodized Coating, AA-MI2C22A44.
    - g. Gold: Arch. Class 1 Anodized Coating, AA-MI2C22A44.
  2. Paint Coating:
    - a. Powder Coat: 100 percent V.O.C. free fluoropolymer resin-based.
    - b. Wet Paint: Standard and custom colors available.
    - c. Color:
      - 1) As selected from manufacturer's standard range.
      - 2) Custom color as selected by the Architect.

### 2.5 FABRICATION

- A. Panel Construction:
1. Corner block type with 3/16 inch steel backup plate construction, mechanically secured with minimum of four hardened steel screws.
  2. Sash consists of snap-in glass stops, snap-in glazing beads and vinyl gaskets.
  3. Slide-swing doors provided with adjustable glass setting block to allow for adjusting of door to meet site conditions eliminating the need for additional shims.
- B. Frame Construction: Butt joints, mechanically secured with screws and formed alum. corner brackets.

- C. Operator Construction: Electromechanical, modular type construction.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Verify that other trades are complete with their required work before installing the automatic swing door operating system.
- C. Mounting surfaces shall be plumb, straight and secure; substrates shall be of proper dimension and material; material which door is anchored to shall be capable of supporting the automatic door system and associated loads.
- D. Verify electric power is available and has correct characteristics.
- E. 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. Install in accordance with manufacturer's instructions.
- B. Set all units plumb, level and secure.
- C. Provide all fasteners required for installation of the automatic sliding door system.
- D. Comply with AAMA 101, Appendix Dissimilar Materials by separating aluminum materials and other corrodible surfaces from sources of corrosion or electrolytic action contact points
- E. For exterior applications install header and framing members in a bed of sealant or with joint filler or gaskets. Coordinate installation with wall flashings and other components of construction.
- F. After repeated operation of the completed installation, inspect door operators and controls for optimum operating condition and safety.
- G. Adjust door equipment for correct function and smooth operation.
- H. Clean all metal surfaces promptly after installation.
- I. Remove temporary protection, clean exposed surfaces.

### 3.4 FIELD QUALITY CONTROL

- A. Manufacturers representative to verify that installation of doors and controls are in conformance to the manufacturer's recommendations.
- B. Installation of doors and controls shall be inspected and certified by an AAADM Certified Inspector prior to doors being placed into operation.

- C. Provide a completed AAADM inspection form signed by a certified AAADM inspector after the door system is completely installed and tested including glazing.

3.5 CLEANING AND PROTECTION

- A. Protect installed products until completion of project.
- B. Clean product surfaces and lubricate operating equipment for optimum condition and safety. Advise contractor of precautions required through the remainder of the construction period, to ensure that doors will be without damage or deterioration at the time of acceptance.
- C. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION



SECTION 08 5400  
COMPOSITE WINDOWS

## Part 1 General

## 1.1 Section Includes

- A. Integrity by Marvin Wood-Ultrex Casement and Picture complete with hardware, glazing, weather strip, insect screen, simulated divided lite, and standard or specified anchors, trim and attachments.
- B. Integrity by Marvin Wood-Ultrex Awning complete with hardware, glazing weather strip, insect screen, simulated divided lite, and standard or specified anchors, trim and attachments.

## 1.2 System Description

## Design and Performance Requirements:

Product	Air Tested to psf	Water Tested to psf	Certification Rating	Max Overall Width	Max Overall Height
Integrity Wood Casement (3771)	1.57	7.5	LC-PG50-C	36	71 1/8
Integrity Wood Picture (7359)	1.57	7.5	LC-PG50-FW	72	59 1/8
Integrity Wood Picture (5771)	1.57	8.25	LC-PG50-FW	56	71 1/8
Integrity Wood Awning (4947)	1.57	7.5	LC-PG50-AP	48	47 1/8

1. Window units shall be designed to comply with ASTM E1996 Wind Zone 3 Missile Level D Rating +55/-55 psf.
2. Air leakage shall not exceed the following when tested at 1.57 psf according to ASTM E283: 0.30 cfm per square foot of frame.
3. No water penetration when tested at the following pressure according to ASTM E547:9.75 psf
4. Assembly shall with stand a positive or negative uniform static air pressure difference of psf without damage when tested according to ASTM E330.
5. Impact and Cycling per ASTM E1996 and E1886 with passing results for Missile Level D and Pressure Cycling of +55/-55 psf.

### 1.3 Submittals

- A. Shop Drawings: Submit shop drawings under provision of Section 01 33 23.
- B. Product Data: Submit catalog data under provision of Section 01 33 23.
- C. Samples:
  - 1. Submit corner section under provision of section 01 33 23.
  - 2. Include glazing system, quality of construction, and specified finish.
- D. Quality Control Submittals: Certificates: Submit manufacturer's certification indicating compliance with specified performance and design requirement under provision of section 01 33 23.

### 1.4 Quality Assurance

- A. Requirements: Consult local code for IBC [International Building Code] and IRC [International Residential Code] adoption year and pertinent revisions for information on:
  - 1. Egress, emergency escape and rescue requirements.
  - 2. Basement window requirements.
  - 3. Windows fall prevention and/or window opening control device requirements.

### 1.5 Delivery

- A. Comply with provisions of Section 01 65 00.
- B. Deliver in original and protect from weather.

### 1.6 Storage and Handling

- A. Prime and seal wood surfaces, including to be concealed by wall construction, if more than thirty (30) days will expire between delivery and installation.
- B. Store window units in an upright position in a clean and dry storage area above ground to protect from weather under provision of Section 01660.

### 1.7 Warranty

The following limited warranty is subject to conditions and exclusions. There are certain conditions or applications over which Integrity has no control. Defect or problems as a result of such conditions or applications are not the responsibility of Integrity. For a more complete description of the Integrity limited warranty, refer to the complete and current warranty information that is available at <http://www.marvin.com/support/warranty>.

- C. Clear insulating glass with stainless steel spacers is warranted against seal failure caused by manufacturing defects and resulting in visible obstruction through the glass for twenty (20) years from the original date of purchase. Glass is warranted against stress cracks caused by manufacturing defects from ten (10) years from the original date of purchase.
- D. Hardware and other non-glass components are warranted to be free from manufacturing defects for ten (10) years from the original date of purchase.

## Part 2 Products

### 2.1 Manufactured Units

- A. Description: Wood-Ultrex<sup>®</sup> Casement operating exterior swinging windows (and related stationary or picture units) as manufactured by Integrity Windows & Doors, West Fargo, North Dakota.
- B. Description: Wood-Ultrex<sup>®</sup> Awning unit (and related stationary or picture units) as manufactured by Integrity Windows and Doors, West Fargo, North Dakota.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

### 2.2 Frame Description

- A. Interior: clear pine exposed surfaces
  - 1. Kiln-dried to moisture content no greater than twelve (12) percent at the time of fabrication
  - 2. Water repellant, preservative treated in accordance with ANSI/NWWDA I.S.4.
- B. Exterior: Fiberglass reinforce Ultrex<sup>®</sup>, 0.080" (2mm) thick
- C. Composite frame thickness: 1 5/16" (33mm).
- D. Frame depth: 4 9/16" (116mm).

### 2.3 Sash/Panel Description

- A. Interior: pine
  - 1. Kiln-dried to moisture content no greater than twelve (12) percent at time of fabrication
  - 2. Water repellant preservative treated in accordance with ANSI/NWWDA I.S.4.
- B. Exterior: fiberglass reinforced Ultrex<sup>®</sup>, 0.080" (2mm) thick
- C. Composite sash thickness: 1 9/16" (40mm) – standard glass; 1 31/32" (50mm) – Tri-pane.

## 2.4 Glazing

- A. Select quality complying with ASTM C1036. Insulating glass SIGMA/IGCC certified to performance level CBA when tested in accordance with ASTM E2190.
- B. Glazing Method: 11/16 (17mm) inch insulating glass.
- C. Glass Type: Low E1, E2, E3 air or Argon gas.
- D. Glazing Seal: Silicone bead at interior and exterior.
- E. Tri-pane glazing: Units are manufactured with 1 1/8" (29mm) IG with a combination coating consisting of Low E2 on surface 2 and Low E1 on surface 5 including with Air or Argon gas fill.

## 2.5 Finish

- A. Exterior:
  - 1. Pultruded Fiberglass.
  - 2. Factory baked on acrylic urethane.
  - 3. Meets AAMA 624-10 requirements.
  - 4. Color: Stone White, Pebble Gray, Bronze, Evergreen, Cashmere, Ebony.
- B. Interior:
  - 1. Bare treated pine.
  - 2. Optional white interior factory finish.

## 2.6 Hardware

- A. Lock: Multipoint locking mechanism is actuated from a single point of operation. The lock mechanism is concealed with only the actuator handle and escutcheon being visible.
- B. Hinges: Concealed stainless steel track and injection molded shoe.
- C. Handle: Die cast detachable folding handle.
- D. Roto Gear Operator: E-Gard™ coated hinge arm and housing mechanism.
- E. Snubber: Pulls the sash tight to the frame and provides positive engagement to keep the sash in place under structural loads.
- F. Color: Applies to the handle and locking hardware:
  - 1. Oil Rubbed Bronze.

## 2.8 Optional Hardware



- A. Casement Window Opening Control Device – Factory applied.
  - 1. Minimum frame OSM: 17 27/32" (453mm) x 31 1/8" (791); Maximum frame OSM: 36" (914) x 71 1/8" (1807).
  - 2. WOCD locking assembly: Factory installed. Die cast. Color: White and Almond Frost
  - 3. WOCD tether assembly: Factory installed. Injection molded nylon. Color: E-Guard™ color match
- B. Awning Limiter Device – Factory or Field applied
  - 1. Limiter Clip: Tumbled stainless steel.

## 2.7 Weather Strip

- A. Weather stripped at frame and sash perimeter with flexible gaskets.
  - 1. Color: Black.

## 2.8 Insect Screen

- A. Factory Installed
  - 1. Screen mesh, 18 by 16: charcoal fiberglass.
  - 2. Aluminum frame finish: Almond Frost or White.

## 2.9 Simulated Divided Lites (SDL)

- A. 7/8" (22mm) wide.
  - 1. Exterior muntins: Ultrex® – finished to match exterior.
  - 2. Interior muntins: Pine bare wood with optional interior white finish.
  - 3. Pattern: See drawings.

## 2.10 Accessories and Trim

- A. Installation Accessories:
  - 1. Factory-installed nailing fin at head, sill and side jambs.
  - 2. Installation Brackets: Brackets for 4 9/16" (116mm); 6 9/16" (167mm).
  - 3. Mullion kit: Mullion kit for field assembly of units – Kit includes: instructions, aluminum pins, filler blocks, wood mullion tie, sealant foam tape, interior mullion trim, mullion insulation and nailing fin connectors.

4. Structural mullion kit: structural mullion kit for field assembly of units. Kits includes: instructions, reinforcement member, aluminum pins, wood mullion tie, sealant foam tape, interior mullion trim, #8 x 1 3/4" screws, #7 x 1 5/8" screws, nailing fin connectors and structural brackets.
5. Pole operator with adapter for each sash indicated. Mill finish aluminum. Length: TBD.
6. Installation clips standard with nailing fin on impact glazed windows.

### Part 3 Execution

#### 3.1 Examination

- A. Verification of Condition: Before installation, verify openings are plumb, square and of proper dimensions as required in Section 01 71 00. Report frame defects or unsuitable conditions to the General contractor before proceeding.
- B. Acceptance of Condition: Beginning on installation confirms acceptance of existing conditions.

#### 3.2 Installation

- A. Comply with Section 01 73 00.
- B. Assemble and install window/door unit(s) according to manufacturer's instruction and reviewed shop drawing.
- C. Install sealant and related backing materials at perimeter of unit or assembly in accordance with Section 07 92 00 Joint Sealants. Do not use expansive foam sealant.
- D. Install accessory items as required.
- E. Use finish nails to apply wood trim and mouldings.

#### 3.3 Cleaning

- A. Remove visible labels and adhesive residue according to manufacturer's instruction.
- B. Leave windows and glass in a clean condition. Final cleaning as required in Section 01 74 00.

#### 3.4 Protecting Installed Construction

- A. Comply with Section 07 76 00.
- B. Protecting windows from damage by chemicals, solvents, paint or other construction operations that may cause damage.

End of Section

SECTION 08 7100  
DOOR HARDWARE

## PART 1 GENERAL

## 1.1 SECTION INCLUDES

- A. Door hardware.
- B. Door hardware schedule.

## 1.2 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: 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.
- C. Shop Drawings: Manufacturer's approved shop drawings are required detailing the application of each product specified.
- D. Selection Samples: For each finish product specified, two full size samples representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: For each finish product specified, two full size samples, representing actual product, color, and patterns.

## 1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: All equipment specified in this section will be provided by a single manufacturer with a minimum of ten years experience manufacturing door hardware.
- B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five years demonstrated experience in installing products of the same type and scope as specified.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
  - 1. Finish areas designated by Architect.
  - 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
  - 3. Refinish mock-up area as required to produce acceptable work.

## 1.4 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.

## 1.5 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 recommended limits.

## 1.6 WARRANTY

- A. At project closeout, provide to the Owner or Owner's Representative an executed copy of the manufacturer's Limited Warranty against Manufacturing Defects.
1. Duration: Ten years.

## PART 2 PRODUCTS

## 2.1 COMMERCIAL CYLINDRICAL LOCKS

- A. Schlage, ND-Series Extra Heavy Duty Commercial Locks: Grade 1, heavy-duty traffic lockset certified to ANSI A156.2-2003, series 4000. Exceeds 800,000 cycles.
1. Handing: Keyed functions are reversible. Non-keyed functions are not handed.
  2. Chassis: Zinc plated steel.
  3. Lock Functions: 4 non-keyed, 21 keyed and 6 electrified functions available. Function as noted in the Hardware Schedule.

## 2.2 DELAYED EGRESS OPERATOR

- A. Von Duprin, 33A/35A Chexit.

## 2.2 HINGES

- A. Quantity: Provide the following, unless otherwise indicated:
1. Standard Hinges: Three hinges for doors with heights up to 84 inches.
  2. Spring Hinges: Two spring hinges and one standard hinge for doors with heights up to 84 inches.
- B. Template Requirements: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.
- C. Hinge Weight: Unless otherwise indicated, provide the following:
1. All Doors: Heavy-weight hinges.
  2. Doors with Closers: Antifriction-bearing hinges.
- D. Hinge Base Metal: Unless otherwise indicated, provide the following:
1. Exterior Hinges: Brass, with stainless-steel pin body and brass protruding heads.
  2. Interior Hinges: Brass, with stainless-steel pin body and brass protruding heads.
  3. Hinges for Fire-Rated Assemblies: Steel, with steel pin.
- E. Fasteners: Comply with the following:
1. Machine Screws: For metal doors and frames. Install into drilled and tapped holes.
  2. Wood Screws: For wood doors and frames.
  3. Threaded-to-the-Head Wood Screws: For fire-rated wood doors.
  4. Screws: Phillips flat-head; machine screws (drilled and tapped holes) for metal doors, wood screws for wood doors and frames. Finish screw heads to match surface of hinges.
- D. Butts and Hinges: Listed under Category A in BHMA's "Certified Product Directory." B. Template Hinge Dimensions: BHMA A156.7.
- C. Manufacturers:
1. Baldwin Hardware Corporation.
  2. Bommer Industries, Inc.
  3. Cal-Royal Products, Inc.
  4. Hager Companies.
  5. Lawrence Brothers, Inc.
  6. McKinney Products Company; an ASSA ABLOY Group company.
  7. PBB, Inc.

## 8. Stanley Commercial Hardware; Div. of The Stanley Works.

## 2.3 DOOR GASKETING

A. General: Provide continuous weather-strip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated or scheduled. Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

1. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
2. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
3. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

B. Air Leakage: Not to exceed 0.50 cfm per foot of crack length for gasketing other than for smoke control, as tested according to ASTM E 283.

C. Fire-Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252.

D. Gasketing Materials: ASTM D 2000 and AAMA 701/702.

E. Manufacturers:

1. Hager Companies.
2. National Guard Products.
3. Pemko Manufacturing Co.
4. Reese Enterprises.
5. Zero International.

## 2.4 THRESHOLDS

A. Accessibility Requirements: Thresholds are to comply with ADA accessibility requirements.

1. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch high.

B. Manufacturers:

1. Marvin
2. Horton
3. Hager Companies.
2. M-D Building Products, Inc.
3. National Guard Products.
4. Pemko Manufacturing Co.
5. Reese Enterprises.
6. Rixson Specialty Door Controls; an ASSA ABLOY Group company.

## 2.5 FLOOR STOPS

- A. Doors with no threshold: Ives, FS13 Dome Stop
- B. Doors with threshold: Ives, FS17 Dome Stop

2.6 Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

## 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. Install in accordance with manufacturer's instructions.

### 3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

### 3.5 HARDWARE SCHEDULE

- A. Hardware Sets.
  - 1. Device: ND-Series Extra Heavy Duty Commercial Locks.
    - a. Function: ANSI F88 - Vestibule lock.
    - b. Lever Style: Athens.
    - c. Cylinder/Keying: Standard.
    - d. Finish: Plated - BHMA 613 - Oil Rubbed Bronze.
    - e. Spring hinges.
    - f. Gasketing.
    - g. Threshold: Marvin ADA.
  - 2. Device: Von Duprin, Chexit Delayed Egress Operator.
    - a. Finish: Plated - BHMA 613 - Oil Rubbed Bronze.
    - b. Spring hinges.
    - c. Gasketing.
    - d. Threshold: Marvin ADA.
  - 3. Device: ND-Series Extra Heavy Duty Commercial Locks.
    - a. Function: ANSI F91 - Store lock.
    - b. Lever Style: Athens.
    - c. Cylinder/Keying: Standard.
    - d. Finish: Plated - BHMA 613 - Oil Rubbed Bronze.
    - e. Three hinges per leaf.
    - f. Spring hinges.
    - g. Gasketing.
    - h. Threshold: Marvin ADA.
  - 4. Device: ND-Series Extra Heavy Duty Commercial Locks.
    - a. Function: ANSI F84 - Classroom lock.
    - b. Lever Style: Athens.
    - c. Cylinder/Keying: Standard.
    - d. Finish: Plated - BHMA 613 - Oil Rubbed Bronze.
    - e. Standard hinges.
    - f. Floor stop.
  - 5. Device: ND-Series Extra Heavy Duty Commercial Locks.
    - a. Function: ANSI F75 - passage latch
    - b. Lever Style: Athens.

- c. Cylinder/Keying: Standard.
  - d. Finish: Plated - BHMA 613 - Oil Rubbed Bronze.
  - e. Spring hinges.
  - f. Floor stop.
6. Device: ND-Series Extra Heavy Duty Commercial Locks.
- a. Function: ANSI F75 - passage latch
  - b. Lever Style: Athens.
  - c. Cylinder/Keying: Standard.
  - d. Finish: Plated - BHMA 613 - Oil Rubbed Bronze.
  - e. Spring hinges.
  - f. Fire-labeled gasketing.
  - g. Floor stop.
7. Device: ND-Series Extra Heavy Duty Commercial Locks.
- a. Function: ANSI F76 - bath / bedroom privacy lock.
  - b. Lever Style: Athens.
  - c. Cylinder/Keying: Standard.
  - d. Finish: Plated - BHMA 613 - Oil Rubbed Bronze.
  - e. Standard hinges.
  - f. Floor stop.
8. Device: ND-Series Extra Heavy Duty Commercial Locks.
- a. Function: ANSI F90 - Corridor lock.
  - b. Lever Style: Athens.
  - c. Cylinder/Keying: Standard.
  - d. Finish: Plated - BHMA 613 - Oil Rubbed Bronze.
  - e. Standard hinges.
  - f. Floor stop.
9. Device: ND-Series Extra Heavy Duty Commercial Locks.
- a. Function: ANSI F75 - passage latch
  - b. Lever Style: Athens.
  - c. Cylinder/Keying: Standard.
  - d. Finish: Plated - BHMA 613 - Oil Rubbed Bronze.
  - e. Standard hinges.
  - f. Floor stop.
10. Device: ND-Series Extra Heavy Duty Commercial Locks.
- a. Function: Single dummy trim (pair).
  - b. Lever Style: Athens.
  - c. Cylinder/Keying: Standard.
  - d. Finish: Plated - BHMA 613 - Oil Rubbed Bronze.
  - e. Standard hinges (pair).
  - f. Floor stop.
11. Device: ND-Series Extra Heavy Duty Commercial Locks.
- a. Function: ANSI F75 - passage latch
  - b. Lever Style: Athens.
  - c. Cylinder/Keying: Standard.
  - d. Finish: Plated - BHMA 613 - Oil Rubbed Bronze.
  - e. Spring hinges.
  - f. Gasketing.
  - g. Floor stop.
12. Device: ND-Series Extra Heavy Duty Commercial Locks.
- a. Function: ANSI F90 - Corridor lock.
  - b. Lever Style: Athens.
  - c. Cylinder/Keying: Standard.
  - d. Finish: Plated - BHMA 613 - Oil Rubbed Bronze.
  - e. Spring hinges.
  - f. Floor stop.

END OF SECTION



SECTION 08 8113  
FIRE RESISTANT GLAZING

## PART 1 - GENERAL

## 1.1 SUMMARY

- A. Section Includes:
  - 1. Fire-rated glazing materials installed as vision lights in fire-rated doors.

## 1.2 PERFORMANCE REQUIREMENTS

- A. Fire-rated, clear and wireless glazing material for use in locations such as doors, sidelites, transoms, borrowed lites, and wall applications with fire rating requirements ranging from 45 minutes to 2 hours with required hose stream test; for use in interior and exterior applications.
- B. Provides protection by reducing the radiant and conductive heat transfer

## 1.3 SUBMITTALS

- A. Comply with requirements of Section 01 33 00.
- B. Product data: Submit manufacturer's technical data for each glazing material required, including installation and maintenance instructions.
- C. Certificates of compliance from glass and glazing materials manufacturers attesting that glass and glazing materials furnished for project comply with requirements. Separate certification will not be required for glazing materials bearing manufacturer's permanent label designating type and thickness of glass, provided labels represent a quality control program involving a recognized certification agency or independent testing laboratory acceptable to authority having jurisdiction.
- D. Product Test Listings: From UL indicating fire-rated glass complies with requirements, based on comprehensive testing of current product.
- E. Samples: Submit, for verification purposes, approx. 8-inch by 10-inch sample for each type of glass indicated.

## 1.4 QUALITY ASSURANCE

- A. Glazing Standards: FGMA Glazing Manual and Sealant Manual.
- B. Fire Resistance Rated Glass: Each lite shall bear permanent, nonremovable label of UL certifying it for use in tested and rated fire resistive assemblies.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to specified destination in manufacturer or distributor's packaging, undamaged, complete with installation instructions.

- B. Pilkington Pyrostop® must not be exposed outside the range -40 degrees F to 120 degrees F (-40 degree C to +50 degrees C) during storage and transportation.
- C. Store off ground, under cover, protected from weather and construction activities.
- D. Do not expose the non-PVB side of glass to UV light.
- E. Store sheets of glass vertically. DO NOT lean.

#### 1.6 WARRANTY

- A. Provide manufacturer's limited warranty.

### PART 2 - PRODUCTS

#### 2.1 FIRE-RATED GLAZING MATERIALS

- A. Manufacturer: Pilkington Pyrostop® as manufactured by the Pilkington Group and distributed by Technical Glass Products, 8107 Bracken Place SE, Snoqualmie, WA 98065, voice 1-800-426-0279, fax 1-800-451-9857, e-mail sales@fireglass.com, Web site www.fireglass.com.
- B. Composition: Composed of multiple sheets of "Optiwhite" high visible light transmission glass laminated with an intumescent interlayer.
- C. Properties:
  - 1. Thickness: For Interior Use: 7/8", #60-101.
  - 2. Weight: Varies with thickness (approximate range 9 to 22 lbs./sq. ft.).
  - 3. Approximate Visible Transmission: Varies with thickness (approximate range 88 to 75 percent).
  - 4. Fire-rating: 1 hour.
  - 5. Impact Safety Resistance: ANSI Z97.1 and CPSC 16CFR1201 (Cat. I and II).
  - 6. STC Rating: Up to 46 dB.
  - 7. Exterior Grade: PVB layer on exterior surface.
- D. Permanently label each piece of Pilkington Pyrostop® with the appropriate marking.
- E. Fire Rating – 60 Minutes and Greater: Fire rating classified and labeled by UL for fire rating scheduled at opening locations on drawings, when tested in accordance with ASTM E 119 and UL 263.

#### 2.2 GLAZING COMPOUND FOR FIRE-RATED GLAZING MATERIALS

- A. Glazing Tape: Closed cell polyvinyl chloride foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume of 2 percent, designed for compression of 25 percent to effect an air and vapor seal.
- B. Silicone Sealant: One-part neutral curing silicone, medium modulus sealant, Type S; Grade NS; Class 25 with additional movement capability of 50 percent in both extension and compression (total 100 percent); Use (Exposure) NT; Uses (Substrates) G, A, and O as applicable. Available Products:
  - 1. Dow Corning 795 - Dow Corning Corp.

2. Silglaze-II 2800 - General Electric Co.
3. Spectrem 2 - Tremco Inc.

- C. Setting Blocks: Hardwood or calcium silicate; glass width by 4 inches by 3/16 inch thick.
- D. Spacers: Neoprene or other resilient blocks of 40 to 50 Shore A durometer hardness, adhesive-backed on one face only, tested for compatibility with specified glazing compound.
- E. Cleaners, Primers, and Sealers: Type recommended by manufacturer of glass and gaskets.

## 2.3 FABRICATION

- A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with recommendations of product manufacturer and referenced glazing standard as required to comply with system performance requirements.

- 2.4 Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine glass framing, with glazier present, for compliance with the following:
  1. Manufacturing and installation tolerances, including those for size, squareness, offsets at corners.
  2. Minimum required face or edge clearances.
  3. Observable edge damage or face imperfections.
- B. Do not proceed with glazing until unsatisfactory conditions have been corrected.
- C. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings that are not firmly bonded to substrates.

### 3.2 INSTALLATION (GLAZING)

- A. Comply with referenced GANA standards and instructions of manufacturers of glass, glazing sealants, and glazing compounds.
- B. Protect glass from edge damage during handling and installation. Inspect glass during installation and discard pieces with edge damage that could affect glass performance.
- C. Cut glazing tape to length and set against permanent stops, flush with sight lines to fit openings exactly, with stretch allowance during installation.
- D. Place setting blocks located at quarter points of glass with edge block no more than 6-inches from corners.
- E. Glaze vertically into labeled fire-rated metal frames or partition walls with the same fire rating as glass and push against tape for full contact at perimeter of pane or unit.

- F. Place glazing tape on free perimeter of glazing in same manner described above.
- G. Do not remove protective edge tape.
- H. Install removable stop and secure without displacement of tape.
- I. Do not pressure glaze.
- J. Glaze exterior openings with PVB layer toward the exterior of the building.
- K. Knife trim protruding tape.
- L. Apply cap bead of silicone sealant along void between the stop and the glazing, to uniform line, with bevel to form watershed away from glass. Tool or wipe sealant surface smooth.
- M. Provide minimum 3/16 inch edge clearance.
- N. Install in vision panels in fire-rated doors to requirements of NFPA 80.
- O. Install so that appropriate UL and Pilkington Pyrostop® markings remain permanently visible.

### 3.3 PROTECTION AND CLEANING

- A. Protect glass from contact with contaminating substances resulting from construction operations. Remove any such substances by method approved by glass manufacturer.
- B. Wash glass on both faces not more than four days prior to date scheduled for inspections intended to establish date of substantial completion. Wash glass by method recommended by glass manufacturer.

**NOTE: SEE GLAZING SCHEDULE ON FOLLOWING TWO PAGES**

## 3.4 GLAZING SCHEDULE

A. Interior Use:

Fire Rating	Manufacturer Designation	Supply Form	Thickness	Weight Approx. (lb/ft <sup>2</sup> )	U-Value	Daylight Trans. Approx. (%)	STC Rating Approx. (dB)	Assembly	Max. Exposed Area (Sq. In.)	Max. Width Of Exposed Glazing (In.)	Max. Height Of Exposed Glazing (In.)
45 min.	45-200**	Single Glazing	3/4" (19 mm)	9.2	.86	86	40	Other than doors Door	4,500 3,724	95-1/4 41-5/8	95-1/4 89-3/4
60 min.	60-101	Single Glazing	7/8" (23 mm)	10.85	.83	87	41	Other than doors Door	5,616 3,724	96 41-5/8	96 89-3/4
60 min.	60-201	Single Glazing	1-1/16" (27 mm)	12.5	.83	86	44	Other than doors Door	7,442 3,724	96 41-5/8	118-1/4 89-3/4
90 min.	90-102	Single Glazing	1-7/16" (37 mm)	17.6	.74	84	45	Other than doors Door	3,724 3,724	96 41-5/8	96 89-3/4
2 hr.	120-104	I.G. Units	2-1/8" (54 mm) [with 8 mm spacer, or 2-3/8" (60 mm) with 14 mm spacer]	21.7	.44	75	46	Other than doors	3,730	111	111
2 hr.	120-106	I.G. Units	2-1/4" (57 mm)	22.9	.42	75	46	Other than doors	3,730	111	111
2 hr.	120-401	I.G. Units	2-13/16" (72 mm)	40.0	.46	73	45	Fireframes ClearFloor® System	2,372	47-1/4	50-3/8

## B. Exterior Use:

Fire Rating	Manufacturer Designation	Supply Form	Thickness	Weight Approx. (lb/ft <sup>2</sup> )	U-Value	Daylight Trans. Approx. (%)	STC Rating Approx. (dB)	Assembly	Max. Exposed Area (Sq. In.)	Max. Width Of Exposed Glazing (In.)	or	Max. Height Of Exposed Glazing (In.)
45 min.	45-200**	Single Glazing	3/4" (19 mm)	9.22	.86	86	40	Other than doors Doors	4,500 3,724	95-1/4 41-5/8		95-1/4 89-3/4
45 min.	45-260	I.G. Units	1-5/16" (33 mm)	12.5	.49	77	40	Other than doors Door	4,500 3,724	95-1/4 41-5/8		95-1/4 89-3/4
45 min.	45-360*	I.G. Units	1-5/16" (33 mm)	12.5	.37-.39	59-71	40	Other than doors Doors	4,500 3,724	95-1/4 41-5/8		95-1/4 89-3/4
60 min.	60-201	Single Glazing	1-1/16" (27 mm)	12.5	.83	86	44	Other than doors Door	7,442 3,724	96 41-5/8		118-1/8 89-3/4
60 min.	60-261	I.G. Units	1-5/8" (41 mm)	15.8	.48	77	44	Other than doors Door	7,442 3,724	96 41-5/8		118-1/8 89-3/4
60 min.	60-361*	I.G. Units	1-5/8" (41 mm)	15.8	.37-.39	59-70	44	Other than doors Door	7,442 3,724	96 41-5/8		118-1/8 89-3/4
90 min. -2 hr.	120-202	Single Glazing	1-9/16 (40 mm)	19.5	.72	86	46	Door	3,724	41-5/8		89-3/4
90 min. -2 hr.	120-262	I.G. Units	2-3/8" (60 mm) [with 14 mm spacer, or 2-1/8" (54 mm) with 8	22.1	.44	74	46	Other than doors	3,730	111		111

90 min. - 2 hr.	120-362*	I.G. Units	mm spacer]	22.1	.35	33-68	46	Other than doors	3,730	111	111
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**\*Performance values vary for exterior I.G. units based upon the coating on surface #2. Coatings available are Eclipse Advantage Clear, Solar-E™ Solar Control Low-E and Energy Advantage Low-E. Length/thickness tolerances available upon request.**

\*\*45-200 configuration does not feature Pilkington Optiwhite™ glass.

WHEN PROVIDED PROJECT-SPECIFIC CRITERIA (SUCH AS WIND LOAD, SEISMIC MOVEMENT, STRUCTURAL, AIR/WATER RESISTANCE, ETC.), TGP CAN VERIFY THE INTENDED FENESTRATION CONFIGURATION (GLASS AND FRAMING) WILL PERFORM TO MEET THOSE REQUIREMENTS. FOR APPROVED FRAMING SYSTEMS FOR USE WITH PILKINGTON PYROSTOP, VISIT FIREGLASS.COM OR CALL 800.426.0279.  
END OF SECTION





SECTION 09 2216  
METAL FURRING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section Includes:
  - 1. Suspension systems for interior ceilings and soffits.

## 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

## 1.4 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of code-compliance certification for studs and tracks.
- B. Evaluation Reports: Submit evaluation reports certified under an independent third party inspection program administered by an agency accredited by IAS to ICC-ES AC98, IAS Accreditation Criteria for Inspection Agencies.
- C. Manufacturers Certification: Submit manufacturer's certification of product compliance with codes and standards along with product literature and data sheets for specified products.

## 1.5 QUALITY ASSURANCE

- A. Code-Compliance Certification of Studs and Tracks: Provide documentation that framing members are certified according to the product-certification program of the Steel Framing Industry Association (SFIA) or be a part of a similar organization that provides verifiable code compliance program.
- B. Contractor shall provide effective, full time quality control over all fabrication and erection complying with the pertinent codes and regulations of government agencies having jurisdiction. Conduct pre-installation meeting to verify project requirements, substrate conditions, and manufacturer's installation instructions.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Notify manufacturer of damaged materials received prior to installation.
- B. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

- C. Protect cold-formed metal framing from corrosion, deformation, and other damage during delivery, storage, and handling as required by AISI's "Code of Standard Practice".

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 119 by, and displaying a classification label from an independent testing agency acceptable to the authority having jurisdiction.
  - 1. Construct fire-resistance rated construction in compliance with tested assembly requirements indicated on drawings.
  - 2. Rated assemblies to be substantiated from applicable testing using proposed products, by Contractor.
- B. Design framing systems in accordance with American Iron and Steel Institute Publication "S220 - North American Specification for the Design of Cold-Formed Steel Framing - Nonstructural Members", except as otherwise shown or specified.
- C. Design loads: As indicated on the Architectural Drawings or 5 PSF minimum as required by the International Building Code.
- D. Design framing systems to accommodate deflection of primary building structure and construction tolerances and to withstand design loads.

### 2.2 FRAMING SYSTEMS

- A. Resilient Furring Channels: 1/2-inch- (13-mm-) deep, steel sheet members designed to reduce sound transmission.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide ClarkDietrich Building Systems; RC Deluxe (RCS D) Resilient Channel or a comparable product from one of the members of the SFIA.
  - 2. Configuration: Asymmetrical.
- B. Shaftwall System: Non-load-bearing fire-rated wall assemblies that provide critical, life safety, fire-resistant protection for elevator shafts, stairwells, vertical chases, and mechanical enclosures.
  - 1. Stud: ASTM C 645, of profile, size and base-steel thickness required to produce assemblies complying with AISI Specification. Manufacturer's standard profile for repetitive members, corner and end members, and fire-resistance-rated assembly indicated:
    - a. Basis-of-Design Product: Subject to compliance with requirements, provide ClarkDietrich Building Systems; CT Stud or a comparable product that meets or exceeds the requirements as stated in the 2012 International Building Code.
    - b. Depth: As indicated.

- c. Minimum Base-Steel Thickness: As indicated.

## 2.3 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
  - 1. Fasteners for Steel Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.

### 3.3 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754.
  - 1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.
- B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.
- C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- D. Install bracing at terminations in assemblies.
- E. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

### 3.4 INSTALLING FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
  - 1. Single-Layer Application: 24 inches (610 mm) o.c. unless otherwise indicated.

2. Multilayer Application: 16 inches (406 mm) o.c. unless otherwise indicated.
- B. Install so flanges within framing system point in same direction.
- C. Direct Furring:
  1. Screw to wood framing.
- D. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by faces of adjacent framing.

END OF SECTION

SECTION 09 2900  
GYPSUM BOARD

## PART 1 - GENERAL

## 1.1 SUMMARY

- A. Related Documents:
  - 1. Drawings and general provisions of the Subcontract apply to this Section.
  - 2. Review these documents for coordination with additional requirements and information that apply to work under this Section.
- B. Section Includes:
  - 1. Gypsum board, including joint treatment.

## 1.2 SUBMITTALS

- A. Submit under provisions of Division 01 Section "General Requirements."
- B. Product Data: Manufacturer's product data and installation instructions for each component.

## 1.3 QUALITY ASSURANCE

- A. Regulatory Requirements:
  - 1. Bay Area Air Quality Management District Regulation 8-51.
  - 2. California Building Code (CBC), Chapter 25.
  - 3. Fire-Rated Assemblies: UL, GA-600, or CBC.
- B. Installer's Qualifications: Company with minimum 5 years documented experience specializing in performing the work of this section.
- C. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

## 1.4 DELIVERY AND STORAGE

- A. Deliver materials in original unopened packages, containers or bundles bearing manufacturer's name, and product name and number.
- B. Store materials in compliance with manufacturer's recommendations, and in an enclosed ventilated shelter providing protection from the elements. Store flat and off floor.
- C. Remove damaged or deteriorated materials and replace with new at no additional cost to LBNL.

## 1.5 PROJECT CONDITIONS

- A. Do not commence installation of gypsum products until the building has been closed in, or exterior openings are otherwise protected.

- B. Maintain areas to receive gypsum board at temperature recommended by manufacturer.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. United States Gypsum Company, National Gypsum Company, or G-P Gypsum Corporation.
- B. All materials included in this Section shall be the products of one manufacturer, unless noted otherwise.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

### 2.2 MATERIALS

- A. Gypsum Board Materials: Maximum permissible lengths, Type X, Type C, fire rated, ends square cut, tapered edges on boards to be finished, unless otherwise indicated.
  - 1. Gypsum Board: ASTM C36, 5/8" or 1/2" thick, as indicated on drawings.
  - 2. Gypsum Shaft-liner Board: ASTM C442, 1" thick.
  - 3. Water Resistant Gypsum Board: ASTM C 630, 5/8" thick.
- B. Accessories:
  - 1. Fasteners: Metal screws meeting ASTM C1002, minimum S-12 screws for 20 gage or heavier metal.
  - 2. Trim: Coated steel, designed to be concealed in finished construction by tape and joint compound.
    - a. Edge Trim: GA-216 "L", "LK" or "LC".
    - b. Corner Beads: Manufacturer's standard metal bead.
    - c. Control Joints: Manufacturer's standard metal with removable strip.
    - d. Aluminum Moldings: Fry Corp., or equal, extruded aluminum, profiles indicated on Drawings, natural finish, longest lengths possible to minimize joints.
    - e. Joint Materials: Reinforcing tape, joint compound, adhesive, water: ASTM C475.
    - f. Fiberglass reinforcing tape where joining to existing plaster.
    - g. Acoustic Sealant: ASTM C919, type for use with gypsum board, non-skinning, non-hardening.
    - h. Acoustic Insulation: ASTM C665, Type I, preformed mineral fiber, friction fit, unfaced, thickness required to meet indicated STC ratings, or thickness indicated.
    - i. Compressible Tape: Closed cell neoprene tape, adhesive back, width and thickness as required for gap.
    - j. Electrical Box Sealer (Non-Fire-Rated Partitions): Lowry's "Electrical Box Pads" (Van Nuys, CA) no known equal, 6" x 8" x 1/8" thick, resilient sealer pads. Use to seal back and sides of all junction boxes recessed in acoustically rated partitions.
    - k. Backing Rod: Closed-cell polyethylene foam.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Coordinate with other trades for provisions for insulation, refractory fiber, blocking, metal backing plates, special anchors, access doors and panels, and ensure that such items are properly located and installed prior to installing wall finish.
- B. Inspect surfaces, backing, framing and furring systems to receive gypsum board, and report any discrepancies. Starting work implies acceptance of existing conditions.

### 3.2 PREPARATION

- A. Protect adjacent areas and air distribution systems from gypsum dust.
- B. Verify that plenum surfaces above gypsum board ceilings are free of dirt, dust and loose construction soil, that construction is otherwise complete and equipment installed, and that surfaces and openings are sealed to prevent leaks, prior to commencing installation of ceiling assembly.

### 3.3 INSTALLATION

- A. Gypsum Board: Install in accordance with ASTM C840 and manufacturer's recommendations.
  - 1. Fasten gypsum board with screws.
  - 2. Install gypsum board plumb, level, and plane.
  - 3. Erect gypsum board with edges and ends occurring on framing members, except edges and ends that are perpendicular to framing members.
  - 4. Locate joints on opposite sides on different studs. Joints are not permitted at corners of openings unless detailed otherwise.
  - 5. Double Layer Applications: Secure second layer to first with adhesive and sufficient mechanical support to hold in place. Apply adhesive in accordance with manufacturer's recommendations.
  - 6. Ensure joints of second layer do not occur over joints of first layer.
  - 7. Water Resistant Gypsum Board: Treat cut edges and holes with sealant.
  - 8. Tolerances: Maximum variation of finished surface from true flatness 1/8 inch in 10 feet (3 mm in 3m).
  - 9. Finish: Comply with GA-214.
    - a. Level 1: At areas concealed from view. At fire rated assemblies, comply with requirements of approved fire rating designs.
    - b. Level 2: At tile substrates and areas not indicated to be painted.
    - c. Level 3: Where heavily textured wall coverings are indicated.
    - d. Level 4: Smooth finish. Where flat paints or light wall coverings are indicated.
    - e. Level 5: Smooth finish. Where gloss, semigloss, enamel or nontextured flat paints are specified, at severe lighting conditions, and at cleanrooms.
- B. Accessories:
  - 1. Control Joints: Place consistent with lines of building spaces and as directed by Project Manager. Provide at the following conditions:
    - a. Where system abuts structural elements.
    - b. At dissimilar materials.
    - c. Partitions exceeding 30 feet (9.15 m) lengths.
    - d. Ceilings exceeding 50 feet (15.24 m) or 2,500 square feet (232.25 m<sup>2</sup>).
    - e. Wings of "L", "T" or "U" shaped ceilings.
  - 2. Corner Beads: Place at external corners; use longest practical lengths.
  - 3. Edge Trim: Place where gypsum board abuts dissimilar materials.
  - 4. Tape, fill and sand exposed joints, edges, corners and openings to produce surface ready to receive finishes. Feather coats onto adjoining surfaces.

- C. Acoustical or Air Sealed Systems:
1. Install acoustical insulation tight within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
  2. Install acoustical sealant in accordance with manufacturer's instructions.
  3. Install acoustical insulation blanket on suspended ceilings at acoustical systems that are not full height to structure. Lay with faced side up. Provide continuous layer of insulation 4 feet (1200 mm) wide each side of system.
  4. Fill all gaps with compressible neoprene tape where gypsum board systems abut window mullions or other surfaces inaccessible for sealant work.
  5. Include and edit the following paragraph as appropriate. Delete the following paragraph as appropriate.
  6. Seal the backs of electrical boxes in sound insulated construction airtight using specified resilient sealer pads.
  7. All seals shall be concealed
- D. Remove and replace defective work.
- E. Protect gypsum board work from moisture and contaminants.

### 3.4 WASTE MANAGEMENT

- A. Separate clean waste gypsum and metal products from contaminants for recycling in accordance with the Waste Management Plan in Division 01 Section "Construction Waste Management." Do not include plastic, asphalt impregnated gypsum board or gypsum board coated with glass fiber, paint or other finish. Place in designated area and protect from moisture and contamination.

END OF SECTION



SECTION 09 3000  
TILE AND STONE

## PART 1 GENERAL

## 1.1 SECTION INCLUDES

- A. Tile and Accessories:
  - 1. Ceramic Wall Tile.
  - 2. Natural Stone.
  - 3. Trim and Accessories.
  - 4. Setting Materials.

## 1.2 REFERENCES

- A. Tile Council of North America (TCNA): TCA Handbook for Ceramic Tile Installation, 2007.

## 1.3 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: 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.
- C. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.
- D. Selection Samples: Color charts illustrating full range of colors and patterns.
- E. Selection Samples: Samples of actual tiles for selection.
- F. Samples: Mount tile and apply grout on two plywood panels, illustrating pattern, color variations, and grout joint size variations.
- G. Manufacturer's Certificate:
  - 1. Certify that products meet or exceed specified requirements.
  - 2. For each shipment, type and composition of tile provide a Master Grade Certificate signed by the manufacturer and the installer certifying that products meet or exceed the specified requirements of ANSI A137.1.
- H. Maintenance Data: Include recommended cleaning methods, cleaning materials, stain removal methods, and polishes and waxes.

## 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing the work of this section with minimum two years' experience.
- B. Single Source Responsibility: Obtain each type and color of tile from a single source. Obtain each type and color of mortar, adhesive and grout from the same source.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store products in manufacturer's unopened packaging until ready for installation.

- B. Protect adhesives and liquid additives from freezing or overheating in accordance with manufacturer's instructions.
- C. Store tile and setting materials on elevated platforms, under cover and in a dry location and protect from contamination, dampness, freezing or overheating.

#### 1.6 ENVIRONMENTAL REQUIREMENTS

- A. Do not install adhesives in an unventilated environment.
- B. Maintain ambient and substrate temperature of 50 degrees F (10 degrees C) during tiling and for a minimum of 7 days after completion.

#### 1.7 EXTRA MATERIALS

- A. Provide for Owner's use a minimum of 2 percent of the primary sizes and colors of tile specified, boxed and clearly labeled.

### PART 2 PRODUCTS

#### 2.1 WALL TILE

- A. To be determined. Provide tile allowance of \$10.00 per square foot, based on drawings.
- B. Provide tile that complies with ANSI A137.1 for types, compositions and other characteristics indicated. Provide tile in the locations and of the types colors and pattern indicated on the Drawings and identified in the Schedule and the end of this Section. Tile shall also be provided in accordance with the following:
  - 1. Factory Blending: For tile exhibiting color variations within the ranges selected under Submittal of samples, blend tile in the factory and package so tile taken from one package shows the same range of colors as those taken from other packages.
  - 2. Mounting: For factory mounted tile, provide back or edge mounted tile assemblies as standard with the manufacturer, unless otherwise specified.
  - 3. Factory Applied Temporary Protective Coatings: Where indicated under tile type, protect exposed surfaces of tile against adherence of mortar and grout by pre-coating with a continuous film of petroleum paraffin wax applied hot. Do not coat unexposed tile surfaces.

#### 2.2 NATURAL STONE

- A. Vermont Slate, provide tile allowance of \$90.00 per square foot, based on drawings.
- B. Blue Stone, provide tile allowance of \$80.00 per square foot, based on drawings.

#### 2.3 TRIM AND ACCESSORIES

- A. Metal Trim: Satin natural anodized extruded aluminum, stainless steel, brass, as selected, style and dimensions to suit application, for setting using tile mortar or adhesive; use in the following locations:
  - 1. Open edges of floor tile.
  - 2. Transition between floor finishes of different heights.
  - 3. Thresholds at door openings.
  - 4. Expansion and control joints, floor and wall.

#### 2.4 SETTING MATERIALS

- A. Standard Grout: Cement grout, sanded or unsanded, as specified in ANSI A118.6; color as selected.

- B. Polymer modified cement grout, sanded or unsanded, as specified in ANSI A118.7; color as selected.
- C. Epoxy Grout: ANSI A118.8, 100 percent solids epoxy grout; color as selected.
- D. Cementitious Fiber-Mat Reinforced Sheathing: ASTM C 1325, ANSI A118.9, cementitious backer.
  - 1. Product: Subject to compliance with requirements, provide DUROCK Brand Cement Board by United States Gypsum Company.
  - 2. Type and Thickness: 5/8 inch thick.
  - 3. Size: 48 by 96 inches.
  - 4. Fasteners:
    - a. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and application.
    - b. Nails: 11-gauge hot-dipped galvanized roofing nails 1-3/4 inch, 7/16 inch diameter head.
    - c. Wood Screws: DUROCK Brand Wood or USG Sheathing WF screws 1-5/8 inch with corrosion-resistant coating.

### PART 3 EXECUTION

#### 3.1 EXAMINATION

- A. Verify that wall surfaces are free of substances which would impair bonding of setting materials, smooth and flat within tolerances specified in ANSI A137.1, and are ready to receive tile.
- B. Verify that sub-floor surfaces are dust-free, and free of substances which would impair bonding of setting materials to sub-floor surfaces, and are smooth and flat within tolerances specified in ANSI A137.1.
- C. Verify that required plumbing fixtures and utilities are in correct location.

#### 3.2 PREPARATION

- A. Protect surrounding work from damage.
- B. Remove any curing compounds or other contaminants.
- C. Vacuum clean surfaces and damp clean.
- D. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.
- E. Install cementitious backer board in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of dry-set mortar to a feather edge.
- F. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

#### 3.3 INSTALLATION - GENERAL

- A. Install tile and grout in accordance with applicable requirements of ANSI A108.1 through A108.13, manufacturer's instructions, and TCA Handbook recommendations.
- B. Lay tile to pattern indicated. Arrange pattern so that a full tile or joint is centered on each wall

and that no tile less than 1/2 width is used. Do not interrupt tile pattern through openings.

- C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.
- D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar, or excess grout.
- E. Form internal angles square and external angles bullnosed.
- F. Install ceramic accessories rigidly in prepared openings.
- G. Install non-ceramic trim in accordance with manufacturer's instructions.
- H. Install thresholds where indicated.
- I. Sound tile after setting. Replace hollow sounding units.
- J. Keep expansion joints free of adhesive or grout. Apply sealant to joints.
- K. Allow tile to set for a minimum of 48 hours prior to grouting.
- L. Grout tile joints. Use standard grout unless otherwise indicated.
- M. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.

#### 3.4 INSTALLATION - WALL TILE

- A. Over cementitious backer units on studs, install in accordance with TCA Handbook Method W244, using membrane at toilet rooms.
- B. Over cementitious backer units install in accordance with TCA Handbook Method W223, organic adhesive.

#### 3.5 CLEANING

- A. Clean tile and grout surfaces.

#### 3.6 PROTECTION OF FINISHED WORK

- A. Do not permit traffic over finished floor surface for 72 hours after installation.
- B. Cover floors with kraft paper and protect from dirt and residue from other trades.
- C. Where floor will be exposed for prolonged periods cover with plywood or other similar type walkways

END OF SECTION

SECTION 09 5123  
ACOUSTICAL CEILING TILE

## PART 1 - GENERAL

## 1.1 SUMMARY

- A. Provide suspended ceiling acoustical ceiling panels and suspension systems of the following types:
  - 1. ROCKFON Sonar®.
- B. Related Work: The following items are not included in this Section and are specified under the designated Sections:
  - 1. Section 092100 - PLASTER AND GYPSUM BOARD ASSEMBLIES for plaster and gypsum board walls and ceilings.

## 1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data, including maintenance data.
- B. Verification Samples: Submit 6 by 6 inch samples of specified ceiling panels and representative sample of exposed suspension system.
- C. USGBC LEED Submittals: Submit manufacturer's product data for the following LEED Credits:
  - 1. Credit MR 4 for LEED-NC, LEED-CI, LEED-CS, LEED for Schools: For products having recycled content, documentation indicating percentages by weight of postconsumer and pre-consumer recycled content. Include statement indicating costs for each product having recycled content.
  - 2. Credit EQ 4.1 for LEED-NC, LEED-CI, LEED-CS: For sealants applied during installation, documentation including printed statement of VOC content.
  - 3. Credit EQ 4 for LEED for Schools: Laboratory Test Reports for ceiling systems and sealants; documentation indicating that products comply with the testing and product requirements of the California Department of Health Services' Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers.
- D. Maintenance Materials: Submit full-size ceiling panels equal to 2 percent of quantity installed. Label and store where directed.

## 1.3 QUALITY ASSURANCE

- A. Pre-installation Conference: Conduct conference at Project site. Agenda shall include project conditions, coordination with work of other trades, and layout of items which penetrate ceilings.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Project Conditions: Protect system components from excessive moisture in shipment, storage, and handling. Deliver in unopened bundles and store in a dry place with adequate air circulation. Do not deliver material to building until wet conditions such as concrete, plaster, paint, and adhesives have been completed and cured to a condition of equilibrium.

#### 1.5 WARRANTY

- A. Warranty: Provide manufacturer's standard limited warranty against manufacturing defects in material or workmanship.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURER

- A. ROCKFON

- 1. Address: 4849 S. Austin Avenue, Chicago IL 60638 USA
- 2. Telephone: 1-800-323-7164
- 3. Website: www.rockfon.com

#### 2.2 SUSPENDED CEILING ACOUSTICAL CEILING SYSTEMS

- A. Basis-of-Design: ROCKFON Sonar®.

- 1. ASTM E1264 Classification: Type XX, Pattern E.
- 2. Edges: SLT.
- 3. Size: 24 by 48 inches
- 4. Thickness: 7/8 inch
- 5. AC: 190.
- 6. Fire Class: Class A.
- 7. Fire Performance UL 723 (ASTM E 84) Flame Spread / Smoke Developed: 0/0.
- 8. Fire Performance CAN ULC S102 Flame Spread / Smoke Developed: 10/5.
- 9. Light Reflectance: 0.85.
- 10. Recycled Content: Up to 38 percent.

#### 2.3 SUSPENSION SYSTEM

- A. Performance Standard: Suspension system manufacturer's standard direct-hung metal suspension system and attachment devices complying with project requirements and applicable building codes and regulations applicable at the location of the project and as follows:

- 1. Structural Classification: Intermediate duty system, ASTM A 635.
- 2. Face Design: Flat, flush.
- 3. Cap Material: Steel cold-rolled sheet.
- 4. Cap Finish: Factory painted white color.

- 2.4 Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Install products in accordance with manufacturer's written instructions and in proper relationship with adjacent construction, including the following:
1. Comply with ASTM C 636/C 636M and seismic design requirements indicated, according to manufacturer's written instructions and CISCA's "Ceiling Systems Handbook".
  2. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
- B. Clean exposed surfaces in accordance with manufacturer's written instructions. Touch-up, repair or replace damaged units until satisfactory results are obtained.

END OF SECTION





09 6000

## INTERIOR ROOM FINISH SCHEDULE

#	ROOM	LOCATION	MATERIAL	FINISH	COLOR	NOTES
101	EAST VESTIBULE	FLOOR	CONCRETE	STAIN/SEALER		
		RECESSED FLOOR MAT	RUBBER TILE			
		WALLS	GWB	PAINT		
		WALL BASE	WOOD	POLYURETHANE		
		CEILING	GWB	PAINT		
		DOOR SLABS	METAL	PAINT		
		DOOR FRAME	METAL	PAINT		
102	BUSINESS OFFICE	FLOOR	CONCRETE	STAIN/SEALER		
		WALLS	GWB	PAINT		
		WALL BASE	RUBBER			
		CEILING	GWB	PAINT		
		DOOR SLABS	WOOD	POLYURETHANE		
		DOOR FRAME	METAL	PAINT		
		EXTERIOR WINDOW TRIM	WOOD	POLYURETHANE		
103	CUSTOMER SERVICE	FLOOR	CONCRETE	STAIN/SEALER		
		WALLS	GWB	PAINT		
		WALL BASE	WOOD	POLYURETHANE		
		CEILING	GWB	PAINT		
		DOOR SLABS	WOOD	POLYURETHANE		
		DOOR FRAME	METAL	PAINT		
		EXTERIOR WINDOW TRIM	WOOD	POLYURETHANE		
		WALL BUMPERS	WOOD	POLYURETHANE		
		CORNER GUARDS	RUBBER			
104	ENTRY	FLOOR	CONCRETE	STAIN/SEALER		
		WALLS	GWB	PAINT		
		WALL BASE	WOOD	POLYURETHANE		
		CEILING	GWB	PAINT		
		DOOR SLABS	WOOD	POLYURETHANE		
		DOOR FRAME	METAL	PAINT		
		EXTERIOR WINDOW TRIM	WOOD	POLYURETHANE		
		WALL BUMPERS	WOOD	POLYURETHANE		
		CORNER GUARDS	RUBBER			

#	ROOM	LOCATION	MATERIAL	FINISH	COLOR	NOTES
105	PASSENGER WAITING	FLOOR	CONCRETE	STAIN/SEALER		
		WALLS	GWB	PAINT		
		WALL BASE	WOOD	POLYURETHANE		
		CEILING	GWB	PAINT		
		DOOR SLABS	WOOD	POLYURETHANE		
		DOOR FRAME	METAL	PAINT		
		EXTERIOR WINDOW TRIM	WOOD	POLYURETHANE		
		FIREPLACE HEARTH	BLUESTONE			
		FIREPLACE FACING	VERMONT SLATE			
		FIREPLACE MANTLE	RECLAIMED OAK	POLYURETHANE		
		FIREPLACE WALLS	PLASTER	PAINT		
		WALL BUMPERS CORNER GUARDS	WOOD RUBBER	POLYURETHANE		
		109	KITCHEN/ VENDING	FLOOR	CONCRETE	STAIN/SEALER
WALL SUBSTRATE	GWB			PAINT		
WALL FINISH	FRP					
CEILING	GWB			PAINT		
DOOR SLABS	WOOD			POLYURETHANE		
DOOR FRAME	METAL			PAINT		
EXTERIOR WINDOW TRIM	WOOD			POLYURETHANE		
110	FAMILY WAITING	FLOOR	CONCRETE	STAIN/SEALER		
		WALLS	GWB	PAINT		
		WALL BASE	RUBBER			
		CEILING	GWB	PAINT		
		DOOR SLABS	WOOD	POLYURETHANE		
		DOOR FRAME	METAL	PAINT		
		EXTERIOR WINDOW TRIM	WOOD	POLYURETHANE		
111	WEST VESTIBULE	FLOOR	CONCRETE	STAIN/SEALER		
		RECESSED FLOOR MAT	RUBBER TILE			
		WALLS	GWB	PAINT		
		WALL BASE	WOOD	POLYURETHANE		
		CEILING	GWB	PAINT		
		DOOR SLABS	METAL	PAINT		
		DOOR FRAME	METAL	PAINT		

#	ROOM	LOCATION	MATERIAL	FINISH	COLOR	NOTES
112	STAIR	FLOOR	CONCRETE	STAIN/SEALER		
		TREAD/RISER	RUBBER			
		STRINGER	RUBBER			
		LANDINGS	RUBBER TILE			
		GUARDRAIL/ HANDRAIL	METAL	PAINT		
		WALLS	GWB	PAINT		
		WALL BASE	RUBBER			
		CEILING	GWB	PAINT		
		DOOR SLABS	WOOD	POLYURETHANE		
		DOOR FRAME	METAL	PAINT		
		EXTERIOR WINDOW TRIM	WOOD	POLYURETHANE		
113	ELEVATOR	FLOOR	CARPET			
		WALLS				
114	JANITOR	FLOOR	CONCRETE	STAIN/SEALER		
		WALLS	GWB	PAINT		
		WALL BASE	RUBBER			
		CEILING	GWB	PAINT		
		DOOR SLABS	WOOD	POLYURETHANE		
		DOOR FRAME	METAL	PAINT		
115	MEN'S TOILET	FLOOR	CONCRETE	STAIN/SEALER		
		WALLS	GWB	PAINT		
		WALL BASE	TILE			
		WAINSCOT	TILE			
		CEILING	GWB	PAINT		
		DOOR SLABS	WOOD	POLYURETHANE		
		DOOR FRAME	METAL	PAINT		
		COUNTERTOP, BACK/SIDE SPLASH, APRON	SOLID SURFACE			
TOILET COMPARTMENTS	SOLID PLASTIC					

#	ROOM	LOCATION	MATERIAL	FINISH	COLOR	NOTES
117	WOMEN'S TOILET	FLOOR	CONCRETE	STAIN/SEALER		
		WALLS	GWB	PAINT		
		WALL BASE	TILE			
		WAINSCOT	TILE			
		CEILING	GWB	PAINT		
		DOOR SLABS	WOOD	POLYURETHANE		
		DOOR FRAME	METAL	PAINT		
		COUNTERTOP, BACK/SIDE SPLASH, APRON	SOLID SURFACE			
		TOILET COMPARTMENTS	SOLID PLASTIC			
118	HALL	FLOOR	CONCRETE	STAIN/SEALER		
		WALLS	GWB	PAINT		
		WALL BASE	RUBBER			
		CEILING	GWB	PAINT		
		DOOR SLABS	WOOD METAL	POLYURETHANE PAINT		
		DOOR FRAME	METAL	PAINT		
		EXTERIOR WINDOW TRIM	WOOD	POLYURETHANE		
119	MECHANICAL/ ELECTRICAL	FLOOR	CONCRETE	STAIN/SEALER		
		WALLS	GWB	PAINT		
		WALL BASE	RUBBER			
		CEILING	GWB	PAINT		
		DOOR SLABS	WOOD	POLYURETHANE		
		DOOR FRAME	METAL	PAINT		
		EXTERIOR WINDOW TRIM	WOOD	POLYURETHANE		
201	BRIEFING	FLOOR	CARPET			
		WALLS	GWB	PAINT		
		WALL BASE	RUBBER			
		CEILING	GWB	PAINT		
		DOOR SLABS	WOOD	POLYURETHANE		
		DOOR FRAME	METAL	PAINT		
		INTERIOR WINDOW FRAME	METAL	PAINT		

#	ROOM	LOCATION	MATERIAL	FINISH	COLOR	NOTES	
202	OFFICE	FLOOR	CARPET				
		WALLS	GWB	PAINT			
		WALL BASE	RUBBER				
		CEILING	GWB	PAINT			
		DOOR SLABS	WOOD	POLYURETHANE			
		DOOR FRAME	METAL	PAINT			
		INTERIOR WINDOW FRAME	METAL	PAINT			
		EXTERIOR WINDOW TRIM	WOOD	POLYURETHANE			
203	CORRIDOR	FLOOR	CARPET				
		WALLS	GWB	PAINT			
		WALL BASE	RUBBER				
		CEILING	GWB	PAINT			
		DOOR SLABS	WOOD	POLYURETHANE			
		DOOR FRAME	METAL	PAINT			
		INTERIOR WINDOW FRAME	METAL	PAINT			
204	LOUNGE/ WAITING	FLOOR	CARPET				
		WALLS	GWB	PAINT			
		WALL BASE	RUBBER				
		CEILING	GWB	PAINT			
		DOOR SLABS	WOOD	POLYURETHANE			
		DOOR FRAME	METAL	PAINT			
		INTERIOR WINDOW FRAME	METAL	PAINT			
		EXTERIOR WINDOW TRIM	WOOD	POLYURETHANE			

#	ROOM	LOCATION	MATERIAL	FINISH	COLOR	NOTES
205	CONFERENCE ROOM	FLOOR	CARPET			
		WALLS	GWB	PAINT		
		WALL BASE	RUBBER			
		CEILING	GWB	PAINT		
		DOOR SLABS	WOOD	POLYURETHANE		
		DOOR FRAME	METAL	PAINT		
		EXTERIOR WINDOW TRIM	WOOD	POLYURETHANE		
		CASEWORK	WOOD	POLYURETHANE		
		COUNTERTOP, BACK/SIDE SPLASH	SOLID SURFACE			
206	I.T. CLOSET	FLOOR	CARPET			
		WALLS	GWB	PAINT		
		WALL BASE	RUBBER			
		CEILING	GWB	PAINT		
		DOOR SLABS	WOOD	POLYURETHANE		
		DOOR FRAME	METAL	PAINT		
207	PILOT TOILET/ SHOWER	FLOOR	LINOLEUM			
		WALLS	GWB	PAINT		
		WALL BASE	TILE			
		WAINSCOT	TILE			
		CEILING	GWB	PAINT		
		DOOR SLABS	WOOD	POLYURETHANE		
		DOOR FRAME	METAL	PAINT		
208	PILOT LOUNGE	FLOOR	CARPET			
		WALLS	GWB	PAINT		
		WALL BASE	RUBBER			
		CEILING	GWB	PAINT		
		DOOR SLABS	WOOD	POLYURETHANE		
		DOOR FRAME	METAL	PAINT		
		INTERIOR WINDOW FRAME	METAL	PAINT		
		EXTERIOR WINDOW TRIM	WOOD	POLYURETHANE		

#	ROOM	LOCATION	MATERIAL	FINISH	COLOR	NOTES
209	WEATHER STATION	FLOOR	CARPET			
		WALLS	GWB	PAINT		
		WALL BASE	RUBBER			
		CEILING	GWB	PAINT		
210	UPPER LOBBY	FLOOR	CARPET			
		WALLS	GWB	PAINT		
		WALL BASE	RUBBER			
		CEILING	GWB	PAINT		
		DOOR SLABS	WOOD	POLYURETHANE		
		DOOR FRAME	METAL	PAINT		
		EXTERIOR WINDOW TRIM	WOOD	POLYURETHANE		
211	STAIR	TREAD/RISER	RUBBER			
		STRINGER	RUBBER			
		LANDINGS	RUBBER TILE			
		GUARDRAIL/ HANDRAIL	METAL	PAINT		
		WALLS	GWB	PAINT		
		WALL BASE	RUBBER			
		CEILING	GWB	PAINT		
		DOOR SLABS	WOOD	POLYURETHANE		
		DOOR FRAME	METAL	PAINT		
		EXTERIOR WINDOW TRIM	WOOD	POLYURETHANE		
212	ELEVATOR	FLOOR	CARPET			
		WALLS				
213	TOILET	FLOOR	LINOLEUM			
		WALLS	GWB	PAINT		
		WALL BASE	TILE			
		WAINSCOT	TILE			
		CEILING	GWB	PAINT		
		DOOR SLABS	WOOD	POLYURETHANE		
DOOR FRAME	METAL	PAINT				

#	ROOM	LOCATION	MATERIAL	FINISH	COLOR	NOTES	
214	BRIEFING	FLOOR	CARPET				
		WALLS	GWB	PAINT			
		WALL BASE	RUBBER				
		CEILING	GWB	PAINT			
		DOOR SLABS	WOOD	POLYURETHANE			
		DOOR FRAME	METAL	PAINT			
		INTERIOR WINDOW FRAME	METAL	PAINT			
215	WAITING	FLOOR	CARPET				
		WALLS	GWB	PAINT			
		WALL BASE	RUBBER				
		CEILING	GWB	PAINT			
		DOOR SLABS	WOOD	POLYURETHANE			
		DOOR FRAME	METAL	PAINT			
		INTERIOR WINDOW FRAME	METAL	PAINT			
		EXTERIOR WINDOW TRIM	WOOD	POLYURETHANE			
					END OF SECTION		



SECTION 09 6513  
RUBBER FLOOR, WALL AND STAIR PRODUCTS

## PART 1 GENERAL

## 1.01 SUMMARY

## A. Section Includes:

1. Rubber Wall Base
2. Rubber Stair Treads
3. Rubber Stair Stringers
4. Rubber Landing Tiles
5. Rubber Floor Transitions
6. Rubber Wall Corner Guards

## 1.03 SUBMITTALS

A. Product Data: Submit product data, including manufacturer's specification summary sheet for specified products

B. Samples: Submit selection and verification samples for finishes, colors, and textures.

C. Submit the following:

1. Maintenance Data: Maintenance data for installed products in accordance with Division 1 sections. Include methods for maintaining installed products, and precautions against cleaning materials and methods detrimental to finishes and performance.
2. Warranty: Warranty documents specified herein.

## 1.04 QUALITY ASSURANCE

A. Installer Qualifications: Installer experienced in performing work of this section who has specialized in installing work similar to that required for this project.

B. Regulatory Requirements

1. Fire Performance characteristics: Provide resilient sheet vinyl floor covering with the following fire performance characteristics as determined by testing products in accordance with ASTM method (and) NFPA method) indicated below by a certified testing laboratory or another testing and inspecting agency acceptable to authorities having jurisdiction.

- a. ASTM E 648 (NFPA 253), Critical Radiant Flux of Floor Covering Systems: Class 1, > 1.0 W/cm<sup>2</sup>
- b. ASTM E 662 (NFPA 258), Specific Optical Density of Smoke Generated by Solid Materials: Passes, <450
- c. ASTM E 84 (NFPA 255), Surface Building Characteristics of Building Materials: Class C

C. Single-Source Responsibility: Obtain resilient wall base and manufacturer's recommended adhesive from a single supplier.

D. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions & manufacturer's recommended substrates and required preparation manufacturer's installation instructions and manufacturer's warranty requirements. Comply with requirements in Division 1.

## 1.05 DELIVERY, STORAGE, AND HANDLING

A. General: Comply with requirements in Division 1.

B. Ordering: Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.

C. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

D. Storage and Protection: Store materials protected from exposure to harmful weather conditions and acclimated to site conditions at temperature and humidity conditions recommended by manufacturer.

#### 1.06 PROJECT CONDITIONS

A. Environmental Requirements/Conditions: In accordance with manufacturer's recommendations, areas to receive resilient wall base shall be clean, fully enclosed, weather tight with the permanent HVAC set at a uniform temperature of 65-85 degrees F for 48 hours prior too during, and thereafter installation of resilient wall base. Resilient wall base and adhesive shall be conditioned in the same manner. Resilient wall base must be unboxed & acclimated in area of use at least 48 hours prior to installation. Minimum temperature shall be a 65 degrees F after installation.

#### 1.07 SEQUENCING AND SCHEDULING

A. Finishing Operations: Install resilient wall base after finishing operations, including floor covering painting and ceiling operations etc., have been completed.

#### 1.08 WARRANTY

A. Manufacturer's Materials Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

1. Warranty Period: 1 year limited warranty commencing on Date of Substantial Completion. Notice of any defect must be made in writing to manufacturer within thirty (30) days after buyer learns of the defect.
2. Limited Wear Warranty: 3 year limited wear warranty.

#### 1.09 MAINTENANCE

A. Extra Materials: Deliver to Owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Division One Closeout Submittals (Maintenance Materials) Section.

1. Quantity: Furnish quantity of Resilient Wall Base equal to 5% of amount installed.
2. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra materials.

B. Maintenance of finished floor covering to be conducted per Manufacturer's Maintenance Guide.

### PART 2 PRODUCTS

#### 2.01 MANUFACTURER

A: Roppe Corporation

1. Contact: P.O. Box 1158 Fostoria, Ohio USA 44830-1158, Phone: (419) 435-8546

B. Proprietary Products:

1. Roppe Pinnacle Rubber Base
  - a. Complies with ASTM F-1861 Type TS (Thermoset Vulcanized Rubber), Group 1 (Solid)
  - b. Contains 10% natural rubber
  - c. Thickness: 1/8" ( 3.175 mm) nominal
  - d. Color as selected by Architect from manufacturer's standard colors.
  - e. Profiles
    - 1.) Standard Toe (Cove base, for use at concrete and linoleum floor areas)
    - a.) Nominal Height: 4"

- b.) Lengths: 120' coils
- c.) Corners: Formed by installer on site
- 2.) No Toe (Straight, for use at carpet floor areas)
  - a.) Nominal Height: 4"
  - b.) Lengths: 120' coils
  - c.) Corners: Formed by installer on site

2. Roppe Rubber Stair Treads:

- a. Style #95 Hammered Design with Riser
  - 1.) Complies with ASTM F 2169, Type TS, Class 2 (Patterned)
  - 2.) Length: 48" (1.22m)
  - 3.) Depth: 20-3/8" (520.7 cm) from inside of nose
  - 4.) Thickness: 13/64" (5.16mm) stair tread portion, riser tapers to 5/64" (1.98mm) nominal
  - 5.) Nose Length: 1-9/16" (39.70mm) nominal
  - 6.) Nose Thickness: 1/8" (3.18mm)
  - 7.) Tapered Nose: Yes
  - 8.) Relief Cut: No
  - 9.) Limited Wear warranty: Manufacturer's limited wear warranty of five years for normal commercial traffic

3. Roppe Rubber Stringers:

- a. Height: 12" (304.8mm) nominal
- b. Thickness: .100" (2.54mm) nominal
- c. Length: 72" (1.83m) nominal

4. Roppe Rubber Landing Tiles:

- a. Roppe Rubber Floor Tile
  - 1). Styles: #995 Hammered Design
  - 2). Size: 19 11/16" x 19 11/16" (50cm x 50 cm)
  - 3). Nominal Thickness: 1/8" (3.175 mm)
  - 4). Backing: Smooth factory sanded backing
  - 5). Limited Wear warranty: Manufacturer's limited wear warranty of five years for normal commercial traffic.

5. Roppe Rubber Flooring Transitions:

- a. Edge guards, thresholds, adapters & transitions, nosings, cove Caps, landing trim, and reducers as required to provide a complete finish flooring system.

6. Roppe Rubber Wall Corner Guards:

- a. Corner guards where indicated on drawings.

C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

## PART 3 EXECUTION

### 3.01 MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with manufacturer's instructions for product installation.

- B. Adhesive: Roppe Adhesives
- C. Caulking: Roppe Colored Caulk

### 3.02 EXAMINATION

- A. Site Verification of Conditions: Verify substrate conditions are acceptable for installing product in accordance with manufacturer's instructions.
- B. Material Inspection: In accordance with manufacturer's installing requirements, visually inspect materials prior to installing. Material with visual defects shall not be installed.

### 3.03 PREPARATION

- A. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage during product installation.
- B. Surface Preparation, General: Prepare substrate in accordance with manufacturer's instructions.
- C. Substrate: Prepare manufacturer's recommended substrates to be smooth, rigid, flat, level, permanently dry, clean and free of foreign materials such as paint, dust, grease, oils, solvent, old adhesive residue, vinyl wall coverings, non-porous surfaces and all other contaminants that may interfere with adhesive bond.

### 3.04 INSTALLING

- A. Manufacturer's instructions for specifications on installing resilient products.
- B. Resilient products colors, heights and profiles: As selected by Architect.
- C. Roppe Adhesive
- D. Roppe Colored Caulk

### 3.05 FIELD QUALITY REQUIREMENT

- A. Manufacturer's Field Services: Upon Owner's request and with minimum 72 hours notice, provide manufacturer's field service consisting of product use recommendations and periodic site visits to confirm installing of product is in accordance with manufacturer's instructions.

### 3.06 CLEANING

- A. Cleaning: Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose of debris.

END OF SECTION

SECTION 09 6543  
LINOLEUM FLOORING

## PART 1 GENERAL

## 1.01 SUMMARY

- A. Section Includes: Resilient Linoleum Sheet Flooring
  - 1. Marmoleum® Fresco Flooring, Adhesive Installation, Heat Welded Seamless Installation, Topshield2™ Finish
  - 2. Forbo Flooring Systems Resilient Transition Accessories

## 1.02 SYSTEM DESCRIPTION

- A. Performance Requirements: Provide flooring which has been manufactured, fabricated and installed to performance criteria certified by manufacturer without defects, damage, or failure.

## 1.03 SUBMITTALS

- A. General: Submit listed submittals in accordance with "Conditions of the Contract" and Division 1 Submittal Procedures Section.
- B. Product Data: Submit product data, including manufacturer's SPEC-DATA product sheet, for specified products.
- C. Shop Drawings: Submit shop drawings showing layout, profiles, and product components, including anchorage, accessories, finish colors, patterns and textures.
- D. Samples: Submit selection and verification samples for finishes, colors, and textures.
- E. Quality Assurance Submittals: Submit the following:
  - 1. Manufacturers Technical Data: Manufacturers document specifying performance characteristics and criteria, and physical requirements.
  - 2. Manufacturer's Instructions: Manufacturer's installation instructions.
  - 3. Manufacturer's Field Reports: Manufacturer's field reports specified herein.
- F. Closeout Submittals: Submit the following:
  - 1. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operation Data) Section. Include methods for maintaining installed products, and precautions against cleaning materials and methods detrimental to finishes and performance.
  - 2. Warranty: Warranty documents specified herein.

## 1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.
  - 1. Must be a Forbo Certified Installer.
  - 2. Proof of valid certification must be submitted to the GC and verified by Forbo Flooring Systems prior to the start of the project.
  - 3. The Forbo Certified Installer must manage and be on site during installation at all times.
- B. Regulatory Requirements:
  - 1. Fire Performance Characteristics: Provide resilient linoleum sheet flooring with the following fire performance characteristics as determined by testing products in accordance with the latest version of ASTM method indicated below by a certified testing laboratory or another testing and inspecting agency acceptable to authorities having jurisdiction:
    - a. Critical Radiant Flux: Class 1 Rating per NFPA 253 (ASTM E 648) (0.45 watts/cm<sup>2</sup> or greater).
    - b. Smoke Density: Less than 450 per NFPA 258 (ASTM E 662).
- C. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions, and manufacturer's warranty

requirements. Comply with Division 1 Project Management and Coordination (Project Meetings) Section.

#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. General: Comply with Division 1 Product Requirements Sections.
- B. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- C. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- D. Storage and Protection: Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer.
  - 1. Material should be stored in areas that are fully enclosed and weathertight. The permanent HVAC should be fully operational, controlled and set at a minimum of 68° F (20° C) for at least 48 hours prior to the installation.

#### 1.06 PROJECT CONDITIONS

- A. Environmental Requirements/Conditions: In accordance with manufacturer's recommendations, areas to receive flooring should be clean, fully enclosed and weathertight. The permanent HVAC must be fully operational, controlled and set at a minimum of 68° F (20° C) for a minimum of seven days prior to, during, and seven days after the installation. The flooring material should be conditioned in the same manner for at least 48 hours prior to the installation. Areas to receive flooring shall be adequately lighted to allow for proper inspection of the substrate, installation and seaming of the flooring, and for final inspection.
- B. Temperature Requirements: Maintain air temperature in spaces where products will be installed for time period before, during, and after installation as recommended by manufacturer.
  - 1. Temperature Conditions: 68° F (20° C) for a minimum of seven days prior to, during, and seven days after the installation.
- C. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

#### 1.07 SEQUENCING AND SCHEDULING

- A. Finishing Operations: Install flooring after finishing operations, including painting and ceiling operations, have been completed.

#### 1.08 WARRANTY

- A. Project Warranty: Refer to "Conditions of the Contract" for project warranty provisions.
- B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.
  - 1. Warranty Period: Five (5) year limited warranty commencing on Date of Substantial Completion.

#### 1.09 MAINTENANCE

- A. Extra Materials: Deliver to Owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Division 1 Closeout Submittals (Maintenance Materials) Section.
  - 1. Quantity: Furnish quantity of flooring units equal to 5% of amount installed.
  - 2. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra materials

### PART 2 PRODUCTS

## 2.01 RESILIENT LINOLEUM SHEET FLOORING

- A. Manufacturer: Forbo Flooring, Inc.
  - 1. Contact: Forbo Flooring, Inc.  
P.O. Box 667  
Hazleton, PA 18202  
Telephone +800 842 7839 or +570 459 0771  
Fax + 570 450 0258
- B. Proprietary Product: Marmoleum Fresco Linoleum Sheet and Adhesive.
  - 1. Description: Homogeneous linoleum sheet made primarily of natural materials consisting of linseed oil, wood flour, and rosin binders, mixed and calendared onto natural jute backing. Pattern and color shall extend throughout total thickness of material.
  - 2. Width: 2 Meters (79")
  - 3. Length: 32 Meters (105 Linear Feet)
  - 4. Gauge: 2.5mm (1/10")
  - 5. Backing: Jute
  - 6. Pattern and Color: As selected by Architect from manufacturer's standard patterns and colors.
  - 7. Adhesive: Forbo L 885 Adhesive
  - 8. Net Fit Seams: All Marmoleum sheet products shall be installed utilizing net fit seams.
    - a. Welding Rod: Forbo Marmoweld color-matched welding rod as selected by Architect from manufacturer's standard patterns and colors.
  - 9. Topshield 2™ Finish: Applied during the manufacturing process.
- C. Product Criteria Forms: Refer to Product Criteria Forms as an attachment to this section.
  - 1. Product Forms: Subject to compliance with specified requirements, provide products specified in each Technical Data Sheet.

## 2.02 RELATED MATERIALS

- A. Related Materials:
  - 1. Plywood Underlayment:
    - a. UltraplyXL Premium Plywood Underlayment, from Mooreland Company, USA.
  - 2. Rubber Flooring Accessories: Refer to Section 09 6513 flooring accessories.

## 2.03 SOURCE QUALITY

- A. Source Quality: Obtain flooring product materials from a single manufacturer.

2.04 Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

## PART 3 EXECUTION

### 3.01 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions, and product carton instructions for installation.

### 3.02 EXAMINATION

- A. Site Verification of Conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions (bond testing, pH testing, calcium chloride testing, relative humidity testing, etc.).
- B. Material Inspection: In accordance with manufacturer's installation requirements, visually inspect materials prior to installation. Material with visual defects shall not be installed and shall not be considered as a legitimate claim.

### 3.03 PREPARATION

- A. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage during product installation.
- B. Surface Preparation:
  - 1. General: Prepare floor substrate in accordance with manufacturer's instructions.
  - 2. Floor Substrate: Floors shall be sound, smooth, flat, permanently dry, clean, and free of all foreign materials including, but not limited to, dust, paint, grease, oils, solvents, curing and hardening compounds, sealers, asphalt and old adhesive residue.
- C. Wood Subfloors: Wood floors should be double construction with a minimum total thickness of 1 inch. Wood floors must be rigid, free from movement and have at least 18" of well-ventilated air space below. Forbo floor coverings should not be installed over wooden subfloors built on sleepers over on or below grade concrete floors without first making sure that adequate precautions have been taken to ensure the structural integrity of the system, and to prevent moisture migration from the concrete slab.
  - 1. Refer to Division 6 Carpentry sections for wood subfloor construction.
  - 2. Reference Standard: Comply with the latest version of ASTM F 1482 Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring.

### 3.04 INSTALLATION

- A. Material Installation: Measure the area to be installed and determine the direction in which the material will be installed and seam placement. Seams must be a minimum of 6" away from underlayment and concrete joints, saw cuts, etc. Cut the required length for the first sheet, adding 3" - 6" for trimming. Fit the first sheet along the main wall and at the ends using standard fitting methods. The factory edge must be trimmed in order to produce a clean edge suitable for seaming. Immediately after installation, roll the tile with a 100 pound three-section roller in both directions and repeat as necessary to ensure adequate transfer of adhesive to the backing. Repeat the same procedure on the other half of the sheet. **DO NOT REVERSE THE SHEETS. INSTALL ALL MARMOLEUM® AND LINOLEUM SHEETS IN THE SAME DIRECTION.**
- B. Adhesive Flooring Installation: Use trowel recommended by flooring manufacturer for specific adhesive (1/16" x 1/16" x 1/16" Square notch trowel). Spread rate is approximately 125 ft<sup>2</sup>/gallon.
- C. Seaming: After the material has been laid into the adhesive, the material should be trimmed to produce a net fit at the seam. The seam edges should just meet, with no pressure or fullness and should be cut with a slight bevel. This will compensate for any slight expansion that may occur.
- D. Heat Welded Seamless Flooring Installation: Groove out seams and heat weld together with complementary colored heat welding rod of complimentary composition in accordance with resilient flooring manufacturer's recommendations.
- E. Installation Techniques:
  - 1. Where demountable partitions and other items are indicated for installation on top of finished flooring, install flooring before these items are installed.
  - 2. Scribe, cut, fit flooring to butt tightly to vertical surfaces, permanent fixtures and built-in furniture, including pipes, outlets, edgings, thresholds, nosings, and cabinets.
  - 3. Extend flooring into toe spaces, door reveals, closets, and similar openings.
  - 4. Install flooring on covers for telephone and electrical ducts, and similar items occurring within finish floor areas. Maintain overall continuity of color and pattern with pieces of flooring installed on these covers.
  - 5. Do not install resilient flooring over expansion joints. Use expansion joint covers manufactured for use with resilient flooring. Refer to other specification sections for expansion joint covers.
  - 6. Adhere resilient flooring to substrate without producing open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections in completed installation.



- a. Use adhesive applied to substrate in compliance with manufacturer's recommendations, including those for mixing, trowel notch, and adhesive open and working times.
7. Roll resilient flooring as required by resilient flooring manufacturer.

### 3.05 FIELD QUALITY REQUIREMENTS

- A. Manufacturer's Field Services: Upon Owner's request and with at least 72 hours' notice, provide manufacturer's field service consisting of product use recommendations and periodic site visit for inspection of product installation in accordance with manufacturer's instructions.
  1. Site Visits: [Specify number and duration of periodic site visits.]

### 3.06 CLEANING

- A. Cleaning: Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose of debris.
  1. Remove visible adhesive and other surface blemishes using cleaning methods recommended by floor manufacturer.
  2. Sweep and vacuum floor after installation.
  3. Do not wash floor until after time period recommended by flooring manufacturer.
  4. Damp mop flooring to remove black marks and soil.
  5. Marmoleum® with Topshield 2™ is pre-sealed and pre-finished. It is occupancy ready- no additional finish is required at the time of installation. See manufacturers' recommendations for further information.

### 3.07 PROTECTION

- A. Protection: Protect installed product and finish surfaces from damage during construction. Remove and legally dispose of protective covering at time of Substantial Completion.

### 3.08 INITIAL MAINTENANCE PROCEDURES

- A. General: Include in Contract Sum Amount cost for initial maintenance procedures, and execute procedures after flooring installation as recommended by flooring manufacturer.
- B. Initial maintenance to be conducted by awarded Flooring Contractor using a Certified Forbo Floor Care Technician.
- C. Drying Room Yellowing/Ambering: While Marmoleum® and linoleum products are maturing in the drying stoves, a yellow cast, called "drying room yellowing" or "ambering" may appear on the surface. This yellow cast is caused by the oxidation of linseed oil and is TEMPORARY. It occurs intermittently and with varying intensity. It is most noticeable on blue and grey shades of material. When the material is exposed to light, the drying room yellowing will disappear. The process may take as little as a few hours in bright sunlight or longer with artificial light. Because this is a natural occurrence in the product, there is no set time frame for the yellowing to disappear. This is not a material defect. In regards to floor care, applying finish to the material before the drying room yellowing disappears will make no difference; it will still disappear with exposure to light.

END OF SECTION



SECTION 09 6813  
CARPET

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Carpet tile.

1.2 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: 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.
- C. Verification Samples: For each finish product specified, two samples, representing actual product and finish.
- D. Extra Stock: Submit extra stock equal to 2% of total installed.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum 5 year experience manufacturing similar products.
- B. Installer Qualifications: Minimum 2 year experience installing similar products.
- C. Performance: Fire performance meeting requirements of building code and local authorities.

1.4 PRE-INSTALLATION MEETINGS

- A. Convene minimum two weeks prior to starting work of this section.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.
- B. Handling: Handle materials to avoid damage.

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 recommended limits.

1.7 SEQUENCING

- A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Interface.

- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

## 2.2 MATERIALS

- A. Carpet Tile:
  - 1. Product Description: First Option Tile, Gather, Pumice Accent.
  - 2. Product Number: 19DR402500.
  - 3. Material: Tufted Textured Loop, 100% Recycled Content Type 6 Nylon.

## 2.3 RELATED MATERIALS

- A. Materials:
  - 1. Plywood Underlayment: UltraplyXL Premium Plywood Underlayment, from Mooreland Company, USA.
  - 2. Rubber Flooring Accessories: Refer to Section 09 6513 flooring accessories.

## 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. Install in accordance with manufacturer's instructions and in proper relationship with adjacent construction. Test for proper operation and adjust until satisfactory results are obtained.
- B. Comply with recommendations of Carpet and Rug Institute 'Specifier's Handbook'.

### 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

SECTION 09 8116  
ACOUSTIC BLANKET INSULATION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Building Insulation for Fire Resistive and Acoustical Applications.
- B. Fire Resistive Joint Systems.
- C. Firestopping of Through Penetrations.

1.2 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: 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.
- C. Performance Data:
  - 1. Submit appropriate research reports or evaluation data for products listed in this section.
  - 2. Prior to project closeout, Contractor shall certify in accordance with section 01770 that all products installed pursuant to this section do not contain Asbestos or Polychlorinated Biphenyls (PCB).
- D. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Single manufacturer with a minimum of ten years experience manufacturing or marketing products in this section shall provide all products listed.
- B. Installer Qualifications:
  - 1. Products listed in this section shall be installed by a single organization with at least two (2) years experience successfully installing insulation on projects of similar type and scope as specified in this section.
  - 2. If the installation of the curtain wall is the responsibility of a different installer, coordinate specified installations prior to commencement of work to ensure the complete system meets the specified ratings.
  - 3. Certification per FM 4991, Underwriters Laboratories, Intertek (OPL) Laboratories, or by the Firestop Contractors International Association (FCIA).
- C. Fire- Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by Underwriters Laboratories (UL), Intertek (OPL) or another testing and inspecting agency acceptable to authorities having jurisdiction.
  - 1. Identify materials appropriate markings of applicable testing and inspecting agency.
  - 2. Surface-Burning Characteristics: ASTM E 84. Unfaced material will have a maximum flame spread 0 and smoke-developed of 0. Foil Faced material will

- 3. Fire-Resistance Ratings:
- 4. ASTM E 2307 pertains to perimeter fire containment. ASTM E 119 pertains to fire rated walls, floors and ceilings. ASTM E 814 pertains to poke-throughs and penetration assemblies. ASTM E 1966 pertains to fire resistive joint systems.
- 5. Combustion Characteristics: Rated as non combustible as defined by NFPA standard 220 when tested in accordance with ASTM E 136.

- D. Manufacturer's identification tags or marks are not acceptable on surfaces where products are considered to be finish material.
  - 1. Evidence of patching after removal of tags or marks is not acceptable.
- E. Field Inspection: Follow criteria outlined in ASTM E 2393 Standard Practice for On-Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to the job site in original packages, containers, or bundles bearing the brand name and manufacturer's identification.
- B. Storage: Store materials in dry locations with adequate ventilation, free from water, and in such a manner to permit easy access for inspection and handling.
- C. Handling: Handle materials to avoid damage. When installing or otherwise handling these insulation products, wear a NIOSH approved dust mask or respirator, gloves and long sleeved, loose fitting clothing closed at the neck and wrists. Wear safety glasses when installing.

#### 1.5 PROJECT CONDITIONS

- A. Protect adjacent work of other trades from damage. Clean substrates of substances harmful to insulation or vapor retarders, including removal of projections which might puncture vapor retarders. In cold weather, during installation of smoke sealant material, temperatures within the building shall be maintained above 55°F. Provide adequate ventilation to carry-off excess moisture.

#### 1.6 WARRANTY

- A. At project closeout, provide to the owner or owners representative an executed copy of the manufacturer's warranty document outlining the terms, conditions, and exclusions of their Standard Limited Warranty against Manufacturing Defect.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Thermafiber, Inc., which is located at: 3711 Mill St. ; Wabash, IN 46992; Toll Free Tel: 888-834-2371; Tel: 260-563-2111; Fax: 260-563-8979; Email: [request info](#); Web: [www.thermafiber.com](http://www.thermafiber.com)
- B. Requests for substitutions will be considered in accordance with provisions of Section 01630.

#### 2.2 FIRE RESISTIVE AND ACOUSTICAL INSULATION

- A. Product:
  - 1. Type: Thermafiber Sound Attenuation Fire Blanket (SAFB).

- a. Facing: Unfaced only.
- b. Density: 2.5 pcf (nominal) for 3" thick material.
- c. Surface-Burning Characteristics: ASTM E 84. Unfaced material will have a maximum flame spread 0 and smoke-developed of 0

### 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

- C. Clean surfaces thoroughly prior to installation.
- D. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

#### 1.2 PROTECTION

- A. Protect installed products until completion and project closeout.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

#### 1.3 CLEAN-UP

- A. Prior to project closeout, remove all related rubbish, excess material, scaffolding, tools and equipment from the site. Dispose of waste material in a manner approved by applicable jurisdictions.

END OF SECTION





SECTION 09 9100  
PAINTING

## PART 1 GENERAL

## 1.1 SECTION INCLUDES

- A. Interior and exterior painting, including surface preparation for projects in the United States.

## 1.2 DEFINITIONS

- A. Commercial as used in this Section refers to a product well suited for a commercial application.
- B. DFT as used in this Section refers to the Dry Film Thickness of the coating.
- C. Enamel refers to any acrylic or alkyd (oil) base paint which dries leaving an eggshell, pearl, satin, semi-gloss or high gloss enamel finish.
- D. DTM as used in this Section refers to paint that is applied Direct To Metal.
- E. OTC as used in this Section refers to the Ozone Transmission Commission. OTC has established the following VOC levels for the Northeastern United States. Products shall meet the following OTC limits for VOC's.
  - 1. Interior flat paints: 100 grams per liter or less, per gallon.
  - 2. Interior enamels: 150 grams per liter or less, per gallon.
  - 3. Interior stains: 250 grams per liter or less, per gallon.
  - 4. Interior primers: 200 grams per liter or less, per gallon.
  - 5. Rust preventive coatings: 400 grams per liter or less, per gallon.
  - 6. Dry fog coatings: 400 grams per liter or less, per gallon.
  - 7. Floor coatings: 250 grams per liter or less, per gallon.
- F. Premium as used in this Section refers to the best quality product "top of the line".
- G. VOC as used in this Section refers to Volatile Organic Compounds found in primers, paints, sealers and stains. The level of VOCs appears after each product listed in the Schedule in grams per liter (g/L).
- H. Paints are available in a wide range of sheens or glosses, as measured by a gloss meter from a 60 and/or 85 degree angle from vertical, as a percentage of the amount of light that is reflected. The following terms are used to describe the gloss of our products. The list below is provided for general guidance; refer to the technical data sheet for the actual gloss/sheen level for each product.
  - 1. Flat - Less than 5 Percent.
  - 2. Eggshell - 5 - 20 Percent.
  - 3. Satin - 20 - 35 Percent.
  - 4. Semi-Gloss - 30 - 65 Percent.
  - 5. Gloss - Over 65 Percent.

## 1.3 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: Provide a complete list of all products to be used, with the following information for each:

1. Manufacturer's name, product name and/or catalog number, and general product category.
  2. Cross-reference to specified paint system(s) that the product is to be used in; include description of each system.
- C. Samples: Submit three paper samples, 5 inches by 7 inches (127mm x 178mm) in size, illustrating selected colors for each color and system selected with specified coats cascaded.
- D. Manufacturer's Instructions: Indicate special surface preparation procedures.
- E. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

#### 1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten years experience.
- B. Installer Qualifications: All products listed in this section are to be applied by a Painting Contractor with a minimum of five years demonstrated experience in surface preparation and field application of the same type and scope as specified.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
1. Mock-up areas designated by Architect.
  2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
  3. Approved mock-up areas will serve as the standard for remaining Work.
  4. 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.
- C. Disposal:
1. Never pour leftover coating down any sink or drain. Use up material on the job or seal can and store safely for future use.
  2. Do not incinerate closed containers.
  3. For specific disposal or recycle guidelines, contact the local waste management agency or district. Recycle whenever possible.

#### 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 recommended limits.

#### 1.7 WARRANTY

- A. Inspection of all surfaces to be coated must be done by the manufacturer's representative to insure proper preparation prior to application. All thinners, fillers, primers and finish coatings shall be from the same manufacturer to support a product warranty. Products other than those submitted shall be accompanied by a letter stating its fitness for use and compatibility.

- B. At project closeout, provide to the Owner or owner's representative an executed copy of the Manufacturer's standard form outlining the terms and conditions of and any exclusions to their Limited Warranty against Manufacturing Defect.

## 1.8 EXTRA MATERIALS

- A. At project closeout, supply the Owner or owner's representative one gallon of each product for touch-up purposes. Cans shall be clearly marked with color name, number and type of paint.
- B. At project closeout, provide the color mixture name and code to the Owner or owner's representative for accurate future color matching.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Benjamin Moore and Co., located at: 101 Paragon Dr; Montvale, NJ 07645; Toll Free Tel: 866-708-9181; Email: [info@benjaminmoore.com](mailto:info@benjaminmoore.com); Web: [www.benjaminmoore.com](http://www.benjaminmoore.com)
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

### 2.2 MATERIALS - GENERAL

- A. Volatile Organic Compound (VOC) Content:
  - 1. Provide coatings that comply with the most stringent requirements specified in the following:
    - a. 40 CFR 59, Subpart D-National Volatile Organic Compound Emission Standards for Architectural Coatings.
    - b. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.
- B. Compatibility: Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

### 2.3 MIXING AND TINTING

- A. Except where specifically noted in this section, all paint shall be ready-mixed and pre-tinted. Agitate all paint prior to and during application to ensure uniform color, gloss, and consistency. Tint primers to match finish color.
- B. Thinner addition shall not exceed manufacturer's printed recommendations. Do not use kerosene or other organic solvents to thin water-based paints.
- C. Where paint is to be sprayed, thin according to manufacturer's current guidelines.

### 2.4 NUMBER OF COLORS

- A. Ceilings: Provide for one color.
- B. Walls: Provide for four colors.
- C. Wood Trim: Provide for two colors.

- D. Metals: Provide for two colors.

## 2.5 INTERIOR PAINT SYSTEMS

- A. METAL - (Structural Steel Columns, Joists, Trusses, Beams, Miscellaneous and Ornamental Iron, Structural Iron, Ferrous Metal):
  - 1. Primer: Ultra Spec HP Acrylic Metal Primer HP04
  - 2. 2nd Coat: Ultra Spec HP D.T.M. Acrylic Low Lustre Enamel HP25
  - 3. Ultra Spec HP D.T.M. Acrylic Low Lustre Enamel HP25
- B. WOOD - (Walls, Ceilings, Doors, Trim):
  - 4. Primer: Sure Seal Latex Primer Sealer 027
  - 5. 2nd Coat: Ultra Spec 500 Interior Semi-Gloss N539
  - 6. 3rd Coat: Ultra Spec 500 Interior Semi-Gloss N539
- C. DRYWALL - (Walls, Ceilings, Gypsum Board and similar items):
  - 7. Primer: Ultra Spec 500 Interior Latex Primer N534
  - 8. 2nd Coat: Ultra Spec 500 Interior Eggshell N538 or N537 Low Sheen
  - 9. 3rd Coat: Ultra Spec 500 Interior Eggshell N538 or N537 Low Sheen

## 2.6 EXTERIOR PAINT SYSTEMS - UNITED STATES

- A. MASONRY: Concrete Masonry Units (CMU) - Cinder or Concrete Block.
  - 1. 1st Coat: Super Spec Masonry Interior/Exterior Hi-Build Block Filler 206
  - 2. 2nd Coat: Super Spec Masonry 100% Acrylic Elastomeric Coating Flat 056
  - 3. 3rd Coat: Super Spec Masonry 100% Acrylic Elastomeric Coating Flat 056

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. The Contractor shall review the product manufacturer's special instructions for surface preparation, application, temperature, re-coat times, and product limitations.
- B. The Contractor shall review product health and safety precautions listed by the manufacturer.
- C. The Contractor shall be responsible for enforcing on site health and safety requirements associated with the Work.
- D. Do not begin installation until substrates have been properly prepared.
- E. Ensure that surfaces to receive paint are dry immediately prior to application.
- F. Ensure that moisture-retaining substrates to receive paint have moisture content within tolerances allowed by coating manufacturer. Where exceeding the following values, promptly notify Architect and obtain direction before beginning work.
  - 1. Concrete and Masonry: 3-5 percent. Allow new concrete to cure a minimum of 28 days.
  - 2. Exterior Wood: 17 percent.
  - 3. Interior Wood: 15 percent.
  - 4. Interior Finish Detail Woodwork, Including Trim, and Casework: 10 percent.
  - 5. Plaster and Gypsum: 15 percent.

- 6. Concrete Slab-On-Grade: Perform calcium chloride test over 24 hour period or other acceptable test to manufacturer. Verify acceptable moisture transmission and pH levels.
- G. Examine surfaces to receive coatings for surface imperfections and contaminants that could impair performance or appearance of coatings, including but not limited to, loose primer, rust, scale, oil, grease, mildew, algae, or fungus, stains or marks, cracks, indentations, or abrasions.
- H. Correct conditions that could impair performance or appearance of coatings in accordance with specified surface preparation procedures before proceeding with coating application.

### 3.2 PREPARATION - GENERAL

- A. Clean surfaces thoroughly prior to coating application.
- B. Do not start work until surfaces to be finished are in proper condition to produce finished surfaces of uniform, satisfactory appearance.
- C. Stains and Marks: Remove completely, if possible, using materials and methods recommended by coating manufacturer; cover stains and marks which cannot be completely removed with isolating primer or sealer recommended by coating manufacturer to prevent bleed-through.
- D. Remove Mildew, Algae, and Fungus using materials and methods recommended by coating manufacturer.
- E. Remove dust and loose particulate matter from surfaces to receive coatings immediately prior to coating application.
- F. Remove or protect adjacent hardware, electrical equipment plates, mechanical grilles and louvers, lighting fixture trim, and other items not indicated to receive coatings.
- G. Move or protect equipment and fixtures adjacent to surfaces indicated to receive coatings to allow application of coatings.
- H. Protect adjacent surfaces not indicated to receive coatings.
- I. Prepare surfaces in accordance with manufacturer's instructions for specified coatings and indicated materials, using only methods and materials recommended by coating manufacturer.

### 3.3 SURFACE PREPARATION

- A. Concrete and Concrete Masonry: Clean surfaces free of loose particles, sand, efflorescence, laitance, form oil, curing compounds, and other substances which could impair coating performance or appearance.
- B. Gypsum Board: Repair cracks, holes and other surface defects with joint compound to produce surface flush with adjacent surfaces.
- C. Metals - Aluminum, Mill-Finish: Clean and etch surfaces with a phosphoric acid-water solution or water based industrial cleaner. Flush with clean water and allow to dry, before applying primer coat.
- D. Metals - Ferrous, Unprimed: Remove rust or scale, if present, by wire brush cleaning, power tool cleaning, or sandblast cleaning; remove grease, oil, and other contaminants which could impair coating performance or appearance by solvent cleaning, with

- phosphoric-acid solution cleaning of welds, bolts and nuts; spot-prime repaired welds with specified primer.
- E. Metals - Ferrous, Shop-Primed: Remove loose primer and rust, if present, by scraping and sanding, feathering edges of cleaned areas to produce uniform flat surface; solvent-clean surfaces and spot-prime bare metal with specified primer, feathering edges to produce uniform flat surface.
  - F. Plaster: Repair cracks, holes and other surface defects as required to maintain proper surface adhesion. Apply patching plaster or Joint compound and sand to produce surface flush with adjacent undamaged surface. Allow a full cure prior to coating application as recommended by the patching compound manufacturer's recommendations.
  - G. Wood:
    - 1. Seal knots, pitch streaks, and sap areas with sealer recommended by coating manufacturer; fill nail recesses and cracks with filler recommended by coating manufacturer; sand surfaces smooth.
    - 2. Remove mill marks and ink stamped grade marks.
    - 3. Apply primer coat to back of wood trim and paneling.

### 3.4 APPLICATION - GENERAL

- A. Application of primers, paints, stains or coatings, by the Contractor, will serve as acceptance that surfaces were properly prepared in accordance with the manufacturer's recommendation.
- B. Apply each coat to uniform coating thickness in accordance with manufacturer's instructions, not exceeding manufacturer's specified maximum spread rate for indicated surface; thins, brush marks, roller marks, orange-peel, or other application imperfections are not permitted.
- C. Allow manufacturer's specified drying time, and ensure correct coating adhesion, for each coat before applying next coat.
- D. Provide for "lighting" of all walls and ceilings after application of first finish coat.
- E. Inspect each coat before applying next coat; touch-up surface imperfections with coating material, feathering, and sanding if required; touch-up areas to achieve flat, uniform surface without surface defects visible from 5 feet (1.5 m).
- F. Remove dust and other foreign materials from substrate immediately prior to applying each coat.
- G. Where paint application abuts other materials or other coating color, terminate coating with a clean sharp termination line without coating overlap.
- H. Where color changes occur between adjoining spaces, through framed openings that are of same color as adjoining surfaces, change color at outside stop corner nearest to face of closed door.
- I. Re-prepare and re-coat unsatisfactory finishes; refinish entire area to corners or other natural terminations.

### 3.5 CLEANING

- A. Clean excess coating materials, and coating materials deposited on surfaces not indicated to receive coatings, as construction activities of this section progress; do not allow to dry.

- B. Re-install hardware, electrical equipment plates, mechanical grilles and louvers, lighting fixture trim, and other items that have been removed to protect from contact with coatings.
- C. Reconnect equipment adjacent to surfaces indicated to receive coatings.
- D. Relocate to original position equipment and fixtures that have been moved to allow application of coatings.
- E. Remove protective materials.

3.6 PROTECTION AND REPAIR

- A. Protect completed coating applications from damage by subsequent construction activities.
- B. Repair to Architect's acceptance coatings damaged by subsequent construction activities. Where repairs cannot be made to Architect's acceptance, re-apply finish coating to nearest adjacent change of surface plane, in both horizontal and vertical directions.

END OF SECTION





SECTION 09 9300  
STAINING AND TRANSPARENT FINISHING

## PART 1 GENERAL

## 1.1 SECTION INCLUDES

- A. Interior and exterior stains and clear finishes, including surface preparation.

## 1.2 DEFINITIONS

- A. Stains are available in a wide range of opacities from transparent stain that allow all the grain and texture to show to solid colors which mastic all the grain but allow the texture to show. The following terms are used to describe the different opacities.
  - 1. Transparent.
  - 2. Semi Transparent.
  - 3. Semi Solid.
  - 4. Solid Color.
- B. Varnishes and clear coats are available in a wide range of sheens or glosses, as measured by a gloss meter from a 60 degree angle from vertical, as a percentage of the amount of light that is reflected. The following terms are used to describe the gloss of our products.
  - 1. Flat: 10 - 20 Percent.
  - 2. Satin / Low Lustre: 20 - 35 Percent.
  - 3. Semi Gloss: 35 - 70 Percent.
  - 4. Gloss: Over 70 Percent.

## 1.3 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Coordinate with Section 01 30 00 - Administrative Requirements.
- C. Product Data: Provide a complete list of all products to be used, with the following information for each:
  - 1. Manufacturer's name, product name and/or catalog number, and general product category.
  - 2. Cross-reference to specified paint system(s) that the product is to be used in; include description of each system.
- D. Samples: Submit three paper samples, 5 inches by 7 inches (127mm x 178mm) in size, illustrating selected colors for each color and system selected with specified coats cascaded.
- E. Manufacturer's Instructions: Indicate special surface preparation procedures.
- F. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

## 1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten (10) years experience.
- B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five (5) years demonstrated experience in installing

products of the same type and scope as specified.

- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
  - 1. Finish areas designated by Architect.
  - 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
  - 3. 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.
- C. Disposal:
  - 1. Never pour leftover coating down any sink or drain. Use up material on the job or seal can and store safely for future use.
  - 2. Do not incinerate closed containers.
  - 3. For specific disposal or recycle guidelines, contact the local waste management agency or district. Recycle whenever possible.

#### 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.

#### 1.7 WARRANTY

- A. At project closeout, provide to the Owner or owner's representative an executed copy of the Manufacturer's standard form outlining the terms and conditions of and any exclusions to their Limited Warranty against Manufacturing Defect.

#### 1.8 EXTRA MATERIALS

- A. At project closeout, supply the Owner or owner's representative one gallon of each product for touch-up purposes.
- B. At project closeout, provide the color mixture name and code to the Owner or owner's representative for accurate future color matching.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: As listed below.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

#### 2.2 MATERIALS - GENERAL

- A. Volatile Organic Compound (VOC) Content:
  - 1. Provide coatings that comply with the most stringent requirements specified in the following:
    - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission

Standards for Architectural Coatings.

- b. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.
- B. Compatibility: Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

## 2.3 MIXING AND TINTING

- A. Except where specifically noted in this section, all paint shall be ready-mixed and pre-tinted. Agitate all paint prior to and during application to ensure uniform color, gloss, and consistency.
- B. Thinner addition shall not exceed manufacturer's printed recommendations. Do not use kerosene or other organic solvents to thin water-based paints.
- C. Where paint is to be sprayed, thin according to manufacturer's current guidelines.

## 2.4 EXTERIOR WOOD

- A. Wood siding, timber beams/posts, porch ceiling boards, and exterior trim including window and door casing, rakes, fascia and soffits:
  - 1. Primer Material: Benjamin Moore Arborcoat Semi-Transparent Classic Oil Finish 328.
  - 2. Finish Material: Benjamin Moore Arborcoat Semi-Transparent Classic Oil Finish 328.
  - 3. Finish Coats: Two (2) coats.

## 2.5 INTERIOR WOOD

- A. Wood Clear Finish - Interior running trim, wood doors, wood window jambs/stools/aprons/casings, and other unspecified interior wood products.
  - 1. Finish Material: Zar Ultra Interior Oil-Based Fast Drying Polyurethane.
  - 2. Finish Coats: Three (3) coats.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Ensure that surfaces to receive paint are dry immediately prior to application.
- C. Ensure that moisture-retaining substrates to receive finishes have moisture content within tolerances allowed by coating manufacturer. Where exceeding the following values, promptly notify Architect and obtain direction before beginning work.
  - 1. Exterior Wood: 17 percent.
  - 2. Interior Wood: 15 percent.
  - 3. Interior Finish Detail Woodwork, Including Trim, and Casework: 10 percent.
- D. Examine surfaces to receive coatings for surface imperfections and contaminants that could impair performance or appearance of coatings, including but not limited to, loose primer, oil, grease, mildew, algae, or fungus, stains or marks, cracks, indentations, or abrasions.

- E. Correct conditions that could impair performance or appearance of coatings in accordance with specified surface preparation procedures before proceeding with coating application.

### 3.2 PREPARATION - GENERAL

- A. Clean surfaces thoroughly prior to coating application.
- B. Do not start work until surfaces to be finished are in proper condition to produce finished surfaces of uniform, satisfactory appearance.
- C. Stains and Marks: Remove completely, if possible, using materials and methods recommended by coating manufacturer; cover stains and marks which cannot be completely removed with isolating primer or sealer recommended by coating manufacturer to prevent bleed-through.
- D. Remove Mildew, Algae, and Fungus using materials and methods recommended by coating manufacturer.
- E. Remove dust and loose particulate matter from surfaces to receive coatings immediately prior to coating application.
- F. Remove or protect adjacent hardware, electrical equipment plates, mechanical grilles and louvers, lighting fixture trim, and other items not indicated to receive coatings.
- G. Move or protect equipment and fixtures adjacent to surfaces indicated to receive coatings to allow application of coatings.
- H. Protect adjacent surfaces not indicated to receive coatings.
- I. Prepare surfaces in accordance with manufacturer's instructions for specified coatings and indicated materials, using only methods and materials recommended by coating manufacturer.

### 3.3 SURFACE PREPARATION

- A. Seal knots, pitch streaks, and sap areas with sealer recommended by coating manufacturer; fill nail recesses and cracks with filler recommended by coating manufacturer; sand surfaces smooth.

### 3.4 APPLICATION - GENERAL

- A. Apply each coat to uniform coating thickness in accordance with manufacturer's instructions, not exceeding manufacturer's specified maximum spread rate for indicated surface; thins, brush marks, roller marks, orange-peel, or other application imperfections are not permitted.
- B. For exterior wood products, prime all six sides prior to installation.
- C. Allow manufacturer's specified drying time, and ensure correct coating adhesion, for each coat before applying next coat.
- D. Inspect each coat before applying next coat; touch-up surface imperfections with coating material, feathering, and sanding if required; touch-up areas to achieve flat, uniform surface without surface defects visible from 5 feet (1.5 m).
- E. Remove dust and other foreign materials from substrate immediately prior to applying each coat.

- F. Where application abuts other materials or other coating color, terminate coating with a clean sharp termination line without coating overlap.
- G. Where color changes occur between adjoining spaces, through framed openings that are of same color as adjoining surfaces, change color at outside stop corner nearest to face of closed door.
- H. Re-prepare and re-coat unsatisfactory finishes; refinish entire area to corners or other natural terminations.

### 3.5 CLEANING

- A. Clean excess coating materials, and coating materials deposited on surfaces not indicated to receive coatings, as construction activities of this section progress; do not allow to dry.
- B. Re-install hardware, electrical equipment plates, mechanical grilles and louvers, lighting fixture trim, and other items that have been removed to protect from contact with coatings.
- C. Reconnect equipment adjacent to surfaces indicated to receive coatings.
- D. Relocate to original position equipment and fixtures that have been moved to allow application of coatings.
- E. Remove protective materials.

### 3.6 PROTECTION

- A. Protect completed coating applications from damage by subsequent construction activities.
- B. Repair to Architect's acceptance coatings damaged by subsequent construction activities. Where repairs cannot be made to Architect's acceptance, re-apply finish coating to nearest adjacent change of surface plane, in both horizontal and vertical directions.

END OF SECTION



SECTION 10 1423  
PANEL SIGNAGE

## PART 1 GENERAL

## 1.1 SECTION INCLUDES

- A. Plastic interior panel signs:
  - 1. Stair.
  - 2. Restroom.
  - 3. Elevator.
  - 4. Exit.
  - 5. Emergency exit only.
  - 6. Authorized personnel only

## 1.2 PERFORMANCE REQUIREMENTS

- A. Provide photopolymer signage that conforms to the requirements of all regulatory agencies holding jurisdiction.
- B. Requirements:
  - 1. Comply with all applicable provisions of the 2010 ADA Standard for Accessible Design.
  - 2. Character Proportion: Letters and numbers on signs must have a width-to-height ratio between 3:5 and 1:1 and a stroke width-to-height ratio between 1:5 and 1:10.
  - 3. Color Contrast: Characters and symbols must contrast with their background - either light characters on a dark background or dark characters on a light background.
  - 4. Raised Characters or Symbols: Letters and numbers on signs must be raised 1/32 in (0.8 mm) minimum and be sans serif characters. Raised characters or symbols must be at least 5/8 in (16 mm) high but no higher than 2 in (50 mm). Symbols or pictograms on signs must be raised 1/32 in (0.8 mm) minimum.
  - 5. Symbols of Accessibility: Accessible facilities required to be identified must use the international symbol of accessibility.
  - 6. Braille: Grade II with accompanying text.

## 1.3 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: 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.
- C. Shop Drawings: Detail drawings showing sizes, lettering and graphics, construction details of each type of sign and mounting details with appropriate fasteners for specific project substrates.
- D. Manufacturer's Installation Instructions: Printed installation instructions for each signage system.
- E. Message List: Signage report indicating signage location, text and sign type.
- F. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and available pictograms, characters, and Braille indications.

- G. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and typical pictograms, characters, and Braille indications.

#### 1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum two years documented experience in work of this Section.
- B. Installer Qualifications: Minimum two years documented experience in work of this Section.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
  1. Furnish signs designated by Architect.
  2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
  3. Refinish mock-up area as required to produce acceptable work.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in unopened factory packaging.
- B. Inspect materials at delivery to verify there are no defects or damage.
- C. Store products in manufacturer's original packaging until ready for installation in climate controlled location away from direct sunlight.
- D. 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. Install products in an interior climate controlled environment.
- 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.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Nova Polymers, Inc., which is located at: 8 Evans St. Suite 201; Fairfield, NJ 07004; Toll Free Tel: 888-484-NOVA (6682); Email:[request info \(info@novapolymers.com\)](mailto:requestinfo@novapolymers.com); Web:[www.novapolymers.com](http://www.novapolymers.com)
  1. Acceptable Fabricator: AGS, 302 Commerce Drive, Exton, PA 19341. Phone: (610) 363-8150. Email:[info@agsinfo.com](mailto:info@agsinfo.com). Web:[www.agsinfo.com](http://www.agsinfo.com).
  2. Acceptable Fabricator: Advanced Signing LLC, 4 Industrial Park Road, Medway, MA 02053. Phone: (508) 533-9000 ext. 3026. Email:[gpiper@advancedsigning.com](mailto:gpiper@advancedsigning.com). Web:[www.advancedsigning.com](http://www.advancedsigning.com).
  3. Acceptable Fabricator: ASI CT - East Berlin, CT, 100 Clark Dr., East Berlin, CT. Phone: (860) 828-3331. Web:[asisignage.com/ASIHartford/tabid/211/Default.aspx](http://asisignage.com/ASIHartford/tabid/211/Default.aspx).
  4. Acceptable Fabricator: Welch Signs, 7 Lincoln Ave., Scarborough, ME 04074. Phone: (800) 635-3506. Web:[www.welchusa.com](http://www.welchusa.com).
  5. Acceptable Fabricator: WSI Sign System Ltd. & KING Architectural Products, 31 Simpson Road, Bolton - Ontario L7E 2R6. Phone: (905) 857-2804. Web:[www.king-ap.com](http://www.king-ap.com).



- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

## 2.2 SIGNAGE - GENERAL

- A. It is the intent of these specifications to establish a sign standard for the Owner including but not limited to, stair, exit and toilet room identification, and all code compliant Braille signage.
- B. Comply with all applicable provisions of the 2010 ADA Standard for Accessible Design codes that apply to the State and Local jurisdiction of the project.
- C. If required text and graphics are not indicated in specification or on drawings, obtain Owner's instructions as to text and graphics prior to preparation of shop drawings.
- D. Braille:
  - 1. Grade 2 Braille.
- E. Design:
  - 1. Text/Graphics Placement: Centered.
  - 2. Font: Arial.

## 2.3 INTERIOR SIGNAGE

- A. Panel Material: Novacryl PT Series Photopolymer
  - 1. Composition: 0.032 inch (0.8 mm) thick moisture resistant, non-glare interior nylon photopolymer on ultraviolet resistant clear PETG sign base, single piece construction. Laminated photopolymers, added-on characters, and engraved characters are not acceptable.
  - 2. Sustainable Certification: Minimum 40 percent pre-consumer recycled content.
  - 3. Base thickness: 0.080 inch (2.0 mm) Non-glare PETG.
  - 4. Type and Color: To be selected from manufacturer's full color range by Architect.
  - 5. Size: 3 inches tall x 9 inches wide.
  - 6. Surface burning characteristics: Flame spread/smoke developed rating less than 75/120, tested to ASTM E 84 and UL 723.
  - 7. Rate of burning: Tested to ASTM D 635 at nominal 0.060 inch (1.5 mm) thickness with resulting Classification CC1.
  - 8. Vertical burning: Tested to UL 94, classified as 94V-2 in thickness of 0.118 inch (3.0 mm) or greater and 94HB in thicknesses less than 0.118 inch (3.0 mm).
  - 9. Self-ignition temperature: 800 degrees F (427 degrees C), tested to ASTM D 1929.

## 2.4 ACCESSORIES

- A. Tape: Double sided, waterproof, pressure sensitive.

## 2.5 FABRICATION

- A. Fabricate panel material in accordance with manufacturer's instructions and approved shop drawings.
- B. Fabricate signs by photo polymer process using film negatives to produce characters and graphics in contrasting color, raised. Refer to Signage Schedule.
- C. Characters:
  - 1. Height: Refer to Signage Schedule.
  - 2. Style: Refer to Signage Schedule.
  - 3. Width to height ratio: Refer to Signage Schedule.
  - 4. Stroke width to height ratio: Refer to Signage Schedule.

- D. Pictograms: Refer to Signage Schedule.
- E. Provide Braille Grade indications for each character.

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. Install in accordance with manufacturer's instructions.

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

SECTION 10 2113  
TOILET COMPARTMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Floor-mounted overhead-braced solid plastic toilet compartments.
- B. Solid plastic urinal screens.
- C. Solid plastic privacy screens.
- D. Solid plastic entry partitions.

1.2 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: 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.
- C. Shop Drawings: Provide layout drawings and installation details with location and type of hardware required.
- D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: For each finish product specified, two samples representing actual product, color, and patterns.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A company regularly engaged in manufacture of products specified in this section, and whose products have been in satisfactory use under similar service conditions for not less than 5 years.
- B. Installer Qualifications: A company regularly engaged in installation of products specified in this Section, with a minimum of 5 years experience.
- C. Performance Requirements:
  - 1. Fire Resistance: Partition materials shall comply with the following requirements, when tested in accordance with the ASTM E 84: Standard Test Method for Surface Burning Characteristics of Building Materials:
    - a. Class B flame spread/smoke developed rating, tested to ASTM E84..
  - 2. Material Fire Ratings:
    - a. National Fire Protection Association (NFPA) 286: Pass.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.

1.5 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.

## 1.6 WARRANTY

- A. Manufacturer guarantees its plastic against breakage, corrosion, and delamination under normal conditions for 25 years from the date of receipt by the customer. If materials are found to be defective during that period for reasons listed above, the materials will be replaced free of charge. (Labor not included in warranty.)

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Scranton Products, which is located at: 801 E. Corey St.; Scranton, PA 18507; Toll Free Tel: 800-445-5148; Fax: 800-551-6993; Email:[request info \(info@scrantonproducts.com\)](mailto:request_info@scrantonproducts.com); Web:[www.scrantonproducts.com](http://www.scrantonproducts.com)
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

### 2.2 SOLID PLASTIC TOILET COMPARTMENTS AND SCREENS

- A. Doors and Panels: High density polyethylene (HDPE), fabricated from SEQ CHAPTER 1 extruded polymer resins, forming single thickness panel.
  1. Waterproof and nonabsorbent, with self-lubricating surface, resistant to marks by pens, pencils, markers, and other writing instruments.
  2. Thickness: 1 inch (25 mm).
  3. Edges: Rounded to 1/4 inch (6 mm) radius.
  4. Recycled content: Minimum 25 percent.
  5. Color: To be selected from manufacturer's full range.
- B. Doors and Dividing Panels:
  1. High Privacy:
    - a. Height: 62 inches (1575 mm) high and mounted at 8 to 14 inches (203 to 356 mm) above the finished floor.
    - b. Doors: 60 degree angle on two opposite edges for enhanced privacy.
    - c. Dividing Panels: Two modular pieces, both slotted on one edge to accept wall bracket.
- C. Metal Posts: 82.75 inches (2102 mm) high, heavy duty extruded aluminum, clear anodized finish, fastened to foot with stainless steel tamper resistant screw.
- D. Hidden Shoe (Foot): One-piece molded polyethylene invisible shoe inserted into metal post and secured to metal post with stainless steel tamper resistant screw.
- E. Headrail Cap and Corner Cap: One-piece molded polyethylene secured to metal post with stainless steel tamper resistant screw; adjustable to level headrail to finished floor.
- F. Hidden Wall Brackets: Heavy duty extruded aluminum, clear anodized finish, inserted into slotted panel and fastened to panels with stainless steel tamper resistant screws.
  1. Length: 61 inches.
- G. Headrail: Heavy duty extruded aluminum, designer anti-grip design, clear anodized finish, fastened to headrail bracket with stainless steel tamper resistant screw and to headrail cap or corner cap with stainless steel tamper resistant screw.
  1. Headrail Brackets: Heavy duty extruded aluminum, clear anodized finish, secured to wall with stainless steel tamper screws.

- H. Door Hardware:
1. Inswing hinges:
    - a. Hidden pivot type fabricated from heavy-duty cast aluminum.
    - b. Auto-close feature, adjustable to 15 degree open position.
    - c. Mounted to doors with stainless steel Torx head screws and through bolted to metal post with tamper proof Torx head sex bolts.
    - d. Hinge pivot point: 6 to 8 inches from edge of door; maintain sufficient clearance to water closet.
    - e. Provide for field adjustment of plus or minus 0.125 inch (3 mm) laterally and plus or minus 0.125 inch (3 mm) vertically.
  2. Outswing hinges:
    - a. Fabricated from extruded aluminum.
    - b. Auto-close feature, adjustable to 15 degree open position.
    - c. Surface mounted to doors with stainless steel Torx head screws and fastened to metal posts with countersunk tamper proof screws.
    - d. Provide for field adjustment of plus or minus 0.125 inch (3 mm) laterally and plus or minus 0.125 inch (3 mm) vertically.
  3. Door Keeper:
    - a. Fabricated from heavy duty extruded aluminum, clear anodized finish.
    - b. Length: 3-1/2 inches (89 mm).
    - c. Mount in gap between dividing panel and door.
  4. Latch and Housing:
    - a. Fabricated from heavy duty extruded aluminum.
    - b. Latch housing: Clear anodized finish.
    - c. Slide bolt and button: Black anodized finish.
  5. Door Pulls:
    - a. Fabricated from heavy duty extruded aluminum, clear anodized finish.
    - b. Single component providing door pull capability on outswing doors.
  6. Push Plates: Fabricated from heavy duty extruded aluminum, clear anodized finish.

### 2.3 MATERIALS

- A. Aluminum Extrusions: ASTM B221, 6463-T5 alloy and temper.
- B. Aluminum Die Castings: ASTM B85, A380 alloy.
- C. Injection Molded Plastic: High density polyethylene.
- D. Rubber: Abrasion resistant Styrene Butadiene Rubber, 65 to 80 Shore A durometer, black.

## 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.
- C. Examine areas to receive toilet partitions, screens, and shower compartments for correct height and spacing of anchorage/blocking and plumbing fixtures that affect installation of

partitions. Report discrepancies to the architect.

### 3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions and approved Shop Drawings.
- B. Install partitions rigid, straight, plumb, and level.
- C. Locate bottom edge of doors and panels 12 inches above finished floor.
- D. Clearance at vertical edges of doors shall be uniform top to bottom and shall not exceed 3/8 inch (9.5 mm).
- E. No evidence of cutting, drilling, and/or patching shall be visible on the finished work.
- F. Finished surfaces shall be cleaned after installation and be left free of imperfections.

### 3.4 ADJUSTING

- A. Adjust doors and latches to operate correctly.

### 3.5 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 10 2813  
TOILET ROOM ACCESSORIES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Tissue dispensers.
- B. Soap dispensers.
- C. Hand Dryers.
- D. Mirrors.
- E. Grab bars.
- F. Towel bars.
- G. Hooks.
- H. Toilet Room Accessory Schedule.

1.2 SUBMITTALS

- A. Product Data:
  - 1. Provide Manufacturer's product data sheets for products specified, indicating size, and finish selection.
  - 2. Schedule: Schedule accessories by room; identify room name/number, type and quantity of accessories to be installed, and mounting heights.
- B. Samples: One of each accessory, as requested.
- C. Quality Assurance Submittals:
  - 1. Manufacturer's installation instructions for each specified product.
  - 2. Documentation of Manufacturer's Qualifications.
- D. Closeout Submittals:
  - 1. Maintenance Data: Warranty per manufacturer, cleaning and maintenance instructions, and replacement parts.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum 5 year experience manufacturing similar products.
- B. Installer Qualifications: Minimum 2 year experience installing similar products.
- C. Obtain products from single manufacturer when possible.
- D. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
  - 1. Finish areas designated by Architect.
  - 2. Do not proceed with remaining work until workmanship is approved by Architect.
  - 3. Refinish mock-up area as required to produce acceptable work.

1.4 PRE-INSTALLATION MEETINGS

- A. Convene minimum two weeks prior to starting work of this section.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.
- B. Handling: Handle materials to avoid damage.

## 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 recommended limits.

## 1.7 SEQUENCING

- A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

## 1.8 WARRANTY

- A. Provide manufacture's warranties:
  1. 1 year warranty: Standard for all models unless noted otherwise.
  2. 10 year warranty:
    - a. Compact® Stainless Steel Side-By-Side Double Roll Bathroom Tissue.

## PART 2 PRODUCTS

## 2.1 MANUFACTURERS

- A. Acceptable Manufacturers:
  1. Georgia-Pacific Consumer Products LP, which is located at: 133 Peachtree St. N.E.; Atlanta, GA 30303; Toll Free Tel: 866-HELLOGP (435-5647); Email:[request info \(gordie.graham@gapac.com\)](mailto:request_info@gordie.graham@gapac.com); Web:[www.gppro.com](http://www.gppro.com)
  2. American Dryer, Inc.; 33067 Industrial Road; Livonia, MI 48150, USA; Phone 734.421.2400, fax 734.421.5580; Toll free 800.485.7003; website [www.americandryer.com](http://www.americandryer.com). Email: [sales@americandryer.com](mailto:sales@americandryer.com).
  3. Bobrick Washroom Equipment, Inc., which is located at: 6901 Tujunga Ave.; North Hollywood, CA 91605-6213; Tel: 818-764-1000; Fax: 818-765-2700; Email:[info@bobrick.com](mailto:info@bobrick.com); Web:[www.bobrick.com](http://www.bobrick.com)
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

## 2.2 TISSUE DISPENSERS

- A. Side-By-Side Double Roll Bathroom Tissue Dispenser:
  1. Product: Model 56796 – Brushed Stainless Steel GP Compact® SS.
  2. Overall Dimensions: 10.12 inches W x 6.75 inches H x 7.12 inches D (257 mm x 171 mm x 181 mm).
  3. Capacity: 2 rolls of Compact 2-ply coreless bath tissue.
  4. Cover and Housing: Formed stainless steel. Interior walls constructed of ABS plastic.
  5. Operation: Double roll, side-by-side coreless bathroom tissue dispensing system. A transfer paddle prevents access to a new roll before the current roll is completely used up.

## 2.3 SOAP DISPENSERS

- A. Automated Touchless Soap Dispenser:



1. Product: GP enMotion® Automated Touchless Dispenser.
2. Overall Dimensions: 6.700 inches W x 3.900 inches D x 11.000 inches H (170 mm x 99 mm x 279 mm).
3. Construction: Closed hygienic system that houses pump, bag and nozzle. The dispenser is constructed of high strength, low maintenance polymer materials.
4. Adjustable Portion Control: Two adjustable portion control settings that dispense approximately 0.4 mL and 0.7 mL (.014 to .024 oz) of foam or 0.7 mL and 1.2 mL (.024 to .040 oz) of non-foam products per activation.
5. Operation: Automated touchless dispenser operates on four D size alkaline batteries and dispenses enMotion 1000 mL or 1200 mL (34 oz or 41 oz) soap bag refills. The dispenser has two LEDs to indicate dispenser actuation and low battery power. The dispenser allows the use of either a push button or key lock and features a maintenance mode which temporarily disables the dispenser for easy cleaning.
6. Model 52054 - Brushed Stainless Steel Soap Dispenser.
7. Model 52055 - Translucent White Soap Dispenser.

## 2.4 HAND DRYERS

### A. Automatic, High Speed, Warm-Air Dryer:

1. Basis-of-Design Product: American Dryer's EXTREMEAIR GXT SERIES.
2. Adjustable Speed: 10 + seconds
3. Adjustable Sound Level: 83 - 69 dB
4. Universal Voltage 110-120/208/220-240 Volts, 50/60 Hz, 1500 W Max.
5. Motor: 5/8 HP, 24,000 – 14,000 RPM adjustable, commutated through-flow discharge vacuum motor/blower with automatic resetting thermal protector.
6. Adjustable Air Velocity: 19,000 – 10,000 LFM
7. Air Temperature: 135°F at 72°F ambient temperature
8. Heating Element: NiChrome resistance wire
9. Energy Usage: 51 KJ
10. Mounting: Surface mounted
11. Operation: Automatic, microprocessor-controlled infrared-sensor activated with timed power cut-off switch. Maximum Operation Time: 35 seconds.
12. Cover Material and Finish: Steel, with satin chrome finish.
13. Electrical Requirements: Universal Voltage automatically configures the dryer to operate on 110-120/208/220-240V, 50/60Hz, 1500 W Max. (Adjustable 1500 W to 800 W)

## 2.5 MIRRORS

### A. Stainless Steel Channel Frame Mirrors:

1. Overall Size: 24 inches (610mm) W x 36 inches (914mm) H.
  - a. Basis of Design: Bobrick Model B-165 2448.

## 2.6 GRAB BARS

### A. Stainless Steel Grab Bars: With snap flange covers.

1. Satin Finish with Peened Grip:
  - a. Basis of Design: Bobrick Model B-6806.99 x 36.
    - 1) Length: 36 inches (914mm).
  - b. Basis of Design: Bobrick Model B-6806.99 x 42.
    - 1) Length: 42 inches (1067mm).

## 2.7 TOWEL BARS

### A. Towel Bars:

1. Basis of Design: Bobrick Model B-6737 x 24.
  - a. Finish: Satin.

- b. Length: 24 inches (610mm).

## 2.8 HOOKS

- A. Door-Mounted Hooks:
  - 1. Basis of Design: Bobrick Model B-76727.
    - a. Finish: Satin.
    - b. Configuration: Double hook.

## 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. Install in accordance with manufacturer's instructions.

### 3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

### 3.5 TOILET ROOM ACCESSORY SCHEDULE

- A. Toilet Rooms #124, #127 and #213.
  - 1. One tissue dispenser.
  - 2. One soap dispenser.
  - 3. One hand dryer.
  - 4. One mirror.
  - 5. One 36" Grab bar.
  - 6. One 42" Grab bar.
  - 7. One hook.
- B. Pilot Toilet Room/Shower #207.
  - 1. One tissue dispenser.
  - 2. One soap dispenser.
  - 3. One hand dryer.
  - 4. One mirror.
  - 5. One 36" Grab bar.
  - 6. One 42" Grab bar.
  - 7. One towel bar.
  - 8. One hook.
- C. Men's Toilet Room #115 and Women's Toilet Room #117.
  - 1. One tissue dispenser per toilet compartment.

2. One soap dispenser.
3. One hand dryer.
4. One mirror per sink.
5. One 36" Grab bar.
6. One 42" Grab bar.
7. One hook per toilet compartment.
8. Toilet compartments and privacy screens per drawings and Section 10 2113.

END OF SECTION



SECTION 10 4413  
FIRE EXTINGUISHERS AND CABINETS

## PART 1 - GENERAL

## 1.1 SUMMARY

- A. Section Includes:
  - 1. Portable fire extinguishers.
  - 2. Wall brackets.

## 1.2 SUBMITTALS

- A. Submittals for Review:
  - 1. Product Data: Include data on extinguishers and brackets, operational features, materials, finishes, and anchorage.
- B. Closeout Submittals:
  - 1. Maintenance Data: Include test, refill, or recharge schedules and re-certification requirements.

## 1.3 QUALITY ASSURANCE

- A. Provide fire extinguishers complying with UL 711 and applicable code.NFPA 10.
- B. Cabinets in Fire Rated Partitions: Tested in accordance with ASTM E814 with fire resistance rating equivalent to adjacent construction.
- C. Conform to applicable accessibility code for locating extinguishers.

## 1.4 PROJECT CONDITIONS

- A. Do not install extinguishers when ambient temperature may cause freezing of extinguisher ingredients.

## PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

- A. Acceptable Manufacturers:
  - 1. Ansul Incorporated. ([www.ansul.com](http://www.ansul.com))
  - 2. JL Industries. ([www.jlindustries.com](http://www.jlindustries.com))
  - 3. Larsen's Mfg. Co. ([www.larsensmfg.com](http://www.larsensmfg.com))
  - 4. Potter Roemer. ([www.potterroemer.com](http://www.potterroemer.com))
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

## 2.2 COMPONENTS

- A. Extinguisher Types:
  - 1. Multi-purpose dry chemical type ABC, 10 pound nominal capacity.
  - 2. Multi-purpose dry chemical type BC, 10 pound nominal capacity.
  - 3. Wet chemical type K, 2.5 gallon nominal capacity.

- B. Fire Extinguisher Cabinets:
  - 1. Door and Trim Construction: Cold rolled steel with powder-coat finish. Flush cabinet doors attached by a continuous hinge and equipped with zinc-plated handle and roller catch.
  - 2. Style and Depth: Trimless, Recessed.
  - 3. Fire-Rated as necessary.
  - 4. Door Glazing: Clear Acrylic.
- C. Brackets: Formed galvanized steel, sized to accommodate extinguisher.

### 2.3 ACCESSORIES

- A. Mounting Hardware: Type best suited to application.

### 2.4 FINISHES

- A. Extinguishers: Baked enamel, red color.
- B. Cabinets: Powder-coat finish, white color.
- C. Brackets: Baked enamel, color to be selected from manufacturer's full color range.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install brackets in accordance with manufacturer's instructions.
- B. Set plumb, level, and rigid.
- C. Place an extinguisher on each bracket.

END OF SECTION

SECTION 12 3661  
SOLID SURFACE COUNTERTOPS

## Part 1 – General

## 1.0 Related Documents

- A. Drawings and general provisions of the contract, including general and supplementary conditions and Division 1 Specification Sections, apply to this section.

## 1.1 Summary

- A. Section includes quartz surfacing (engineered stone) for:
1. Countertops, including back and side splash.
  2. Vanity Tops, including back and side splash.

## 1.2 Submittals

## A. Product Data

1. Quartz Surfacing; Submit manufacturer's product data.
2. Quartz Surfacing; Submit manufacturer's care and maintenance instructions.

## B. Drawings

1. Field verified dimensions of application areas.
2. Locations and dimensions of all cutouts.
3. Locations of required support and seams.
4. Notation specified edge profiles.
5. Additional installation details and methods.

## C. Samples

1. Submit two sets of manufacturer's color samples for color selection.
2. Submit two (4"x4") of each color and/or finish selected for color/finish approval.
3. Adhesive: Submit two samples of an adhesive joint for each color of quartz surfacing selected. Show color match of adhesive.

## D. Fabricator Qualifications

1. Work of this section shall be performed by a fabricator and/or installer approved by the manufacturer.

## 1.3 Quality Assurance

## A. Delivery, Storage, and Handling

1. Observe manufacturer's recommendations and handle accordingly in order to prevent damage or breakage.
2. Brace parts as necessary.
3. Transport in a near vertical position with finished face positioned towards finished face.
4. Do not allow finished faces to rub during transportation or handling.

## B. Storage and Protection

1. Store in racks in near vertical position.
2. Prevent warping and breakage.
3. Store indoors and away from direct sun exposure.
4. Store between 25<sup>o</sup>F and 130<sup>o</sup>F.
5. Store with finished face towards finished face.

#### 1.4 Warranty

A. Commercial: Provide manufacturer's Commercial 10 year Limited Warranty. Warranty against manufacturer defects when fabricated and installed by a manufacturer certified fabricator/installer.

#### Part 2 –Products

##### 2.1 Manufacturer

A. Acceptable Manufacturer: Vicostone distributed by Pental Granite and Marble Inc. (PentalQuartz). [www.pentalquartz.com](http://www.pentalquartz.com)

B. Qualifications: Manufacturer shall be ISO 9001:2008 and ISO 14001 certified.

C. Substitutions: Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

1. Silestone: T.B.D.
2. LG: Hausys, Viatera.

##### 2.2 Materials

###### A. Quartz Surfacing

1. Material must be homogenous in nature containing approx. 93% crushed quartz combined with high quality polymer resin and pigments to form slabs using Bretonstone® technology.

B. Thickness: 2.2 cm

###### C. Material Identification

1. All slabs shall be identifiable by manufacturer's markings on the back side of the slab including slab item number, material finish, production batch, and serial numbers.

###### D. Color and Finish

1. Color: PentalQuartz, Uliano – BQ8806P
2. Finish: Polished

##### 2.3 Accessories

###### A. Mounting Adhesives

1. Provide structural grade silicone or epoxy adhesive.
2. Acceptable silicone manufacturers.
3. Acceptable Epoxy manufacturers.
  - a. Tenax U.S.A
  - b. Akemi North America
  - c. Bonstone Material Corp.

###### B. Quartz Surface Adhesive

1. Provide epoxy or polyester adhesive as recommended by manufacturer for application and conditions of use.
2. Acceptable manufacturers
  - a. Tenax U.S.A.
  - b. Akemi North America
  - c. Bonstone Materials Corp.
3. Color: Adhesives shall be tinted to match quartz surfacing for all visible finished work.

###### D. Joint Sealant:



1. Clear silicone sealant as recommended by manufacturer for application and for conditions of use.
2. Provide anti-bacterial type in Toilet Rooms, and Lounge.

E. Solvent: Product as recommended by adhesive manufacturer to clean surface of quartz surfacing to assure adhesion and not damage surface finish of quartz material.

F. Cleaning Agents: Non Abrasive, low pH cleanser or mild soap and water.

#### 2.4 Fabrication

A. Fabricator: Firm shall be certified by Pental Granite and Marble and have the ability to present written proof of such certification upon request.

B. Layout: Layout surfaces (as shown in drawings) to minimize joints and avoid L-shaped pieces of quartz surfacing.

C. Inspection of Material:

1. Inspect material for any defects prior to fabrication.
2. Visually inspect material to be used in adjacent pieces to ensure acceptable color match.
3. Material to be used in adjacent pieces shall be from the same batch and identified accordingly.

D. Tools: All cutting and polishing shall be done using water cooled power tools.

E. Cutouts:

1. Cutouts shall have a minimum 3/8 inch (10mm) inside radius.
2. All exposed edges of cutouts shall be polished to match surface finish or per drawings.

F. Laminations:

1. Laminate layers of quartz surfacing as required to create buildup of edges following procedures recommended by manufacturer.

#### Part 3 – Execution

##### 3.1 Acceptable Installer

A. Firm shall be certified by Pental Granite and Marble and have the ability to present written proof of such certification upon request.

##### 3.2 Examination

A. Site Verification

1. Verify dimensions by field measurements prior to fabrication and installation.
2. Verify that substrate(s) supporting quartz surfaces are plumb, level, and flat to within 1/16 inch in 10 feet, and that all necessary supports and blocking are in place and secure.
3. [Base Cabinets: Shall be securely fixed to all adjoining units and back wall].

B. Material Inspection Review

1. Verify all materials are free of damage.
2. Do not install any damaged material until such pieces have been repaired or replaced.

##### 3.3 Preparation

A. General

1. Protect finished surfaces against scratches, dirt, and debris.

2. Apply masking where necessary.
3. Take necessary precautions to prevent other trades from contacting the finished surface.

### 3.4 Installation

#### A. General Information:

1. Install materials in accordance with manufacturer's recommendations.

#### B. Preliminary Installation:

1. Position materials to verify correct size and position.
2. Make any necessary size or finish adjustments using methods recommended by manufacturer using water cooled power tools.
3. Perform work away from installation area if possible to protect the jobsite and surface area from dust and water.
4. Allow gaps for expansion of not less than 1/8 inch for 10 feet when installing between walls or other fixed structures.

#### C. Permanent Installation:

1. After verification of fit and finish:
  - a. Remove material from preliminary positions.
  - b. Clean substrates of any dust or debris.
  - c. Clean the back side of all quartz surfaces and joint surfaces with denatured alcohol.
2. Apply sufficient amount of mounting adhesive in accordance with manufacturer's recommendations to provide a permanent and secure installation.
3. Verify installation of quartz surface is plumb, level, square and flat within 1/16 inch in feet.

#### D. Joints

1. Joints between adjacent pieces of quartz surfacing
  - a. Joints shall be flush, tight fitting, level, and neat.
  - b. Securely join pieces with manufacturer's recommended stone adhesive.
  - c. Fill joints level to quartz surfacing.
  - d. Clamp or brace quartz surfacing pieces in position until adhesive sets.
2. Joints between quartz surfacing and [backsplash] [wall] [tub] [shower] [other]
  - a. Seal joint with silicone sealant as recommended by manufacturer.

### 3.5 Repair

- A. Repair or replace damaged material in a satisfactory manner.

### 3.6 Cleaning

- A. Remove masking, excess adhesive and/or sealant. Clean all exposed surfaces.

### 3.7 Protection

- A. Protect installed surfaces from damage by other trades.

END OF SECTION

SECTION 12 4813  
ENTRANCE FLOOR MATS

## PART 1 GENERAL

## 1.1 SECTION INCLUDES

- A. Dura-Tile II.
- B. Accessories.

## 1.2 DESIGN / PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements:
  - 1. Fire Performance characteristics: Provide rubber floor covering with the following fire performance characteristics as determined by testing products in accordance with ASTM method (and NFPA method) indicated below by a certified testing laboratory or another testing and inspecting agency acceptable to authorities having jurisdiction.
    - a. ASTM E 648 (NFPA 253), Critical Radiant Flux of Floor Covering Systems:
    - b. Class 1, Greater than 0.45 w/cm<sup>2</sup>
    - c. ASTM E 662 (NFPA 258), Specific Optical Density of Smoke Generated by Solid Materials: Passes, (< 450)

## 1.3 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: 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.
- C. Shop Drawings: Submit shop drawings showing layout, finish colors, patterns and textures.
- D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: For each finish product specified, two samples, minimum size 12 inches (300 mm) square, representing actual product, color, and patterns.
- F. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- G. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic cleaning and maintenance of all components.

## 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Installer experienced in performing work of this section who has specialized in installing work similar to that required for this project.
- B. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
  - 1. Finish areas designated by Architect.
  - 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
  - 3. Refinish mock-up area as required to produce acceptable work.

- C. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, Manufacturer's conditions, recommended adhesive depending on product, substrate type and type of installation, manufacturer's installation instructions and manufacturer's warranty requirements.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened undamaged packaging with labels intact until ready for installation.
- B. Store materials protected from exposure to harmful weather conditions and acclimated to site conditions at temperature and humidity conditions recommended by manufacturer.
- C. 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 SEQUENCING

- A. Install rubber floor tile after finishing operations, including painting and ceiling and other similar work, has been completed.

#### 1.7 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.

#### 1.8 WARRANTY

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Durable Corp., which is located at: 75 N. Pleasant St. P. O. Box 290; Norwalk, OH 44857-0290; Toll Free Tel: 866-399-5334 or 800-537-1603; Tel: 419-668-8138; Fax: 800-537-6287; Email: [request info \(sales@ durablecorp.com\)](mailto:request info (sales@ durablecorp.com)); Web: [www.durablecorp.com](http://www.durablecorp.com)
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

#### 2.2 ENTRANCE MATS

- A. Dura-Tile II:
  - 1. Rubberized fabric strips with chenille- like surface cut from recycled tires bonded to a non- flammable base.
  - 2. Thickness: 3/8 inch (9.52 mm) plus or minus 1/8 inch.
  - 3. Recycled Content: 95 percent.
  - 4. Color: To be selected from standard color line.
  - 5. Flammability: Meets or exceeds Federal flammability regulations CPSC-FF 1-70, 16 CFR, and ASTM D 2859.
  - 6. Delamination Test of Backing: Meets or exceeds ASTM D 3936.
  - 7. Size:
    - a. One Tile: 12 inches by 12 inches.
    - b. Roll: 12 inches by 25 inches.
    - c. Roll: 12 inches by up to 25 feet.
- B. Accessories:

1. Adhesive: Contact adhesive as recommended by the manufacturer for the exposure and substrate.

### PART 3 EXECUTION

#### 3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Substrate to be clean and free of paint, old adhesive, sealers, coatings, finishes, dirt, film-forming curing compounds and other substances that may affect the adhesion of the mat flooring.
- C. 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.
- C. Substrate: Prepare substrate to be free of paint, old adhesive, sealers, coatings, finishes, dirt, film-forming curing compounds, and all other substances which may affect the adhesion of floor covering to the substrate.
  1. Concrete Substrate: Reference Standard ASTM F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
    - a. Concrete Moisture Test: Per ASTM F 710 section 5, persons or testing agencies with experience in concrete moisture testing shall perform moisture tests on concrete regardless of its age or grade level or history of use, with a minimum of three tests for the first 1000 square feet and one additional test for each 1000 square feet or fraction thereof, per grade level. A diagram of the area showing the location and results of each test shall be dated and submitted to the Architect. If the test results exceed the floor covering manufacturer's limits, installing shall not commence until results conform to limits.
    - b. Concrete pH Test: Perform pH tests on concrete regardless of its age or grade level or history of use. Readings below 7.0 and above 10.0 can adversely affect resilient flooring or adhesives, or both. If the test results exceed the floor covering manufacturer's limits, installing shall not commence until results conform to limits.
  2. Refer to manufacturer's installation instructions for installations over existing ceramic tile, cementitious terrazzo and metal.
  3. Do not install over existing floor covering or over substrates not approved by manufacturer.

#### 3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.

#### 3.4 CLEANING

- A. Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose

#### 3.5 PROTECTION

- A. Protect installed product and finish surfaces from damage until completion of project.
- B. Keep foot traffic off new floor covering for first 48 hours.
- C. Keep furniture, fixtures and rolling traffic off for first 72 hours.
- D. No maintenance for first 72 hours.
- E. Repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 14 2423  
HYDRAULIC PASSENGER ELEVATORS

## PART 1 GENERAL

## 1.01 SUMMARY

- A. Section includes: Hydraulic passenger elevators as shown and specified. Elevator work includes:
1. Standard pre-engineered hydraulic passenger elevators.
  2. Elevator car enclosures, hoistway entrances and signal equipment.
  3. Jack(s).
  4. Operation and control systems.
  5. Accessibility provisions for physically disabled persons.
  6. Equipment, machines, controls, systems and devices as required for safely operating the specified elevators at their rated speed and capacity.
  7. Materials and accessories as required to complete the elevator installation.
- B. Related Sections:
1. Division 1 General Requirements: Meet or exceed all referenced sustainability requirements.
  2. Division 3 Concrete: Installing inserts, sleeves and anchors in concrete.
  3. Division 4 Masonry: Installing inserts, sleeves and anchors in masonry.
  4. Division 5 Metals:
    - a. Providing hoist beams, pit ladders, steel framing, auxiliary support steel and divider beams for supporting guide-rail brackets.
    - b. Providing steel angle sill supports and grouting hoistway entrance sills and frames.
  5. Division 9 Finishes: Providing elevator car finish flooring and field painting unfinished and shop primed ferrous materials.
  6. Division 22 Plumbing:
    - a. Sump pit and oil interceptor.
  7. Division 23: Heating, Ventilation and Air Conditioning
    - a. Heating and ventilating hoistways and machine rooms.
  8. Division 16 Sections:
    - a. Providing electrical service to elevators, including fused disconnect switches.
    - b. Emergency power supply, transfer switch and auxiliary contacts.
    - c. Heat and smoke sensing devices.
    - d. Convenience outlets and illumination in machine room, hoistway and pit.
- C. Work Not Included: General contractor shall provide the following in accordance with the requirements of the Model Building Code and ANSI A17.1 Code. For specific rules, refer to ANSI A17.1, Section 300 for hydraulic elevators. State or local requirements must be used if more stringent.
1. Elevator hoist beam to be provided at top of elevator shaft. Beam must be able to accommodate proper loads and clearances for elevator installation and operation.
  2. Supply in ample time for installation by other trades, inserts, anchors, bearing plates, brackets, supports and bracing including all setting templates and diagrams for placement.
  3. Hatch walls require a minimum two hours of fire rating. Hoistway should be clear and plumb with variations not to exceed 1/2" at any point.
  4. Elevator hoistways shall have barricades, as required.
  5. Install bevel guards at 75° on all recesses, projections or setbacks over 2" (4" for A17.1 2000 areas) except for loading or unloading.
  6. Provide rail bracket supports at pit, each floor and roof. For guide rail bracket supports, provide divider beams between hoistway at each floor and roof.
  7. Pit floor shall be level and free of debris. Reinforce dry pit to sustain normal vertical

- forces from rails and buffers.
8. Where pit access is by means of the lowest hoistway entrance, a vertical ladder of non-combustible material extending 42" minimum, (48" minimum for A17.1-2000 areas) shall be provided at the same height, above sill of access door or handgrips.
  9. Machine room to be enclosed and protected.
  10. Machine Room temperature must be maintained between 55° and 90° F.
  11. If machine room is remote from the elevator hoistway, clear access must be available above the ceiling or metal/concrete raceways in floor for oil line and wiring duct from machine room.
  12. Access to the machinery space and machine room must be in accordance with the governing authority or code.
  13. Provide an 8" x 16" cutout through machine room wall, for oil line and wiring duct, coordinated with elevator contractor at the building site.
  14. All wire and conduit should run remote from either the hoistways or the machine room.
  15. When heat, smoke or combustion sensing devices are required, connect to elevator machine room terminals. Contacts on the sensors should be sided for 120 volt D.C.
  16. Install and furnish finished flooring in elevator cab.
  17. Finished floors and entrance walls are not to be constructed until after sills and door frames are in place. Consult elevator contractor for rough opening size. The general contractor shall supply the drywall framing so that the wall fire resistance rating is maintained, when drywall construction is used.
  18. Where sheet rock or drywall construction is used for front walls, it shall be of sufficient strength to maintain the doors in true lateral alignment. Drywall contractor to coordinate with elevator contractor.
  19. Before erection of rough walls and doors; erect hoistway sills, headers, and frames. After rough walls are finished; erect fascias and toe guards. Set sill level and slightly above finished floor at landings.
  20. To maintain legal fire rating (masonry construction), door frames are to be anchored to walls and properly grouted in place.
  21. The elevator wall shall interface with the hoistway entrance assembly and be in strict compliance with the elevator contractor's requirements.
  22. General Contractor shall fill and grout around entrances, as required.
  23. Elevator sill supports shall be provided at each opening.
  24. All walls and sill supports must be plumb where openings occur.
  25. For applications with jack hole, free and clear access to the elevator pit area for the jack hole-drilling rig is required.
  26. Where jack hole is required, remove all spoils from jack hole drilling.
  27. When not provided by Elevator Contractor, jack hole shall accommodate the jack unit. If required the jack hole is to be provided in strict accordance with the elevator contractor's shop drawings.
  28. Locate a light fixture and convenience outlet in pit with switch located adjacent to the access door.
  29. A light switch and fused disconnect switch for each elevator should be located inside the machine room adjacent to the door, where practical, per the National Electrical Code (NFPA No. 70).
  30. As indicated by elevator contractor, provide a light outlet for each elevator, in center of hoistway (or in the machine room).
  31. For signal systems and power operated door: provide ground and branch wiring circuits, including main line switch. For car light and fan: provide a feeder and branch wiring circuits, including main line switch.
  32. Wall thickness may increase when fixtures are mounted in drywall. These requirements must be coordinated between the general contractor and the elevator contractor.
  33. Provide supports, patching and recesses to accommodate hall button boxes, signal fixtures, etc..
  34. Locate telephone and convenience outlet on control panel.



## 1.02 SUBMITTALS

- A. Product data: When requested, the elevator contractor will provide standard cab, entrance and signal fixture data to describe product for approval.
- B. Shop drawings:
  - 1. Show equipment arrangement in the machine room/control space, pit and hoistway. Provide plans, elevations, sections and details of assembly, erection, anchorage, and equipment location.
  - 2. Indicate elevator system capacities, sizes, performances, safety features, finishes and other pertinent information.
  - 3. Show floors served, travel distances, maximum loads imposed on the building structure at points of support and all similar considerations of the elevator work.
  - 4. Indicate electrical power requirements and branch circuit protection device recommendations.
- C. Powder Coat Paint selection: Submit manufacturer's standard selection charts for exposed finishes and materials.
- D. Plastic laminate selection: Submit manufacturer's standard selection charts for exposed finishes and materials.
- E. Metal Finishes: Upon request, standard metal samples provided.
- F. Operation and maintenance data. Include the following:
  - 1. Owners Manual and Wiring Diagrams.
  - 2. Parts list, with recommended parts inventory.

## 1.03 QUALITY ASSURANCE

- A. Manufacturer Qualifications: An approved manufacturer with minimum fifteen years experience in manufacturing, installing, and servicing elevators of the type required for the project.
  - 1. Must be the manufacturer of the power unit, controller, signal fixtures, door operators cab, entrances, and all other major parts of the elevator operating equipment.
    - a. The major parts of the elevator equipment shall be manufactured in the United States, and not be an assembled system.
  - 2. The manufacturer shall have a documented, on-going quality assurance program.
  - 3. ISO-9001:2000 Manufacturer Certified
  - 4. ISO-14001:2004 Environmental Management System Certified
  - 5. LEED Gold certified elevator manufacturing facility.
- B. Installer Qualifications: The manufacturer or an authorized agent of the manufacturer with not less than fifteen years of satisfactory experience installing elevators equal in character and performance to the project elevators.
- C. Regulatory Requirements:
  - 1. ASME/ANSI A17.1 Safety Code for Elevators and Escalators, latest edition or as required by the local building code.
  - 2. Building Code: National.
  - 3. NFPA 70 National Electrical Code.
  - 4. NFPA 80 Fire Doors and Windows.
  - 5. Americans with Disabilities Act Accessibility Guidelines (ADAAG).
  - 6. CAN/CSA C22.1 Canadian Electrical Code.
  - 7. CAN/CSA B44 Safety Code for Elevators and Escalators.
  - 8. California Department of Public Health Standard Method V1.1–2010, CA Section 01350

- D. Fire-rated Entrance Assemblies: Opening protective assemblies including frames, hardware, and operation shall comply with ASTM E2074, CAN4-S104 (ULC-S104), UL10(B), and NFPA 80. Provide entrance assembly units bearing Class B or 1 1/2 hour label by a Nationally Recognized Testing Laboratory (2 hour label in Canada).
- E. Inspection and testing: Elevator Installer shall obtain and pay for all required inspections, tests, permits and fees for elevator installation.
  - 1. Arrange for inspections and make required tests.
  - 2. Deliver to the Owner upon completion and acceptance of elevator work.
- F. Product Qualifications:
  - 1. LCA, EPD and HPD data must be provided for all major components of the elevator system.
  - 2. LCA data must be compatible with GaBI Software.
  - 3. Environmental Product Declaration (EPD): Publicly available, critically reviewed life cycle analysis having at least a cradle-to-gate scope.
  - 4. GreenScreen Chemical Hazard Analysis: All ingredients of 100 parts-per-million or greater evaluated using GreenScreen for Safer Chemicals Method v1.2.
  - 5. Health Product Declarations (HPD v2 or later): Complete, published declaration with full disclosure of known hazards, prepared using the Health Product Declaration Collaborative's "HPD builder" on-line tool; Unknown hazard listed will not be considered acceptable.

#### 1.04 DELIVERY, STORAGE AND HANDLING

- A. Manufacturing will deliver elevator materials, components and equipment and the contractor is responsible to provide secure and safe storage on job site.

#### 1.05 PROJECT CONDITIONS

- A. Prohibited Use: Elevators shall not be used for temporary service or for any other purpose during the construction period before Substantial Completion and acceptance by the purchaser unless agreed upon by Elevator Contractor and General Contractor with signed temporary agreement.
- B. Provide the hole for the jack unit (if required by the type of jack provided), based on excavation through normal soil or clay which can be removed by manual digging or by standard truck-mounted regular drilling unit. Provide a casing if required to retain the walls of the hole. General contractor shall remove excavation spoils deposited in the elevator pit.
  - 1. If a physical obstruction or hindrance is encountered below the ground surface, including boulders, rock, gravel, wood, metal, pilings, sand, water, quick sand, caves, public utilities or any other foreign material, obtain written authorization to proceed with excavating using special excavation equipment.
  - 2. Maintain a daily log of time and material costs involved.
  - 3. Elevator contractor will be compensated on a time and material basis for additional costs incurred after encountering the physical obstruction or hindrance, including the cost of the special excavation equipment.

### 1.06 WARRANTY

- A. Warranty: Submit elevator manufacturer's standard written warranty agreeing to repair, restore or replace defects in elevator work materials and workmanship not due to ordinary wear and tear or improper use or care for 12 months after completion of installation or acceptance thereof by beneficial use, whichever is earlier.

### 1.07 MAINTENANCE

- A. Furnish maintenance and call back service for a period of 3 months for each elevator after completion of installation or acceptance thereof by beneficial use, whichever is earlier, during normal working hours, excluding callbacks. Service shall consist of periodic examination of the equipment, adjustment, lubrication, cleaning, supplies and parts to keep the elevators in proper operation.
  - 1. Manufacturer shall have a service office and full time service personnel within a 100 mile radius of the project site.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. Manufacturer: ThyssenKrupp Elevator
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

### 2.02 MATERIALS, GENERAL

- A. All Elevator Cab materials including frame, buttons, lighting, wall and ceiling assembly, laminates and carpet shall have an EPD and an HPD, and shall meet the California Department of Public Health Standard Method V1.1-2010, CA Section 01350 as mentioned in 1.03.9 of this specification.
- B. Colors, patterns, and finishes: As selected by the Architect from manufacturer's standard colors, patterns, and finish charts.
- C. Steel:
  - 1. Shapes and bars: Carbon.
  - 2. Sheet: Cold-rolled steel sheet, commercial quality, Class 1, matte finish.
  - 3. Finish: Factory-applied baked enamel.
- D. Plastic laminate: Decorative high-pressure type, complying with NEMA LD3, Type GP-50 General Purpose Grade, nominal 0.050" thickness.
- E. Carpet: By others.

### 2.03 HOISTWAY EQUIPMENT

- A. Platform: Fabricated frame of formed or structural steel shapes, gusseted and rigidly welded with a wood subfloor. Underside of the platform shall be fireproofed. The car platform shall be designed and fabricated to support one-piece loads weighing up to 25% of the rated capacity.
- B. Sling: Steel stiles affixed to a steel crosshead and bolstered with bracing members to remove strain from the car enclosure.
- C. Guide Rails: Steel, omega shaped, fastened to the building structure with steel brackets.

- D. Guide Shoes: Slide guides shall be mounted on top and bottom of the car.
- E. Buffers: Provide substantial buffers in the elevator pit. Mount buffers on a steel template that is fastened to the pit floor or continuous channels fastened to the elevator guide rail or securely anchored to the pit floor. Provide extensions if required by project conditions.
- F. Jack: Jack unit shall be of sufficient size to lift the gross load the height specified. Factory test jack to insure adequate strength and freedom from leakage. Brittle material, such as gray cast iron, is prohibited in the jack construction. Provide the following jack type: Twin post holeless. Two jacks piped together, mounted one on each side of the car with a polished steel hydraulic plunger housed in a sealed steel casing having sufficient clearance space to allow for alignment during installation. Each plunger shall have a high pressure sealing system which will not allow for seal movement or displacement during the course of operation. Each Jack Assembly shall have a check valve built into the assembly to allow for automatically re-syncing the two plunger sections by moving the jack to its fully contracted position. The jack shall be designed to be mounted on the pit floor or in a recess in the pit floor. Each jack section shall have a bleeder valve to discharge any air trapped in the section.
- G. Automatic Self-Leveling: Provide each elevator car with a self-leveling feature to automatically bring the car to the landings and correct for overtravel or undertravel. Self-leveling shall, within its zone, be automatic and independent of the operating device. The car shall be maintained approximately level with the landing irrespective of its load.
- H. Wiring, Piping, and Oil: Provide all necessary hoistway wiring in accordance with the National Electrical Code. All necessary code compliant pipe and fittings shall be provided to connect the power unit to the jack unit. Provide proper grade readily biodegradable oil as specified by the manufacturer of the power unit (see Power Unit section 2.04.G for further details)

#### 2.04 POWER UNIT

- A. Power Unit (Oil Pumping and Control Mechanism): A self-contained unit consisting of the following items:
  - 1. Oil reservoir with tank cover.
  - 2. An oil hydraulic pump.
  - 3. An electric motor.
  - 4. Oil control valve with the following components built into single housing; high pressure relief valve, check valve, automatic unloading up start valve, lowering and leveling valve, and electro-magnetic controlling solenoids.
- B. Pump: Positive displacement type pump specifically manufactured for oil-hydraulic elevator service. Pump shall be designed for steady discharge with minimum pulsation to give smooth and quiet operation. Output of pump shall not vary more than 10 percent between no load and full load on the elevator car.
- C. Motor: Standard manufacture motor specifically designed for oil-hydraulic elevator service. Duty rating shall be selected for specified speed and load.
- D. Control System: Shall be microprocessor based and protected from environmental extremes and excessive vibrations in a NEMA 1 enclosure.
- E. Oil Control Unit: The following components shall be built into a single housing. Welded manifolds with separate valves to accomplish each function are not acceptable. Adjustments shall be accessible and be made without removing the assembly from the oil line.
  - 1. Relief valve shall be externally adjustable and be capable of bypassing the total oil flow without increasing back pressure more than 10 percent above that required to barely

- open the valve.
  - 2. Up start and stop valve shall be adjustable and designed to bypass oil flow during start and stop of motor pump assembly. Valve shall close slowly, gradually diverting oil to or from the jack unit, ensuring smooth up starts and up stops.
  - 3. Check valve shall be designed to close quietly without permitting any perceptible reverse flow.
  - 4. Lowering valve and leveling valve shall be adjustable for down start speed, lowering speed, leveling speed and stopping speed to ensure smooth "down" starts and stops. The leveling valve shall be designed to level the car to the floor in the direction the car is traveling after slowdown is initiated.
- F. Solid State Starting: Provide an electronic starter featuring adjustable starting currents.
- G. Oil Type: USDA certified biobased product, ultra low toxicity, readily biodegradable, energy efficient, high performing fluid made from canola oil with antioxidant, anticorrosive, antifoaming, and metal-passivating additives. Especially formulated for operating in environmentally sensitive areas. USDA certified biobased product, >90% bio-based content, per ASTM D6866

## 2.05 HOISTWAY ENTRANCES

- A. Doors and Frames: Provide complete hollow metal type hoistway entrances at each hoistway opening bolted\knock down construction.
1. Manufacturer's standard entrance design consisting of hangers, doors, hanger supports, hanger covers, fascia plates, sight guards, and necessary hardware.
  2. Main landing door & frame finish: ASTM A1008 steel panels, factory applied powder coat finish.
  3. Typical door & frame finish: ASTM A 366 steel panels, factory applied powder coat enamel finish.
- B. Interlocks: Equip each hoistway entrance with an approved type interlock tested as required by code. Provide door restriction devices as required by code.
- C. Door Hanger and Tracks: Provide sheave type two point suspension hangers and tracks for each hoistway horizontal sliding door.
1. Sheaves: Polyurethane tires with ball bearings properly sealed to retain grease.
  2. Hangers: Provide an adjustable device beneath the track to limit the up-thrust of the doors during operation.
  3. Tracks: Drawn steel shapes, smooth surface and shaped to conform to the hanger sheaves.
- D. Hoistway Sills: Extruded metal, with groove(s) in top surface. Provide mill finish on aluminum.

## 2.06 CAR ENCLOSURE

- A. Car Enclosure:
1. Walls: Cab type TKAP, reinforced cold-rolled steel with two coats factory applied baked enamel finish, with applied vertical wood core panels covered on both sides with high pressure plastic laminate.
    - a. Reveals and frieze: Powder Coated
  2. Canopy: Cold-rolled steel with hinged exit.
  3. Ceiling: Downlight type, metal pans with suspended LED downlights.
  4. Cab Fronts, Return, Transom, Soffit and Strike: Provide panels faced with brushed stainless steel.
  5. Doors: Horizontal sliding car doors reinforced with steel for panel rigidity. Hang doors on sheave type hangers with polyurethane tires that roll on a polished steel track and are

- guided at the bottom by non-metallic sliding guides.
      - a. Door Finish: ASTM A1008 steel panels, factory applied powder coat enamel finish.
      - b. Cab Sills: Extruded aluminum, mill finish.
    - 6. Handrail: Provide 1.5" diameter cylindrical metal on side and rear walls on front opening cars and side walls only on front and rear opening cars. Handrails shall have a stainless steel, no. 4 brushed finish.
    - 7. Ventilation: Manufacturer's standard exhaust fan, mounted on the car top.
  - B. Car Top Inspection: Provide a car top inspection station with an "Auto-Inspection" switch, an "emergency stop" switch, and constant pressure "up and down" direction and safety buttons to make the normal operating devices inoperative. The station will give the inspector complete control of the elevator. The car top inspection station shall be mounted in the door operator assembly.

## 2.07 DOOR OPERATION

- A. Door Operation: Provide a direct current motor driven heavy duty operator designed to operate the car and hoistway doors simultaneously. Door movements shall be electrically cushioned at both limits of travel and the door operating mechanism shall be arranged for manual operation in event of power failure. Doors shall automatically open when the car arrives at the landing and automatically close after an adjustable time interval or when the car is dispatched to another landing. Closed-loop, microprocessor controlled motor-driven linear door operator, with adjustable torque limits, also acceptable. AC controlled units with oil checks or other deviations are not acceptable.
  - 1. No Un-Necessary Door Operation: The car door shall open only if the car is stopping for a car or hall call, answering a car or hall call at the present position or selected as a dispatch car.
  - 2. Door Open Time Saver: If a car is stopping in response to a car call assignment only (no coincident hall call), the current door hold open time is changed to a shorter field programmable time when the electronic door protection device is activated.
  - 3. Double Door Operation: When a car stops at a landing with concurrent up and down hall calls, no car calls, and no other hall call assignments, the car door opens to answer the hall call in the direction of the car's current travel. If an onward car call is not registered before the door closes to within 6 inches of fully closed, the travel will reverse and the door will reopen to answer the other call.
  - 4. Nudging Operation: The doors shall remain open as long as the electronic detector senses the presence of a passenger or object in the door opening. If door closing is prevented for a field programmable time, a buzzer will sound. When the obstruction is removed, the door will begin to close at reduced speed. If the infra-red door protection system detects a person or object while closing on nudging, the doors will stop and resume closing only after the obstruction has been removed.
  - 5. Limited Door Reversal: If the doors are closing and the infra-red beam(s) is interrupted, the doors will reverse and reopen partially. After the obstruction is cleared, the doors will begin to close.
  - 6. Door Open Watchdog: If the doors are opening, but do not fully open after a field adjustable time, the doors will recycle closed then attempt to open six times to try and correct the fault.
  - 7. Door Close Watchdog: If the doors are closing, but do not fully close after a field adjustable time, the doors will recycle open then attempt to close six times to try and correct the fault.
  - 8. Door Close Assist: When the doors have failed to fully close and are in the recycle mode, the door drive motor shall have increased torque applied to possibly overcome mechanical resistance or differential air pressure and allow the door to close.
- B. Door Protection Devices: Provide a door protection system using 150 or more microprocessor controlled infra-red light beams. The beams shall project across the car opening detecting the presence of a passenger or object. If door movement is obstructed, the doors shall immediately

reopen.

## 2.08 CAR OPERATING STATION

- A. Car Operating Station, General: The main car control in each car shall contain the devices required for specific operation mounted in an integral swing return panel requiring no applied faceplate. Swing return shall have a brushed stainless steel finish. The main car operating panel shall be mounted in the return and comply with handicap requirements. Pushbuttons that illuminate using long lasting LED's shall be included for each floor served, and emergency buttons and switches shall be provided per code. Switches for car light and accessories shall be provided.
- B. Emergency Communications System: Integral phone system provided.
- C. Auxiliary Operating Panel: Not Required
- D. Column Mounted Car Riding Lantern: A car riding lantern shall be installed in the elevator cab and located in the entrance. The lantern, when illuminated, will indicate the intended direction of travel. The lantern will illuminate and a signal will sound when the car arrives at a floor where it will stop. The lantern shall remain illuminated until the door(s) begin to close.
- E. Special Equipment: Not Applicable

## 2.09 CONTROL SYSTEMS

- A. Controller: The elevator control system shall be microprocessor based and software oriented. Control of the elevator shall be automatic in operation by means of push buttons in the car numbered to correspond to floors served, for registering car stops, and by "up-down" push buttons at each intermediate landing and "call" push buttons at terminal landings.
- B. Automatic Light and Fan shut down: The control system shall evaluate the system activity and automatically turn off the cab lighting and ventilation fan during periods of inactivity. The settings shall be field programmable.
- C. Special Operation: Not Applicable
- D. Emergency Power Operation: (10-DOA) Upon loss of the normal power supply, building-supplied standby power is available on the same wires as the normal power supply. Once the loss of normal power is detected and standby power is available, the elevator is lowered to a pre-designated landing and the doors are opened. After passengers have exited the elevator, the doors are closed and the car is shut down. When normal power is restored, the elevator automatically resumes operation.

## 2.10 HALL STATIONS

- A. Hall Stations, General: Provide buttons with red-illuminating LED halos to indicate that a call has been registered at that floor for the indicated direction. Provide 1 set of pushbutton risers. Provide one pushbutton riser with faceplates having a brushed stainless steel finish.
  - 1. Phase 1 firefighter's service key switch, with instructions, shall be incorporated into the hall station at the designated level.
- B. Floor Identification Pads: Provide door jamb pads at each floor. Jamb pads shall comply with Americans with Disabilities Act (ADA) requirements.
- C. Hall Position Indicator: Not Applicable
- D. Hall lanterns: Not Applicable
- E. Special Equipment: Not Applicable

## 2.11 MISCELLANEOUS ELEVATOR COMPONENTS

- A. Oil Hydraulic Silencer: Install an oil hydraulic silencer (muffler device) at the power unit location. The silencer shall contain pulsation absorbing material inserted in a blowout proof housing arranged for inspecting interior parts without removing unit from oil line.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Before starting elevator installation, inspect hoistway, hoistway openings, pits and machine rooms/control space, as constructed and verify all critical dimensions, and examine supporting structures and all other conditions under which elevator work is to be installed. Do not proceed with elevator installation until unsatisfactory conditions have been corrected in a manner acceptable to the installer.
- B. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance.

### 3.02 INSTALLATION

- A. Install elevator systems components and coordinate installation of hoistway wall construction.
  - 1. Work shall be performed by competent elevator installation personnel in accordance with ASME A17.1, manufacturer's installation instructions and approved shop drawings.
  - 2. Comply with the National Electrical Code for electrical work required during installation.
- B. Jack unit excavation (if required by the type of jack provided): Drill or otherwise excavate below elevator pit construction as required to install the jack unit.
  - 1. Install casing for jack unit.
  - 2. Provide HDPE jack protection system for all in ground jacks.
  - 3. Set casing for jack unit assembly plumb, and partially fill with water-settled sand, eliminating voids. Back fill depth shall be sufficient to hold the bottom of the jack in place over time.
- C. Coordination: Coordinate elevator work with the work of other trades, for proper time and sequence to avoid construction delays. Use benchmarks, lines, and levels designated by the Contractor, to ensure dimensional coordination of the work.
- D. Alignment: Coordinate installation of hoistway entrances with installation of elevator guide rails for accurate alignment of entrances with cars. Where possible, delay final adjustment of sills and doors until car is operable in shaft. Reduce clearances to minimum safe, workable dimensions at each landing.
- E. Lubricate operating parts of system where recommended by manufacturer.

### 3.03 FIELD QUALITY CONTROL

- A. Acceptance testing: Upon completion of the elevator installation and before permitting use of elevator, perform acceptance tests as required by A17.1 Code and local authorities having jurisdiction. Perform other tests, if any, as required by governing regulations or agencies.
- B. Advise Owner, Contractor, Architect, and governing authorities in advance of dates and times tests are to be performed on the elevator.

### 3.04 ADJUSTING



- A. Make necessary adjustments of operating devices and equipment to ensure elevator operates smoothly and accurately.

### 3.05 CLEANING

- A. Before final acceptance, remove protection from finished surfaces and clean and polish surfaces in accordance with manufacturer's recommendations for type of material and finish provided. Stainless stall shall be cleaned with soap and water and dried with a non-abrasive surface; shall not be cleaned with bleached-based cleansers.
- B. At completion of elevator work, remove tools, equipment, and surplus materials from site. Clean equipment rooms and hoistway. Remove trash and debris.
  - a. Use environmentally preferable and low VOC emitting cleaners for each application type. Cleaners that contain solvents, pine and/or citrus oils are not permitted.

### 3.06 PROTECTION

- A. At time of Substantial Completion of elevator work, or portion thereof, provide suitable protective coverings, barriers, devices, signs, or other such methods or procedures to protect elevator work from damage or deterioration. Maintain protective measures throughout remainder of construction period.

### 3.07 DEMONSTRATION

- A. Instruct Owner's personnel in proper use, operations, and daily maintenance of elevators. Review emergency provisions, including emergency access and procedures to be followed at time of failure in operation and other building emergencies. Train Owner's personnel in normal procedures to be followed in checking for sources of operational failures or malfunctions.
- B. Make a final check of each elevator operation, with Owner's personnel present, immediately before date of substantial completion. Determine that control systems and operating devices are functioning properly.

### 3.08 ELEVATOR SCHEDULE

- A. Elevator Qty. 1
  1. Elevator Model: endura Above-Ground (1-Stage)
  2. Rated Capacity: 2100 lbs.
  3. Rated Speed: 80 ft./min.
  4. Operation System: TAC32
  5. Travel: 11'-8"
  6. Landings: 2 total
  7. Openings:
    - a. Front: 1
    - b. Rear: 0
  8. Clear Car Inside: 5' - 8" wide x 4' - 3" deep
  9. Cab Height: 8'-0" nominal
  10. Hoistway Entrance Size: 3' - 0" wide x 7'-0" high
  11. Door Type: Single Speed
  12. Power Characteristics: 460 volts, 3 Phase, 60 Hz.
  13. Seismic Requirements: Zone 1
  14. Fixture & Button Style: Signa4 Signal Fixtures
  15. Special Operations: None

END OF SECTION



## **SECTION 21 1300 – TERMINAL SPRINKLER WORK**

### **PART 1 - GENERAL**

#### **1.1 GENERAL REQUIREMENTS**

##### **A. Related Work Specified Elsewhere:**

1. Refer to all Sections of DIVISION 1 - GENERAL REQUIREMENTS, which are hereby made part of this Section of the Specifications.
2. Flashing of Plumbing Work passing through roof is specified in Division 7. Provide roof flashing boots for all plumbing roof penetrations for installation by the roofer.
3. Finish Painting is specified in Division 9.
4. Fire Extinguishers and Cabinets are specified in Division 10.

##### **B. Related Documents:**

1. The General Provisions of the Contract, including General and Supplementary Conditions and General Requirements, apply to the work specified in this Section.
2. The General Provisions of the Contract, including General and Supplementary Conditions and General Requirements, apply to the work specified in this Section.

#### **1.2 DESCRIPTION OF WORK**

- A. This Section specifies provisions for sprinkler work. The contractor shall be responsible for providing a complete design and installation in compliance with this performance specification and National Fire Protection Association (NFPA) Standards 13 for the Installation of Sprinkler Systems and 415 for Airport Terminal Buildings, State of Vermont Codes and all local codes and ordinances. If there are any conflicts between the standards, codes or ordinances the stricter of the requirements shall apply. The contractor will notify the engineer immediately of any conflicts within the contract documents or drawings.
- B. Work Included: Provide labor, materials and equipment necessary to complete work of this section, including but not limited to the following:
1. Provide sprinkler coverage for the interior of the new Terminal Building. Architectural, mechanical and plumbing drawings are provided.
  2. Provide, supervisory valves, drain valves, and all required supervisory controls and accessories for a complete Terminal Building fire protection system.
- C. Products specified in this Section, which are not installed under the Contract such as sprinkler cabinets with spare sprinklers of each style and sprinkler wrenches for each type of head, will be delivered to the Owner's maintenance personnel.

#### **1.3 DEFINITIONS**

- A. Pipe sizes used in this Section are nominal pipe size (NPS) specified in inches. Tube sizes are standard tube size specified in inches.

- B. Working plans as used in this Section refer to documents (including drawings and calculations) prepared pursuant to requirements in NFPA 13 for obtaining approval of the authority having jurisdiction.
- C. Other definitions for fire protection systems are included in referenced NFPA standards.

#### 1.4 SYSTEM DESCRIPTION

- A. Terminal Building Wet-Pipe Sprinkler System: System with automatic sprinklers attached to piping system containing water and connected to water supply so that water discharges immediately from sprinklers when they are opened by fire.
- B. Sprinkler System Protection Limits: Protection of Terminal Building Interior.

#### 1.5 SYSTEM PERFORMANCE REQUIREMENTS

- A. Design and obtain approval from authority having jurisdiction for fire protection systems specified, including the State of Vermont Department of Public Safety, Fire Safety Division and the Owner's Insurance Company Requirements.
- B. Minimum Pipe Sizes: Not smaller than sizes required by NFPA 13 for piping and branches from standpipes to sprinklers.
- C. Components and Installation: Capable of producing piping systems with the following minimum working pressure ratings except where indicated otherwise.
- D. Sprinkler Systems: 125 pounds per square inch gauge (PSIG).

#### 1.6 SUBMITTALS

- A. Provide product data for fire protection system components.
- B. Include the following:
  - 1. Piping and accessories.
  - 2. Sprinklers, escutcheons, and guards: Include sprinkler flow characteristics, mounting, finish, and other data.
  - 3. Recommended water holding tank size and pump size.

#### 1.7 SLEEVES AND FIRE STOPPING:

- A. Furnish and set sleeves to accommodate pipes passing through foundations, walls, floors, furring and ceilings. Cooperate with other Contractors in setting all sleeves. Sleeves shall be full thickness of construction.
- B. Sleeves shall be large enough to permit free movement of pipe where expansion and contraction occur and to permit insulation to run continuous. Provide U.L. listed fire barrier seals in ALL floor, walls, ceiling penetrations. Fill annular space between pipe and sleeve with U. L. approved fire retarding package, rated for 1 hour minimum. See fire stopping details on the drawings.

1.9 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Firms whose equipment, specialties, and accessories are listed by product name and manufacturer in UL Fire Protection Equipment Directory and Factory Mutual (FM) Approval Guide and that conform to other requirements indicated.
- B. Listing/Approval Stamp, Label, or Other Marking: On equipment, specialties, and accessories made to specified standards.
- C. Listing and Labeling: Equipment, specialties, and accessories that is listed and labeled.
- D. The Terms "Listed" and "Labeled": As defined in "National Electrical Code," Article 100.
- E. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.
- F. Comply with requirements of authority having jurisdiction for submittals, approvals, materials, hose threads, installation, inspections, and testing.
- G. Comply with requirements of Owner's insurance underwriter for submittals, approvals, materials, installation, inspections, and testing.

**PART 2 - PRODUCTS**

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following manufacturers or approved equivalent:
  - (1) Sprinklers:
    - 1. Reliable Automatic Sprinkler Co., Inc.
    - 2. Viking.
    - 3. Central Sprinkler Corp.
  - (2) Indicator Valves:
    - 4. Nibco, Inc.
    - 5. Grinnell Supply Sales Co., Grinnell Corp.
    - 6. Victaulic Company of America.
  - (3) Fire Protection Service Gate and Check Valves:
    - 7. Nibco, Inc.
    - 8. Victaulic Company of America.

9. Watts Regulator Co.

2.2 PIPES AND TUBES

- A. All copper tubing shall be type "L" hard copper tubing with wrought copper fittings for solder fitting assembly.
- B. Steel Pipe: ASTM A795, seamless, black steel and galvanized pipe, plain ends.
- C. Steel Pipe: ASTM A53, seamless, black steel pipe, plain ends.

2.3 PIPE FITTINGS

- A. Fittings: Copper pipe fitting shall be wrought copper solder joints, ANSI B-16.22, streamlined pattern joints and shall be made with "Silverbrite" lead free solder with non-corrosive flux.
- B. Cast-Iron Threaded Fittings: ANSI B16.4, Class 125 and 250, standard pattern, for threaded joints. Threads shall conform to ANSI B1.20.1.
- C. Malleable-Iron Threaded Fittings: ANSI B16.3, Class 150 and 300, standard pattern, for threaded joints. Threads shall conform to ANSI B1.20.1.
- D. Grooved Mechanical Fittings: ASTM A536, Grade 65-45-12 ductile iron; ASTM A47 Grade 32510 malleable iron; or ASTM A53, Type F or Types E or S, Grade B fabricated steel fittings with grooves or shoulders designed to accept grooved end couplings.
- E. Grooved Mechanical Couplings: Consist of ductile or malleable iron housing, a synthetic rubber gasket of a central cavity pressure-responsive design; with nuts, bolts, locking pin, locking toggle, or lugs to secure roll-grooved pipe and fittings.
- F. Cast-Iron Threaded Flanges and Flanged Fittings: ANSI B16.1, raised ground face, bolt holes spot faced.
- G. Flexible Sprinkler Hose Fittings: Fittings shall conform to NFPA 13. FM approved pursuant to FM 1637 Approval Standard for Flexible Sprinkler Hose Fittings for fire protection service. UL listed pursuant UL 2443 Standard for Flexible Sprinkler with Fittings for Fire Protection Service.
- H. Flexible hose assembly and end fittings shall be type 304 stainless steel. 175 psi maximum rated pressure. Fully-welded, non-mechanical fittings.

2.4 GENERAL-DUTY VALVES

- A. Refer to Section 22 "Basic Plumbing Materials and Methods" for general-duty gate, ball, butterfly, globe, and check valves.

## 2.5 SPRINKLERS

- A. Automatic Sprinklers: Shall have heat-responsive element conforming to:
  - 1 UL 199, for applications except residential.
  - 2 UL 1767, for early-suppression, fast-response applications.
  
- B. Sprinkler types and categories are as indicated and as required by application. Furnish automatic sprinklers with nominal 1/2-inch orifice for "Ordinary" temperature classification rating except where otherwise indicated and required by application.
  
- C. Sprinkler heads shall be equal to the following models.
  - 1. Upright Sprinkler Heads: Reliable Model G, 212 deg. F. temp rating, UL Approved, quick response, UL Listed brass finish head.
  
- D. Sprinkler Escutcheons: Materials, types, and finishes for following sprinkler mounting applications.

## 2.6 BACKFLOW PREVENTERS

- A. General: ASSE standard backflow preventers, of size indicated for maximum flow rate indicated and maximum pressure loss indicated.
  - 1. Working Pressure: 150 psig minimum except where indicated otherwise.
  - 2. Provide Lead-free bronze, cast-iron, steel, or stainless-steel body with flanged ends.
  - 3. Interior Lining: FDA-approved epoxy coating, for backflow preventers having cast-iron or steel body.
  - 4. Interior Components: Corrosion-resistant materials.
  - 5. Strainer on inlet, where strainer is indicated.
  
- B. If required, Double-Check Backflow Prevention Assemblies: ASSE 1015, consisting of shutoff valves on inlet and outlet and strainer on inlet. Include test cocks with 2 positive-seating check valves for continuous pressure application.
  - 1. Pressure Loss: 5 psig maximum, through middle third of flow range.
  - 2. Unit shall be equal to Watts model LF009, provide isolation valves, strainer.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine drawings of ceilings, walls and partitions for suitable thickness, fire and smoke-rated construction, framing for cabinets, and other conditions where cabinets are to be installed.
  
- B. Notify engineer if unsatisfactory issues are identified in the drawings.

### 3.2 PIPING INSTALLATIONS

- A. Refer to Section 22 "Plumbing Basic Mechanical Materials and Methods" for basic piping installation.
- B. Locations and Arrangements: Drawings (plans, schematics, and diagrams) indicate general location of supply piping.
- C. Use UL approved fittings to make changes in direction, branch takeoffs from mains, and reductions in pipe sizes.
- D. Install sprinkler piping with drains for complete system drainage.
- E. Hangers and Supports: Comply with NFPA 13. Install according to NFPA 13.
- F. SEISMIC NOTE: Provide seismic bracing of all piping serving this system. Structural Performance: Hangers and supports for plumbing piping and equipment shall withstand the effects of gravity loads and stresses within limits and under conditions indicated according to ASCE/SEI 7. Design supports for multiple pipes capable of supporting combined weight of supported systems, system contents, and test water. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components. Design seismic-restraint hangers and supports for piping and equipment and obtain approval from authorities having jurisdiction. Delegated-Design Submittal: Provide submittal indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

### 3.3 FIELD QUALITY CONTROL

- A. Perform field acceptance tests of the fire protection system.
- B. Flush, test, and inspect sprinkler piping systems according to NFPA 13 Chapter "System Acceptance."
- C. Replace piping system components that do not pass test procedures specified. Then retest to demonstrate compliance. Repeat procedure until satisfactory results are obtained.
- D. Report test results promptly and in writing to engineer.
- E. Report test results promptly and in writing to authority having jurisdiction when required.

### 3.4 CLEANING

- A. Clean dirt and debris from sprinklers.



### 3.5 COMMISSIONING

- A. Starting Procedures: Follow manufacturer's written procedures. If no procedures are prescribed by manufacturer, proceed as follows:
1. Verify that specialty valves, trim, fittings, controls, and accessories have been installed correctly and operate correctly.
  2. Verify that specified tests of piping are complete.
  3. Check that damaged sprinklers and sprinklers with paint or coating not specified have been replaced with new, correct type of sprinklers.
  4. Check that sprinklers are correct type, have correct finish and temperature ratings, and have guards where required for applications.
  5. If required, check that potable water supplies have correct type of backflow preventer.
  6. Fill wet-pipe sprinkler systems with water.
  7. Adjust operating controls and pressure settings.

### 3.6 DEMONSTRATION

- A. Demonstrate equipment, specialties, and accessories. Review operating and maintenance information.
- B. Schedule demonstration with at least 7 days advance notice.

**END OF SECTION 21 1300**

