



# Maine Medical Center

**MMC Brighton Campus  
PREP Renovations  
Project No. 122033**

**Maine Medical Center  
22 Bramhall Street  
Portland, Maine 04102**

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**MATERIAL SPECIFICATIONS**  
Issued for Construction

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**September 25, 2015**

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## SECTION 011000 - SUMMARY

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work under separate contracts.
4. Access to site.
5. Work restrictions.
6. Specification and drawing conventions.
7. Miscellaneous provisions.

#### 1.2 PROJECT INFORMATION

##### A. Project Identification: MMC PREP Renovations, Brighton Campus

1. Project Location: 335 Brighton Avenue, Portland, ME 04102

##### B. Owner: Maine Medical Center Owner's Representative: Dennis Morelli, phone: 662-6195, email: moreld@mmc.org

##### C. Architect: Design Group Collaborative. Contact: Lynda Casteris-El-Hajj, phone: 664-0560, email: lcasteris-el-hajj@dgcarchitects.com

##### D. Contractor: Hebert Construction. Contact: Steve Janosco, phone: 783-209, email: sjanosco@hebertconstruction.com

#### 1.3 WORK COVERED BY CONTRACT DOCUMENTS

##### A. The Work of Project is defined by the Contract Documents and consists of the following:

1. Renovation of 4263 sf within the existing Pre-Op and NorDx Lab suites located on the ground floor.

##### B. Type of Contract.

1. Project will be constructed under a single prime contract.

#### 1.4 WORK UNDER SEPARATE CONTRACTS

- A. Concurrent Work: Owner will award separate contract(s) for the following construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract.
1. Hazardous Material abatement
  2. Furniture installation
  3. Tele/Com terminations
  4. Security system installation

#### 1.5 ACCESS TO SITE

- A. General: Contractor shall have limited use of Project site for construction operations as indicated by requirements of this Section.
- B. Use of Site: Limit use of Project site to areas within the existing MMC Pre-Op and Lab suites, the existing Security Office and adjacent spaces requiring access for electrical and HVAC work. Do not disturb portions of Project site beyond areas in which the Work is indicated.
1. Limits: Confine construction operations to interior renovations shown in construction documents.
  2. Driveways, Walkways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, adjacent tenants, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
    - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
    - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weather-tight condition throughout construction period. Repair damage caused by construction operations.

#### 1.6 COORDINATION WITH OCCUPANTS

- A. Adjacent Occupancy: The Pre-Op and Lab suites and adjacent spaces will be occupied during entire construction period. Cooperate with staff during construction operations to minimize conflicts. Perform the Work so as not to interfere with day-to-day operations. Maintain existing exits unless otherwise indicated.
1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
  2. Notify Owner not less than 72 hours in advance of activities that will affect adjacent tenant operations.

## 1.7 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
  - 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7:00 a.m. to 7:00 p.m., Monday through Friday, unless otherwise indicated.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
  - 1. Notify Owner not less than two days in advance of proposed utility interruptions.
  - 2. Obtain Owner's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to adjacent occupancy with Owner.
  - 1. Notify Owner not less than two days in advance of proposed disruptive operations.
  - 2. Obtain Owner's written permission before proceeding with disruptive operations.
- E. Nonsmoking Building: Smoking is not permitted within the building or on hospital property.
- F. Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.

## 1.8 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
  - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
  - 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
  - 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.

1.9 OWNER REQUIREMENTS

- A. Refer to Maine Medical Center’s “Contractors, Consultants and Vendors Manual,” for specific requirements and permit forms.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

## SECTION 012300 - ALTERNATES

### PART 1 - GENERAL

#### 1.1 SUMMARY

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

#### 1.2 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
  - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
  - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

#### 1.3 PROCEDURES

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
  - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.



PART 2 –PRODUCTS (NotUsed)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1: Grille and Diffuser Cleaning

1. Base Bid: Cleaning by others
2. Alternate: Clean existing grilles and registers to be reused.

B: Alternate No. 2: Hot Water Coil Cleaning

1. Base Bid: Cleaning by others
2. Alternate: Clean existing hot water coils to be reused.

C. Alternate No. 3: Wall Protection

1. Base Bid: Provide wall protection as indicated in plans and specifications.
2. Alternate: Delete all type CG-1 and CG-3 corner guards.

D. Alternate No. 4: Countertops

1. Base Bid: Check –In / Greeter 064 work countertops existing to remain, new simulated stone transaction top and plastic laminate front as indicated on Drawings.
2. Alternate: Provide new plastic laminate work counters for Check-In / Greeter 064 and new simulated stone transaction top and plastic laminate front as indicated on Drawings.

END OF SECTION 012300

## SECTION 024119 - SELECTIVE DEMOLITION

### PART 1 – GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Salvage of existing items to be reused or recycled.

#### 1.2 DEFINITIONS

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

#### 1.3 CLOSEOUT SUBMITTALS

- A. Landfill Records: If required by Owner, indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

#### 1.4 FIELD CONDITIONS

- A. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- D. Storage or sale of removed items or materials on-site is not permitted.
- E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  1. Maintain fire-protection facilities in service during selective demolition operations.

#### 1.5 WARRANTY

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

### PART 2 – PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

### 3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
  - 1. Comply with requirements for existing services/systems interruptions specified in Section 011000 "Summary."
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
  - 1. Arrange to shut off indicated utilities with utility companies or building manager.
  - 2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
  - 3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.
    - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
    - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    - d. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.

### 3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

### 3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
  - 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
  - 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  - 3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
  - 4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
  - 5. Dispose of demolished items and materials promptly.
  
- B. Removed and Salvaged Items: Salvage items as directed by Owner for use by Landlord. These items include metal doors and frames, acoustical ceiling tiles and grid, light fixtures, plumbing fixtures (including faucets and levers).
  - 1. Store items in a secure area until removed by Landlord.
  - 2. Protect items from damage during storage.
  
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

### 3.5 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site.
  - 1. Do not allow demolished materials to accumulate on-site.
  - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

### 3.6 CLEANING

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

### 3.7 SELECTIVE DEMOLITION SCHEDULE

- A. Existing Items to Be Removed and Salvaged: Door Hardware, Wood Shelving on adjustable brackets, Wood Bookcases and as indicated.
- B. Existing Items to Be Removed and Reinstalled: As indicated on Drawings.

END OF SECTION 024119

## SECTION 062023 - INTERIOR FINISH CARPENTRY

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. Interior trim.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS, GENERAL

A. Lumber: DOC PS 20.

1. Factory mark each piece of lumber with grade stamp of inspection agency indicating grade, species, moisture content at time of surfacing, and mill.
  - a. For exposed lumber, mark grade stamp on end or back of each piece, or omit grade stamp and provide certificates of grade compliance issued by inspection agency.

B. Softwood Plywood: DOC PS 1.

C. Hardboard: AHA A135.4.

D. MDF: ANSI A208.2, Grade 130, made with binder containing no urea-formaldehyde resin.

#### 2.2 INTERIOR TRIM

A. Hardwood Lumber Trim:

1. Species and Grade: White Maple, Grade 1.
2. Maximum Moisture Content: 10 percent.

#### 2.3 MISCELLANEOUS MATERIALS

A. Glue: Aliphatic-resin, polyurethane, or resorcinol wood glue recommended by manufacturer for general carpentry use.

1. Wood glue shall have a VOC content of 30 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Before installing interior finish carpentry, condition materials to average prevailing humidity in installation areas for a minimum of 24 hours.

#### 3.2 INSTALLATION, GENERAL

- A. Install interior finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.
  - 1. Scribe and cut interior finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.
  - 2. Countersink fasteners, fill surface flush, and sand unless otherwise indicated.
  - 3. Install to tolerance of 1/8 inch in 96 inches (3 mm in 2438 mm) for level and plumb. Install adjoining interior finish carpentry with 1/32-inch (0.8-mm) maximum offset for flush installation and 1/16-inch (1.5-mm) maximum offset for reveal installation.

#### 3.3 STANDING AND RUNNING TRIM INSTALLATION

- A. Install with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. At returns, miter at outside corners, and cope at inside corners to produce tight-fitting joints with full-surface contact throughout length of joint. Use scarf joints for end-to-end joints.

END OF SECTION 062023



## SECTION 064116 - PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

### PART 1 – GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Plastic-laminate-faced architectural cabinets.
2. Wood furring, blocking, shims, and hanging strips for installing plastic-laminate-faced architectural cabinets unless concealed within other construction before cabinet installation.

##### B. Related Requirements:

1. Section 123623 "Plastic-Laminate-Clad Countertops."
2. Section 123661 "Simulated Stone Countertops."

#### 1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product, including panel products, high-pressure decorative laminate, adhesive for bonding plastic laminate and cabinet hardware and accessories.
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
- C. Samples:
  1. Plastic laminates, for each color, pattern, and surface finish.
  2. Thermoset decorative panels, for each color, pattern, and surface finish.

#### 1.3 QUALITY ASSURANCE

- A. Fabricator Qualifications: Certified participant in AWI's Quality Certification Program.
- B. Installer Qualifications: Certified participant in AWI's Quality Certification Program.

#### 1.4 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install cabinets until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

## PART 2 – PRODUCTS

### 2.1 PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

- A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of architectural plastic-laminate cabinets indicated for construction, finishes, installation, and other requirements.
- B. Grade: Custom.
- C. Type of Construction: Frameless.
- D. Cabinet, Door, and Drawer Front Interface Style: Flush overlay.
- E. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or if not indicated, as required by woodwork quality standard.
  - 1. 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:
    - a. Formica Corporation.
    - b. Panolam Industries International, Inc.
    - c. Wilsonart International; Div. of Premark International, Inc.
- F. Laminate Cladding for Exposed Surfaces:
  - 1. Horizontal Surfaces: Grade HGS.
  - 2. Postformed Surfaces: Grade HGP.
  - 3. Vertical Surfaces: Grade HGS
  - 4. Pattern Direction: Vertically for doors and fixed panels, horizontally for drawer fronts.
- G. Materials for Semiexposed Surfaces:
  - 1. Surfaces Other Than Drawer Bodies: Thermoset decorative panels.
  - 2. Drawer Sides and Backs: Thermoset decorative panels with PVC or polyester edge banding.
  - 3. Drawer Bottoms: Thermoset decorative panel.
- H. Dust Panels: 1/4-inch (6.4-mm) plywood or tempered hardboard above compartments and drawers unless located directly under tops.
- I. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:

1. As selected by Architect from laminate manufacturer's full range in the following categories:
  - a. Wood grains, matte finish.
  - b. Patterns, matte finish.

## 2.2 WOOD MATERIALS

- A. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.
  1. Wood Moisture Content: 5 to 10 percent.
  2. Medium-Density Fiberboard: ANSI A208.2, Grade 130, made with binder containing no urea formaldehyde.
  3. Thermoset Decorative Panels: Particleboard or medium-density fiberboard finished with thermally fused, melamine-impregnated decorative paper and complying with requirements of NEMA LD 3, Grade VGL, for test methods 3.3, 3.4, 3.6, 3.8, and 3.10.

## 2.3 CABINET HARDWARE AND ACCESSORIES

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets except for items specified in Section 087111 "Door Hardware (Descriptive Specification)."
- B. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 135 degrees of opening, self-closing.
- C. Wire Pulls: Back mounted, solid metal, 5 inches (127 mm) long, 2-1/2 inches (63.5 mm) deep, and 5/16 inch (8 mm) in diameter.
- D. Catches: Magnetic catches, BHMA A156.9, B03141.
- E. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081.
- F. Drawer Slides: BHMA A156.9.
  1. Grade 1HD-100 and Grade 1HD-200: Side mounted; full-extension type; zinc-plated-steel ball-bearing slides.
- G. Door Locks: BHMA A156.11, E07121.
- H. Drawer Locks: BHMA A156.11, E07041.
- I. Door and Drawer Silencers: BHMA A156.16, L03011.

- J. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.

- 1. Satin Chromium Plated: BHMA 626 for brass or bronze base; BHMA 652 for steel base.

#### 2.4 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln dried to less than 15 percent moisture content.
- B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide metal expansion sleeves or expansion bolts for post-installed anchors. Use nonferrous- metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.
- C. Adhesives: Do not use adhesives that contain urea formaldehyde.

#### 2.5 FABRICATION

- A. Complete fabrication, including assembly and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
- B. Shop-cut openings to maximum extent possible to receive hardware, appliances, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Before installation, condition cabinets to average prevailing humidity conditions in installation areas.

#### 3.2 INSTALLATION

- A. Grade: Install cabinets to comply with same grade as item to be installed.
- B. Install cabinets level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.

- C. Scribe and cut cabinets to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- D. Anchor cabinets to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing. Use fine finishing nails for exposed fastening, countersunk and filled flush with woodwork.
- E. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
  - 1. Install cabinets with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
  - 2. Fasten wall cabinets through back, near top and bottom, and at ends not more than 16 inches o.c. with No. 10 wafer-head screws sized for not less than 1-1/2-inch penetration into wood framing, blocking, or hanging strips.

END OF SECTION 064116

## SECTION 078100 - APPLIED REPLACEMENT FIREPROOFING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Work under this section consists of the furnishing of all labor, materials, equipment, and services necessary for, and incidental to, the complete and proper installation of all aggregate slurry fireproofing and related work as shown on the drawings or specified herein, and in accordance with all applicable requirements of the contract documents.

#### 1.2 ACTION SUBMITTALS

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

#### 1.3 QUALITY ASSURANCE

- A. Fireproofing work shall be performed by a firm acceptable to the aggregate slurry fireproofing material manufacturer.
- B. Products, execution, and fireproofing thicknesses shall conform to the applicable code requirements for the required fire-resistance ratings.
- C. Contractor, fireproofing subcontractor and independent testing laboratory shall attend a pre-installation conference to review the substrates for acceptability, method of application, applied thicknesses, inspection procedures and other issues.

#### DELIVERY, STORAGE AND HANDLING

Material shall be delivered in original unopened packages, fully identified as to manufacturer, brand or other identifying data and bearing the proper independent testing laboratory labels for Surface Burning Characteristic and Fire Resistance Classification.

- B. Material shall be stored off the ground, under cover, and in a dry location until ready for use. All bags that have been exposed to water before use shall be found unsuitable and discarded. Stock of material is to be rotated and used prior to its expiration date.

#### 1.5 PROJECT/SITE CONDITIONS

- A. A minimum air and substrate temperature of 4.4°C (40°F) shall be present before application of spray applied fireproofing. A minimum air and substrate temperature of 4.4°C (40°F) must be maintained during and for 24 hours after application of the spray applied fireproofing. Provide enclosures with heat to maintain temperature.
- B. Provide ventilation in poorly ventilated areas to achieve a minimum total fresh air exchange rate of 4 times per hour until the material is substantially dry.

#### 1.6 SEQUENCING AND SCHEDULING

- A. Sequence and coordinate application of aggregate slurry fireproofing with work in other sections which would interfere with efficient fireproofing application.

## PART 2 - PRODUCTS

### 2.1 MATERIALS, GENERAL

- A. Assemblies: Provide fireproofing, including auxiliary materials, according to requirements of each fire-resistance design and manufacturer's written instructions.
- B. Source Limitations: Obtain fireproofing from single source.
- C. Fire-Resistance Design: Indicated on Drawings, tested according to ASTM E 119 or UL 263 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1. Steel members are to be considered unrestrained unless specifically noted otherwise.
- D. Asbestos: Provide products containing no detectable asbestos.
- E. Dry mix sprayed fire resistive materials containing mineral fibers are not allowed.

### 2.2 ACCEPTABLE MANUFACTURER

- A. Fireproofing shall be aggregate slurry mixture as manufactured by Grace Construction Products, Grace Korea Inc, W. R. Grace & Co.-Conn., or its processing distributors

### 2.3 MATERIALS

- A. Materials shall be Retro-Guard<sup>®</sup> RG factory-blended aggregate slurry fireproofing or approved equal.
- B. Physical Performance Characteristics: Fireproofing material shall meet the following physical performance standards:
  - 1. Dry Density: The field density shall be measured in accordance with ASTM Standard E605. Minimum average density shall be that required by the manufacturer, or as listed in the UL Fire Resistance Directory for each rating indicated, or as required by the authority having jurisdiction, or a minimum average 240 kg/m<sup>3</sup> (15 pcf) whichever is greater.
  - 2. Deflection: Material shall not crack or delaminate from the surface to which it is applied when tested in accordance with ASTM E759.
  - 3. Bond Impact: Material subject to impact tests in accordance with ASTM E760 shall not crack or delaminate from the surface to which it is applied.
  - 4. Bond Strength: Fireproofing, when tested in accordance with ASTM E736, shall have a minimum average bond strength of 9.6 kN/m<sup>2</sup> (200 psf) and a minimum individual bond strength of 7.2 kN/m<sup>2</sup> (150 psf).

5. Air Erosion: Maximum allowable total weight loss of the fireproofing material shall be 0.00 g/m<sup>2</sup> (0.00 g/ft<sup>2</sup>) when tested in accordance with ASTM E859. Sample surface shall be “as applied” (not pre-purged) and the total reported weight loss shall be the total weight loss over a 24 hour period from the beginning of the test.
  6. High Speed Air Erosion: Materials to be used in plenums or ducts shall exhibit no continued erosion after 4 hours at an air speed of 12.7 m/s (47 km/h) [2500 ft/min (29 mph)] when tested per ASTM E859.
  7. Compressive Strength: The fireproofing shall not deform more than 10% when subjected to compressive forces of 68.9 kPa (1,440 psf) when tested in accordance with ASTM E761.
  8. Corrosion Resistance: Fireproofing applied to steel shall be tested in accordance with ASTM E937 and shall not promote corrosion of steel.
  9. Abrasion Resistance: No more than 15 cm<sup>3</sup> shall be abraded or removed from the fireproofing substrate when tested in accordance with the test methods developed by the City of San Francisco, Bureau of Building Inspection
  10. Impact Penetration: The fireproofing material shall not show a loss of more than 6 cm<sup>3</sup> when subjected to impact penetration tests in accordance with the test methods developed by the City of San Francisco, Bureau of Building Inspection.
  11. Surface Burning Characteristics: Material shall exhibit the following surface burning characteristics when tested in accordance with ASTM E84:  
  
Flame Spread 0  
  
Smoke Development 0
  12. Resistance to Mold: The fireproofing material shall be formulated at the time of manufacturing with a mold inhibitor. Fireproofing material shall be tested in accordance with ASTM G21 and shall show resistance to mold growth for a period of 28 days for general use.
  13. Combustibility: Material shall have a maximum total heat release of 20 MJ/m<sup>2</sup> and a maximum 125 kw/m<sup>2</sup> peak rate of heat release 600 seconds after insertion when tested in accordance with ASTM E1354 at a radiant heat flux of 75 kw/m<sup>2</sup> with the use of electric spark ignition. The sample shall be tested in the horizontal orientation.
- C. Fire Resistance Classification: The spray applied fireproofing material shall have been tested and reported by Underwriters Laboratories Inc., or an other accredited laboratory, in accordance with the procedures of ANSI/ASTM E119 and shall be listed in the Underwriters Laboratories Fire Resistance.
- D. Mixing water shall be clean, fresh, and suitable for domestic consumption and free from such amounts of mineral or organic substances as would affect the set of the fireproofing material. Provide water with sufficient pressure and volume to meet the fireproofing application schedule.



## 2.4 ACCESSORIES

- A. Provide accessories to comply with manufacturer's recommendations and to meet fire resistance design and code requirements. Such accessories include, but are not limited to, any required or optional items such as Spatterkote SK-3; bonding agents, mechanical attachments; application aids such as metal lath, scrim, or netting; and Monokote Accelerator.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. All surfaces to receive spray applied fireproofing shall be provided free of oil, grease, loose mill scale, dirt or other foreign substances which may impair proper adhesion of the fireproofing to the substrate. Where necessary, cleaning or other corrections of surfaces to receive fireproofing shall be the responsibility of the supplier of the incompatible surface.
- B. Fireproofing shall be applied to painted surfaces and surfaces coated with lock down agents in accordance with ambient bond and mechanical attachment requirements set forth in the Underwriters Laboratories, Inc. Fire Resistance Directory, current edition.
- C. Application of the fireproofing shall not begin until the contractor, applicator and fireproofing testing laboratory (inspector) have examined surfaces to receive fireproofing and determined that the surfaces are acceptable to receive the fireproofing material

### 3.2 PREPARATION

- A. Prior to application of the fireproofing material, a bonding agent, approved by the fireproofing material manufacturer, shall be applied to all concrete substrates to receive fireproofing.
- B. Other trades shall install clips, hangers, support sleeves and other attachments required to penetrate the fireproofing, prior to application of the fireproofing materials.
- C. Other trades shall not install ducts, piping, equipment or other suspended items until the fireproofing is complete.
- D. Complete placing of concrete on floor and roof decking prior to application of the fireproofing to the underside of steel deck and supporting beams and joists.
- E. On roof decks without a concrete cover, complete all roofing applications and roof mounted equipment installation prior to application of the fireproofing to the underside of roof decking

and supporting beams and joists. Prohibit all roof traffic upon commencement of the fireproofing and until the fireproofing material is dry

### 3.3 APPLICATION

- A. Equipment and application procedures shall conform to the material manufacturer's application instructions.
- B. Post appropriate cautionary "Slippery When Wet" signs in all areas in contact with wet fireproofing material. Erect appropriate barriers to prevent entry by non-fireproofing workers into the fireproofing spray and mixing areas and other areas exposed to wet fireproofing material.
- C. Apply a discontinuous textured spray of Spatterkote SK-3 in accordance with manufacturer's instructions to all cellular steel floor units with flat plate on the bottom and to roof deck assemblies as required to meet the fire resistance ratings, before application of the Monokote fireproofing to these surfaces.

### 3.4 CLEANING

- A. After the completion of fireproofing work, application equipment shall be removed.
- B. Except as detailed in Section 3.02F, floors shall be left in a scraped condition.

### 3.5 PATCHING

- A. All patching and repairing of spray applied fireproofing, due to damage by other trades, shall be performed with same materials under this section, and paid for by the trade(s) responsible for the damage.

END OF SECTION 078100

## SECTION 078413 - PENETRATION FIRESTOPPING

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. Penetrations in fire-resistance-rated walls and floors.

#### 1.2 ACTION SUBMITTALS

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

B. Product Schedule: For each penetration firestopping system. Include location and design designation of qualified testing and inspecting agency.

1. Where Project conditions require modification to a qualified testing and inspecting agency's illustration for a particular penetration firestopping condition, submit illustration, with modifications marked, approved by penetration firestopping manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly.

#### 1.3 INFORMATIONAL SUBMITTALS

A. Installer Certificates: From Installer indicating penetration firestopping has been installed in compliance with requirements and manufacturer's written recommendations.

B. Product test reports.

#### 1.4 QUALITY ASSURANCE

A. Installer Qualifications: A firm that has been evaluated by UL and found to comply with its "Qualified Firestop Contractor Program Requirements."

B. Fire-Test-Response Characteristics: Penetration firestopping shall comply with the following requirements:

1. Penetration firestopping tests are performed by UL

## 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. Grace Construction Products.
2. Hilti, Inc.
3. 3M Fire Protection Products.

### 2.2 PENETRATION FIRESTOPPING

- A. Provide penetration firestopping that is produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire- resistance rating of construction penetrated. Penetration firestopping systems shall be compatible with one another, with the substrates forming openings, and with penetrating items if any.
- B. Penetrations in Fire-Resistance-Rated Walls: Ratings determined per ASTM E 814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg (2.49 Pa).
1. F-Rating: Not less than the fire-resistance rating of constructions penetrated.
- C. Penetrations in Horizontal Assemblies: Ratings determined per ASTM E 814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg (2.49 Pa).
1. F-Rating: At least 1 hour, but not less than the fire-resistance rating of constructions penetrated.
  2. T-Rating: At least 1 hour, but not less than the fire-resistance rating of constructions penetrated except for floor penetrations within the cavity of a wall.
- D. Exposed Penetration Firestopping: Provide products with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.
- E. VOC Content: Penetration firestopping sealants and sealant primers shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
1. Sealants: 250 g/L.
  2. Sealant Primers for Nonporous Substrates: 250 g/L.
  3. Sealant Primers for Porous Substrates: 775 g/L.
- F. Accessories: Provide components for each penetration firestopping system that are needed to install fill materials and to maintain ratings required. Use only those components

specified by penetration firestopping manufacturer and approved by qualified testing and inspecting agency for firestopping indicated.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of the Work.
- B. Install penetration firestopping to comply with manufacturer's written installation instructions and published drawings for products and applications indicated.
- C. Install forming materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
  - 1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of firestopping.
- D. Install fill materials for firestopping by proven techniques to produce the following results:
  - 1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
  - 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
  - 3. For fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

#### 3.2 IDENTIFICATION

- A. Identify penetration firestopping with preprinted metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of firestopping edge so labels will be visible to anyone seeking to remove penetrating items or firestopping. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:
  - 1. The words "Warning - Penetration Firestopping – Do Not Disturb. Notify Building Management of Any Damage."
  - 2. Contractor's name, address, and phone number.
  - 3. Designation of applicable testing and inspecting agency.
  - 4. Date of installation.
  - 5. Manufacturer's name.
  - 6. Installer's name.

- B. Do not install identification on exposed finished wall locations.

### 3.3 CLEANING AND PROTECTING

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

END OF SECTION 078413

## SECTION 079200 - JOINT SEALANTS

### PART 1 – GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Latex joint sealants.
3. Acoustical joint sealants.

#### 1.2 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

#### 1.3 INFORMATIONAL SUBMITTALS

A. Product test reports.

B. Field-adhesion test reports.

C. Warranties.

#### 1.4 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.

#### 1.5 WARRANTY

A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

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 do not comply with performance and other requirements specified in this Section within specified warranty period.
  - 1. Warranty Period: Ten years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MATERIALS, GENERAL

- A. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
  - 1. Architectural Sealants: 250 g/L.
  - 2. Sealant Primers for Nonporous Substrates: 250 g/L.
  - 3. Sealant Primers for Porous Substrates: 775 g/L.
- B. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- C. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

### 2.2 SILICONE JOINT SEALANTS

- A. Mildew-Resistant, Silicone Joint Sealant SS-1: ASTM C 920.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Tremco Incorporated, Tremsil 200 or comparable product by one of the following:
    - a. BASF Building Systems.
    - b. Dow Corning Corporation.
    - c. GE Advanced Materials - Silicones.
    - d. May National Associates, Inc.
    - e. Pecora Corporation.
    - f. Polymeric Systems, Inc.
    - g. Schnee-Morehead, Inc.
    - h. Sika Corporation; Construction Products Division.
  - 2. Type: Single component (S)
  - 3. Grade: Nonsag (NS).
  - 4. Class: 25.
  - 5. Uses Related to Exposure: Non-traffic (NT).

### 2.3 LATEX JOINT SEALANTS



- A. Latex Joint Sealant LS-1: Acrylic latex or siliconized acrylic latex, ASTM C 834,
  - 1. Type: Single component (S), Opaque
  - 2. Grade: Nonsag (NS).
  - 3. Uses Related to Exposure: Non-traffic (NT).
  - 4. Basis-of-Design Product: Subject to compliance with requirements, provide Tremco Incorporated, Tremflex 834 or comparable product by one of the following:
    - a. BASF Building Systems.
    - b. Bostik, Inc.
    - c. May National Associates, Inc.
    - d. Pecora Corporation.
    - e. Schnee-Morehead, Inc.

#### 2.4 ACOUSTICAL JOINT SEALANTS

- A. Acoustical Joint Sealant AS-1: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
  - 1. Manufacturers: Subject to compliance with requirements, into the Work include, but are not limited to, the following:
    - a. Pecora Corporation .
    - b. USG Corporation.
    - c. Tremco Incorporated

#### 2.5 JOINT SEALANT BACKING

- A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

#### 2.6 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.
  - 1. Remove laitance and form-release agents from concrete.
  - 2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint- sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

### 3.2 INSTALLATION

- 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. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  - 1. Do not leave gaps between ends of sealant backings.
  - 2. Do not stretch, twist, puncture, or tear sealant backings.
  - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
  - 1. Place sealants so they directly contact and fully wet joint substrates.
  - 2. Completely fill recesses in each joint configuration.
  - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

- E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
  - 1. Remove excess sealant from surfaces adjacent to joints.
  - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
  - 3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
- F. Acoustical Sealant Installation: Comply with ASTM C 919 and with manufacturer's written recommendations.
- G. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

### 3.3 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
  - 1. Extent of Testing: Test completed and cured sealant joints as follows:
    - a. Perform 5 tests for the first 500 feet of joint length for each kind of sealant and joint substrate.
  - 2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.
- B. Evaluation of Field-Adhesion Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

### 3.4 JOINT-SEALANT SCHEDULE

- A. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal non-traffic surfaces JS-LS-1.
  - 1. Joint Locations:
    - a. Control and expansion joints on exposed interior surfaces of exterior walls.
    - b. Perimeter joints of exterior openings where indicated.

- c. Vertical joints on exposed surfaces of interior unit masonry.
    - d. Joints on underside of plant-precast structural concrete [beams] [and] [planks].
    - e. Perimeter joints between interior wall surfaces and frames of interior doors and windows.
    - f. Other joints as indicated.
  2. Joint Sealant: Latex.
  3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- B. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal non-traffic surfaces JS-SS-1
  1. Joint Sealant Location:
    - a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
    - b. Other joints as indicated.
  2. Joint Sealant: Silicone.
  3. Joint-Sealant Color: Clear with Fungicide
- C. Joint-Sealant Application: Interior acoustical joints in vertical surfaces and horizontal non- traffic surfaces JS-AS-1.
  1. Joint Location:
    - a. Acoustical joints where indicated.
    - b. Other joints as indicated.
  2. Joint Sealant: Acoustical.
  3. Joint-Sealant Color: Manufacturer's standard color.

END OF SECTION 079200

## SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. Section includes hollow-metal work.

#### 1.2 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Include elevations, door edge details, frame profiles, metal thicknesses, preparations for hardware, and other details.
- C. Schedule: Prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Product test reports.

### 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. Ceco Door Products; an Assa Abloy Group company.
  2. Curries Company; an Assa Abloy Group company.
  3. Steelcraft; an Ingersoll-Rand company.

#### 2.2 REGULATORY REQUIREMENTS

- A. Fire-Rated Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.

### 2.3 INTERIOR DOORS AND FRAMES

- A. Standard-Duty Doors and Frames: SDI A250.8, Level 1. At locations indicated in the Door and Frame Schedule.
  - 1. Physical Performance: Level C according to SDI A250.4.
  - 2. Doors:
    - a. Type: As indicated in the Door and Frame Schedule.
    - b. Thickness: 1-3/4 inches.
    - c. Face: Uncoated, cold-rolled steel sheet, minimum thickness of 0.032 inch.
    - d. Edge Construction: Model 2, Seamless.
    - e. Core: Manufacturer's standard.
  - 3. Frames:
    - a. Materials: Uncoated, cold-rolled steel sheet, minimum thickness of 0.042 inch.
    - b. Construction: Knocked down.
  - 4. Exposed Finish: Prime.
- B. Heavy-Duty Doors and Frames: SDI A250.8, Level 2. At locations indicated in the Door and Frame Schedule.
  - 1. Physical Performance: Level B according to SDI A250.4.
  - 2. Doors:
    - a. Type: As indicated in the Door and Frame Schedule.
    - b. Thickness: 1-3/4 inches.
    - c. Face: Uncoated, cold-rolled steel sheet, minimum thickness of 0.042 inch.
    - d. Edge Construction: Model 2, Seamless.
    - e. Core: Manufacturer's standard.
  - 3. Frames:
    - a. Materials: Uncoated, steel sheet, minimum thickness of 0.053 inch.
    - b. Construction: Full profile welded.
  - 4. Exposed Finish: Prime.

### 2.4 FRAME ANCHORS

- A. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
  2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.
  3. Postinstalled Expansion Type for In-Place Concrete or Masonry: Minimum 3/8-inch-diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.
- B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch, and as follows:
1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

## 2.5 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.
- D. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z (12G) coating designation; mill phosphatized.
  1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- F. Power-Actuated Fasteners in Concrete: From corrosion-resistant materials.
- G. Grout: ASTM C 476, except with a maximum slump of 4 inches, as measured according to ASTM C 143/C 143M.
- H. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing).
- I. Glazing: Section 088000 "Glazing."
- J. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat.

## 2.6 FABRICATION

- A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where

practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

B. Hollow-Metal Doors:

1. Exterior Doors: Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
2. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated.

C. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

1. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
3. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
4. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
5. Jamb Anchors: Provide number and spacing of anchors as follows:
  - a. Masonry Type: Locate anchors not more than 16 inches from top and bottom of frame. Space anchors not more than 32 inches o.c., to match coursing, and as follows:
    - 1) Three anchors per jamb from 60 to 90 inches high.
  - b. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
    - 1) Four anchors per jamb from 60 to 90 inches high.
  - c. Postinstalled Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.
6. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers.
  - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
  - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.

D. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.



1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
  2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.
- E. Stops and Moldings: Provide stops and moldings around glazed lites and louvers where indicated. Form corners of stops and moldings with butted or mitered hairline joints.
1. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
  2. Provide loose stops and moldings on inside of hollow-metal work.
  3. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.

## 2.7 STEEL FINISHES

- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
1. Shop Primer: SDI A250.10.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Hollow-Metal Frames: Install hollow-metal frames of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.
1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
    - a. At fire-rated openings, install frames according to NFPA 80.
    - b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
    - c. Install frames with removable stops located on secure side of opening.
    - d. Install door silencers in frames before grouting.
    - e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
    - f. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
    - g. Field apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
    - a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
  3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation inside frames.
  4. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
  5. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
    - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    - b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
    - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    - d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
- B. Hollow-Metal Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.
1. Non-Fire-Rated Steel Doors:
    - a. Between Door and Frame Jambs and Head: 1/8 inch plus or minus 1/32 inch .
    - b. Between Edges of Pairs of Doors: 1/8 inch to 1/4 inch plus or minus 1/32 inch.
    - c. At Bottom of Door: 5/8 inch plus or minus 1/32 inch.
    - d. Between Door Face and Stop: 1/16 inch to 1/8 inch plus or minus 1/32 inch.
  2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.
- C. Glazing: Comply with installation requirements in Section 088000 "Glazing" and with hollow- metal manufacturer's written instructions.
1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c. and not more than 2 inches o.c. from each corner.

### 3.2 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow-metal work immediately after installation.

- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- D. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.
- E. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION 081113

## SECTION 081416 - FLUSH WOOD DOORS

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

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

##### B. Related Requirements:

1. Section 088000 "Glazing" for glass view panels in flush wood doors.

#### 1.2 ACTION SUBMITTALS

##### A. Product Data: For each type of door.

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

##### C. Samples: For factory-finished doors.

#### 1.3 INFORMATIONAL SUBMITTALS

##### A. Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.

#### 1.4 QUALITY ASSURANCE

##### A. Source Limitations: Obtain flush wood doors from single manufacturer.

#### 1.5 WARRANTY

##### A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
  - a. Warping (bow, cup or twist) more than ¼” in a 42-by-84 inch section.
  - b. Telegraphing of core construction in face veneers exceeding 0.01 inch in 3 inch span.
2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
3. Warranty Period for Solid-Core 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. Algoma Hardwoods, Inc.
  2. Graham Wood Doors; an Assa Abloy Group company.
  3. Marshfield Door Systems, Inc.
  4. Mohawk Doors; a Masonite company.

### 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."
- B. WDMA I.S.1-A Performance Grade:
  1. Heavy Duty unless otherwise indicated.
- C. Particleboard-Core Doors:
  1. Particleboard: ANSI A208.1, Grade LD-2.
  2. Blocking: Provide wood blocking in particleboard-core doors as needed to eliminate through-bolting hardware.
  3. Provide doors with glued-wood-stave or structural-composite-lumber cores instead of particleboard cores for doors indicated to receive exit devices.
  4. Low-Emitting Materials: Fabricate doors with adhesives and composite wood products that do not contain urea formaldehyde.

### 2.3 VENEER-FACED DOORS FOR TRANSPARENT FINISH

A. Interior Solid-Core Doors:

1. Grade: Custom, with Grade A faces.
2. Species: White Maple
3. Cut: Plain sliced.
4. Match between Veneer Leaves: Book match.
5. Assembly of Veneer Leaves on Door Faces: Running match.
6. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.
7. Core: Particleboard
8. Construction: Five plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering. Faces are bonded to core using a hot press.

2.4 LIGHT FRAMES AND LOUVERS

- A. Wood-Veneered Beads for Light Openings in Fire-Rated Doors: Manufacturer's standard wood-veneered noncombustible beads matching veneer species of door faces and approved for use in doors of fire-protection rating indicated. Include concealed metal glazing clips where required for opening size and fire-protection rating indicated.

2.5 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
1. Comply with NFPA 80 requirements for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied.
- C. Openings: Factory cut and trim openings through doors.
1. Light Openings: Trim openings with moldings of material and profile indicated. Wood lip molding to match door species.
  2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Section 088000 "Glazing."

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" System 9, UV curable, acrylated epoxy, polyester, or urethane.
  - 3. Staining: To be selected from Manufacturer's standard finishes
  - 4. Sheen: Satin.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Hardware: For installation, see Section 087100 "Door Hardware."
  - 1. Install fire-rated doors according to NFPA 80.
- B. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- C. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

END OF SECTION 081416

## PART 1 - GENERAL

### 1.1 SUMMARY

#### A. Section includes:

1. Mechanical door hardware for the following:
  - a. Swinging doors.
  - b. Side wall track doors.
2. Electrified door hardware.

#### B. Products furnished, but not installed, under this Section include the products listed below. Coordinating and scheduling the purchase and delivery of these products remain requirements of this Section.

1. Permanent lock cores to be installed by Owner.

### 1.2 ACTION SUBMITTALS

#### A. Product Data: For each type of product indicated.

#### B. Shop Drawings: Details of electrified door hardware.

#### C. Samples: For each exposed product and for each color and texture specified.

#### D. Other Action Submittals:

1. Door Hardware Schedule: Prepared by or under the supervision of Installer, detailing fabrication and assembly of door hardware, as well as installation procedures and diagrams. Coordinate final door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
  - a. Format: Use same scheduling sequence and format and use same door numbers as in the Contract Documents.
  - b. Content: Include the following information:
    - 1) Identification number, location, hand, fire rating, size, and material of each door and frame.
    - 2) Locations of each door hardware set, cross-referenced to Drawings on floor plans and to door and frame schedule.
    - 3) Complete designations, including name and manufacturer, type, style, function, size, quantity, function, and finish of each door hardware product.
    - 4) Description of electrified door hardware sequences of operation and interfaces with other building control systems.
2. Keying Schedule: Prepared by or under the supervision of Installer, detailing Owner's final keying instructions for locks.



### 1.3 QUALITY ASSURANCE

- A. **Installer Qualifications:** Supplier of products and an employer of workers trained and approved by product manufacturers and an Architectural Hardware Consultant who is available during the course of the Work to consult with Contractor, Architect, and Owner about door hardware and keying.
- B. **Architectural Hardware Consultant Qualifications:** A person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and who is currently certified by DHI as follows:
  - 1. For door hardware, an Architectural Hardware Consultant (AHC) who is also an Electrified Hardware Consultant (EHC).
- C. **Source Limitations:** Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated. Manufacturers that perform electrical modifications and that are listed by a testing and inspecting agency acceptable to authorities having jurisdiction are acceptable.
- D. **Fire-Rated Door Assemblies:** Where fire-rated door assemblies are indicated, provide door hardware rated for use in assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C, unless otherwise indicated.
- E. **Smoke- and Draft-Control Door Assemblies:** Where smoke- and draft-control door assemblies are required, provide door hardware that meet requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
  - 1. **Air Leakage Rate:** Maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at the tested pressure differential of 0.3-inch wg (75 Pa) of water.
- F. **Electrified Door Hardware:** Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.
- G. **Means of Egress Doors:** Latches do not require more than 15 lbf (67 N) to release the latch. Locks do not require use of a key, tool, or special knowledge for operation.
- H. **Accessibility Requirements:** For door hardware on doors in an accessible route, comply with the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.
  - 1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf (22.2 N).
  - 2. Comply with the following maximum opening-force requirements:
    - a. **Interior, Non-Fire-Rated Hinged Doors:** 5 lbf (22.2 N) applied perpendicular to door.

- b. Sliding or Folding Doors: 5 lbf (22.2 N) applied parallel to door at latch.
  - c. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
- 3. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch (13 mm) high.
  - 4. Adjust door closer sweep periods so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches (75 mm) from the latch, measured to the leading edge of the door.
- I. Keying Conference: Conduct conference at Project site to comply with Owners requirements.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Hand deliver or deliver keys and permanent cores to Owner by registered mail or overnight package service.

#### 1.5 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.
  - 1. Warranty Period: Three years from date of Substantial Completion, unless otherwise indicated.
    - a. Electromagnetic and Delayed-Egress Locks: Five years from date of Substantial Completion.
    - b. Exit Devices: Two years from date of Substantial Completion.
    - c. Manual Closers: 10 years from date of Substantial Completion.
    - d. Concealed Floor Closers: Five years from date of Substantial Completion.

### PART 2 - PRODUCTS

#### 2.1 SCHEDULED DOOR HARDWARE

- A. Provide door hardware for each door as scheduled in Part 3 "Door Hardware Schedule" Article to comply with requirements in this Section.
  - 1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and named manufacturers' products.
  - 2. Sequence of Operation: Provide electrified door hardware function, sequence of operation, and interface with other building control systems indicated.

- B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in this section.
  - 1. Named Manufacturers' Products: Manufacturer and product designation are listed for each door hardware type required for the purpose of establishing minimum requirements.
  - 2. References to BHMA Designations: Provide products complying with these designations and requirements for description, quality, and function.

## 2.2 HINGES

- A. Hinges: BHMA A156.1. Provide template-produced hinges for hinges installed on hollow-metal doors and hollow-metal frames.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. McKinney Products Company; an ASSA ABLOY Group company.
    - b. Stanley Commercial Hardware; Div. of The Stanley Works.

## 2.3 MECHANICAL LOCKS AND LATCHES

- A. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.
  - 1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
  - 2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
  - 3. Aluminum-Frame Strike Box: Manufacturer's special strike box fabricated for aluminum framing.
  - 4. Rabbet Front and Strike: Provide on locksets for rabbeted meeting stiles.
- B. Bored Locks: BHMA A156.2; Grade 2; Series 4000.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Q Series product (with Sierra SR lever and rose) as manufactured by Arrow Lock and Door Hardware, an ASSA ABLOY Group company.
  - 2. The following is a list of lock functions as indicated under "Hardware Sets"

FUNCTION	ARROW	DESCRIPTION
(1)	Q32	Entrance
(2)	Q1	Passage
(3)	Q02	Privacy
(4)	Q11	Office
(6)	Q12	Storage
(7)	Q17	Classroom

- C. Push-Button Combination Locks: BHMA A156.5; Cylindrical; Grade 1; lock opens by entering a one- to five-digit code by pushing correct buttons in correct sequence; automatically relocks when door is closed; with strike that suits frame.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Keypad Cylindrical Lock (KP Series) with P lever, L rose design, as manufactured by SARGENT Manufacturing Company; an ASSA ABLOY Group company.

#### 2.4 MANUAL FLUSH BOLTS

- A. Manual Flush Bolts: BHMA A156.16; minimum 3/4-inch (19-mm) throw; designed for mortising into door edge.
  - 1. 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:
    - a. Adams Rite Manufacturing Co.; an ASSA ABLOY Group company.
    - b. Burns Manufacturing Incorporated.
    - c. Don-Jo Mfg., Inc.
    - d. Door Controls International, Inc.
    - e. Hiawatha, Inc.
    - f. IVES Hardware; an Ingersoll-Rand company.
    - g. Trimco.

#### 2.5 EXIT DEVICES AND AUXILIARY ITEMS

- A. Exit Devices and Auxiliary Items: BHMA A156.3.
    - 1. Basis-of-Design Product: Subject to compliance with requirements, provide 8500 Series as manufactured by SARGENT Manufacturing Company; an ASSA ABLOY Group company.
- | FUNCTION | SARGENT | DESCRIPTION                                    |
|----------|---------|--|
| (1E)     | 74      | Entrance with electrified ET trim, fail secure |

#### 2.6 LOCK CYLINDERS

- A. Construction Cores: Provide construction cores that are replaceable by permanent cores. Provide 10 construction master keys.

#### 2.7 OPERATING TRIM

- A. Operating Trim: BHMA A156.6; aluminum, brass, bronze, or stainless steel, unless otherwise indicated.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Model 110 straight pull (8” CTC) as manufactured by Rockwood Manufacturing Company or comparable product by one of the following:
  - a. Burns Manufacturing Incorporated.
  - b. Don-Jo Mfg., Inc.
  - c. Forms + Surfaces.
  - d. Hager Companies.
  - e. Hiawatha, Inc.
  - f. IVES Hardware; an Ingersoll-Rand company.
  - g. Trimco.

## 2.8 SURFACE CLOSERS

- A. Surface Closers: BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm. Comply with manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.
  1. Basis-of-Design Product: Subject to compliance with requirements, provide 281 Series
    - a. SARGENT Manufacturing Company; an ASSA ABLOY Group company.
      - i. Provide 281-CPSH, Heavy Duty Parallel Arm with Hold-Open at exterior doors.
      - ii. Provide 281-P10, Heavy Duty Parallel Arm, at interior doors.

## 2.9 MECHANICAL STOPS AND HOLDERS

- A. Wall- and Floor-Mounted Stops: BHMA A156.16; polished cast brass, bronze, or aluminum base metal.
  1. 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:
    - a. IVES Hardware; an Ingersoll-Rand company.
    - b. Rockwood Manufacturing Company.

## 2.10 OVERHEAD STOPS AND HOLDERS

- A. Overhead Stops and Holders: BHM A156.8.
  1. 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:
    - a. Glynn-Johnson; an Ingersoll-Rand company.
    - b. Rockwood Manufacturing Company.

- c. SARGENT Manufacturing Company; an ASSA ABLOY Group company.

## 2.12 SIDE WALL TRACK HARDWARE

- A. Side Wall Track Hardware: Side Wall Track System consisting of complete sets including side wall track; side wall fascia and end plates; nylon wheel hangers, stops and guide.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Pemco Side Wall Track System 280C-SWTKIT .
    - a. Finish Color: Clear Anodized

## 2.13 METAL PROTECTIVE TRIM UNITS

- A. Metal Protective Trim Units: BHMA A156.6; fabricated from 0.050-inch-thick stainless steel; with manufacturer's standard machine or self-tapping screw fasteners.
  - 1. 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:
    - a. Burns Manufacturing Incorporated.
    - b. IVES Hardware; an Ingersoll-Rand company.
    - c. Rockwood Manufacturing Company.

## 2.14 DOOR GASKETING SYSTEM FOR REDUCED SOUND TRANSMISSION

- A. Self-Adhesive Gasketing
  - 1. Manufacturers: National Guard Products: 5020 series or equal.
- B. Automatic Door Bottoms
  - 1. Manufacturers: National Guard Products: 780 Slimline Series or equal.
- C. Threshold
  - 1. Manufacturers: National Guard Products: 513 Saddle Threshold or equal.

## 2.15 FABRICATION

- A. Fasteners: Provide door hardware manufactured to comply with published templates prepared for machine, wood, and sheet metal screws. Provide screws that comply with commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.

1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
2. Fire-Rated Applications:
  - a. Wood or Machine Screws: For the following:
    - 1) Hinges mortised to doors or frames.
    - 2) Strike plates to frames.
    - 3) Closers to doors and frames.
  - b. Steel Through Bolts: For the following unless door blocking is provided:
    - 1) Surface hinges to doors.
    - 2) Closers to doors and frames.
    - 3) Surface-mounted exit devices.
3. Spacers or Sex Bolts: For through bolting of hollow-metal doors.
4. Fasteners for Wood Doors: Comply with requirements in DHI WDHS.2, "Recommended Fasteners for Wood Doors."
5. Gasketing Fasteners: Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

## 2.16 FINISHES

- A. Provide finishes complying with BHMA A156.18 as follows:
  1. Interior Butts: US26D (BHMA 652)
  2. Door Closers: Sprayed to match hardware finish.
  3. Exit Devices: US26D (BHMA 626)
  4. Kick, Push Plates: US32D (BHMA 630)
  5. All other hardware shall be: US26D (BHMA 626), or as scheduled.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.

- B. Wood Doors: Comply with DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."
- C. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.
  - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
  - 2. Custom Steel Doors and Frames: HMMA 831.
  - 3. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- D. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work. Do not install surface-mounted items until finishes have been completed on substrates involved.
  - 1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
  - 2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- E. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.
- F. Intermediate Offset Pivots: Where offset pivots are indicated, provide intermediate offset pivots in quantities indicated in door hardware schedule but not fewer than one intermediate offset pivot per door and one additional intermediate offset pivot for every 30 inches of door height greater than 90 inches.
- G. Lock Cylinders: Install construction cores to secure building and areas during construction period.
  - 1. Furnish permanent cores to Owner for installation.
- H. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.
- I. Boxed Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings. Verify location with Architect.
  - 1. Configuration: Provide least number of power supplies required to adequately serve doors with electrified door hardware.
- J. Thresholds: Set thresholds for exterior doors and other doors indicated in full bed of sealant complying with requirements specified in Section 079200 "Joint Sealants."



- K. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they will impede traffic.
- L. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
- M. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- N. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.
- O. Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

### 3.2 FIELD QUALITY CONTROL

- A. Independent Architectural Hardware Consultant: Owner will engage a qualified independent Architectural Hardware Consultant to perform inspections and to prepare inspection reports.

### 3.3 DOOR HARDWARE SCHEDULE

#### HW 1 - Entrance

Doors: 52, 71, 194, 196

Each Door to Have: Hinges, Lockset (Entrance Function 1), Closer, Kickplate, Stop, Silencers.

#### HW 2 - Passage

Doors: 065, 190, 195

Each Door to Have: Hinges, Latchset (Passage Function 2), Stop, Silencers.

#### HW 3- Security

Door: 202

Existing retained for reuse hardware, add Gasketing

#### HW 4 - Office

Doors: 189

Each Door to Have: Hinges, Lockset (Office Function 4), Stop, Silencers,

#### HW 5- Not Used

#### HW 6 – Not Used

#### HW 7 - Classroom

Doors: 083

Each Door to Have: Hinges, Lockset (Classroom Function 7), Stop, Silencers

#### HW 8 – Not Used

#### HW 9 – Not Used

HW 10 – Power Operated Door

Doors: 077, 171

Door to Have: Hinges, Power Door Operator, Exit Device (Function 1E), Kickplate, Stop, Silencers.  
Activation of power door operator retracts latch.

HW 11 – Side Wall Track

Doors: 186, 191

Door to Have: Side Wall Track System, Pull Trim.

HW 12 – Not Used

END OF SECTION 087100

## SECTION 087160 - AUTOMATIC DOOR OPERATORS

### PART 1 – GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Power Door Operators for swinging doors
- B. Related Sections:
  - 1. Division 8 Sections for doors and entrances that need reinforcement for automatic door operators.

#### 1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for automatic door operators, including activation and safety devices. Include operating characteristics, electrical characteristics, and furnished accessories.
- B. Product Certificates: For each operator for fire-rated door assemblies, signed by product manufacturer. Certify that operator is listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for use on types and sizes of labeled fire doors required.
- C. Maintenance Data: For automatic door operators, including activation and safety devices, to include in maintenance manuals.
- D. Warranty: Sample of special warranty.

#### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation and maintenance of units required for this Project.
  - 1. Maintenance Proximity: Not more than two hours' normal travel time from Installer's place of business to Project site.
- B. Source Limitations: Obtain automatic door operators, including activation and safety devices, from single source from single manufacturer.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a testing agency, and marked for intended location and application.

- D. Exit-Door Requirements: Comply with requirements of authorities having jurisdiction for doors with automatic door operators serving as a component of a required means of egress.

#### 1.5 PROJECT CONDITIONS

- A. Field Measurements: Verify actual dimensions of door frames by field measurements before fabrication of exposed covers for automatic door operators.

#### 1.6 COORDINATION

- A. Templates: Obtain and distribute, to the parties involved, templates for doors, frames, operators, and other work specified to be factory prepared and reinforced for installing automatic door operators. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing automatic door operators to comply with indicated requirements.
- B. Electrical System Roughing-in: Coordinate layout and installation of automatic door operators, including activation and safety devices, with connections to power supplies and to access-control system.

#### 1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of automatic door operators that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Faulty or sporadic operation of automatic door operator, including activation and safety devices.
    - b. Deterioration of metals, metal finishes, and other materials beyond normal weathering or use.
  - 2. Warranty Period: One year from date of Substantial Completion.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide the following:
  - 1. Horton Automatics; a division of Overhead Door Corporation.
    - a. Low Energy: 7100 Series

- B. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated, complying with standards indicated below:
  - 1. Sheet: ASTM B 209.
  - 2. Extrusions: ASTM B 221.
- C. Expanded Aluminum Mesh: Manufacturer's standard aluminum sheet in accordance with the geometry of ASTM F 1267.
- D. Polycarbonate: Manufacturer's standard monolithic polycarbonate sheet manufactured by extrusion process, with an average impact strength of 12 to 16 ft-lbf/in. of width when tested according to ASTM D 256, Method A.
- E. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.

## 2.2 AUTOMATIC DOOR OPERATORS, GENERAL

- A. General: Provide operators of size recommended by manufacturer for door size, weight, and movement; for condition of exposure; for long-term, maintenance-free operation under normal traffic load for type of occupancy indicated; and complying with UL 325. Coordinate operator mechanisms with door operation, hinges, and activation and safety devices.
  - 1. Fire-Rated Doors: Provide door operators for fire-rated door assemblies that comply with NFPA 80 for fire-rated door components and are listed and labeled by a qualified testing agency.
- B. Electromechanical Operating System: Self-contained unit powered by permanent-magnet dc motor; with closing speed controlled mechanically by gear train and dynamically by braking action of electric motor, connections for power and activation- and safety-device wiring, and manual operation including spring closing when power is off.
- C. Hinges: See Division 8 Section "Door Hardware" for type of hinge for each door that door operator shall accommodate.
- D. Cover for Surface-Mounted Operators: Fabricated from 0.125-inch- thick extruded or formed aluminum; manufacturer's standard width; with enclosed end caps, provision for maintenance access, and fasteners concealed when door is in closed position.
- E. Brackets and Reinforcements: Manufacturer's standard, fabricated from aluminum with nonstaining, nonferrous shims for aligning system components.

## 2.3 POWER DOOR OPERATORS

- A. Standard: BHMA A156.10.

- B. Performance Requirements:
  - 1. Opening Force:
    - a. Power-Operated Swinging Doors: Not more than 30 lbf required to manually open door if power fails.
  - 2. Entrapment Protection: Not more than 40 lbf required to prevent stopped door in the last 10 degrees of opening from moving in the direction of opening; not more than 30 lbf required to prevent stopped door from moving in direction of closing.
- C. Configuration: Operator to control single swinging door.
  - 1. Traffic Pattern: Two way.
  - 2. Operator Mounting: Surface.
- D. Operation: Power opening and spring closing. Provide time delay for door to remain open before initiating closing cycle as required by BHMA A156.10.
- E. Operating System: Electromechanical.
- F. Microprocessor Control Unit: Solid-state controls.
- G. Features:
  - 1. Adjustable opening and closing speed.
  - 2. Adjustable opening and closing force.
  - 3. Adjustable backcheck.
  - 4. Adjustable hold-open time from zero to 30 seconds.
  - 5. Adjustable time delay.
  - 6. Adjustable acceleration.
  - 7. Adjustable limit switch.
  - 8. Obstruction recycle.
- H. Exposed Finish: Finish exposed components with Class I, dark bronze anodic finish.

#### 2.4 ACTIVATION AND SAFETY DEVICES

- A. General: Provide activation and safety devices in accordance with BHMA standards, for condition of exposure and for long-term, maintenance-free operation under normal traffic load for type of occupancy indicated. Coordinate activation and safety devices with door operation and door operator mechanisms.
- B. Presence Sensors: Self-contained, infrared-scanner units; adjustable to provide detection field sizes and functions required by BHMA A156.10. Sensors shall remain active at all times.
- C. Hand wave switch: Wall mounted switch activated by hand motion.
  - 1. Configuration: Square wall plate with junction box.

- a. Mounting: Recess mounted, semiflush in wall.
  2. Wall-Plate Material: Manufacturer's standard.
  3. Message: International symbol of accessibility and "Wave to Open symbol."
- D. Electrical Interlocks: Unless units are equipped with self-protecting devices or circuits, provide electrical interlocks to prevent activation of operator when door is locked, latched, or bolted.

## 2.5 FABRICATION

- A. Factory fabricate automatic door operators to comply with indicated standards.
- B. Form aluminum shapes before finishing.
- C. Use concealed fasteners to greatest extent possible. Where exposed fasteners are required, use countersunk Phillips flat-head machine screws, finished to match operator.

## 2.6 ACCESSORIES

- A. Signage: As required by cited BHMA standard for the type of operator.
  1. Application Process: Decals
  2. Provide sign materials with instructions for field application when operators are installed.

## 2.7 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Apply organic and anodic finishes to formed metal after fabrication unless otherwise indicated.
- D. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## 2.8 ALUMINUM FINISHES

- A. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances, door and frame preparation and reinforcements, and other conditions affecting performance of automatic door operators.
- B. Examine roughing-in for electrical systems to verify actual locations of power connections before automatic door operator installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 INSTALLATION

- A. General: Install complete automatic door operators according to manufacturer's written instructions, including activation and safety devices, control wiring, and remote power units if any; connection to the building's power supply; and signage.
  - 1. Do not install damaged components. Fit joints to produce hairline joints free of burrs and distortion.
  - 2. Install operators true in alignment with established lines and door geometry without warp or rack. Anchor securely in place.
  - 3. Power Door Operator Installation Standard: BHMA A156.10.
  - 4. Low-Energy Door Operator Installation Standard: BHMA A156.19.
- B. Power Connection: Connect to electrical power distribution system.
- C. Activation and Safety Devices: Install devices and wiring according to manufacturer's written instructions and cited BHMA standard for type of operator and direction of pedestrian travel. Connect activation- and safety-device wiring according to Division 16 Section "Conductors and Cables."
- D. Access-Control System: Connect operators to access-control system where scheduled.
- E. Signage: Apply on both sides of each door as required by cited BHMA standard for type of door operator and direction of pedestrian travel.

#### 3.3 FIELD QUALITY CONTROL

- A. Inspection: Owner will engage a certified inspector to test and inspect automatic door operators and prepare test and inspection reports.
  - 1. Certified inspector shall test and inspect each automatic door operator to determine compliance of installed systems with applicable BHMA standards.



2. Inspection Report: Certified inspector shall submit report in writing to Architect and Contractor within 24 hours after inspection.
- B. Work will be considered defective if it does not pass tests and inspections.

#### 3.4 ADJUSTING

- A. Adjust automatic door operators to function smoothly, and lubricate as recommended by manufacturer; comply with requirements of applicable BHMA standards.
1. Adjust operators on exterior doors for weathertight closure.
- B. After completing installation of exposed, factory-finished automatic door operators, inspect exposed finishes on doors and operators. Repair damaged finish to match original finish.
- C. Readjust automatic door operators after repeated operation of completed installation equivalent to three days' use by normal traffic (100 to 300 cycles).
- D. Occupancy Adjustment: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to two visits to Project during other-than-normal occupancy hours for this purpose.

END OF SECTION 087160

SECTION 088000 - GLAZING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:
  - 1. Doors.
  - 2. Interior borrowed lites.

1.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design glass, including comprehensive engineering analysis according to ICC's 2003 International Building Code by a qualified professional engineer, using the following design criteria:
  - 1. Thickness of Patterned Glass: Base design of patterned glass on thickness at thinnest part of the glass.
  - 2. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual glass lites.

1.3 PRECONSTRUCTION TESTING

- A. Preconstruction Adhesion and Compatibility Testing: Test each glazing material type, tape sealant, gasket, glazing accessory, and glass-framing member for adhesion to and compatibility with elastomeric glazing sealants.
  - 1. Testing will not be required if data are submitted based on previous testing of current sealant products and glazing materials matching those submitted.

1.4 ACTION SUBMITTALS

- A. Product Data: For each glass product and glazing material indicated.
- B. Glass Samples for verification: For each etched glass product other than clear monolithic vision glass; 4 x 6 inches.
- C. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.
- D. Delegated-Design Submittal: For glass indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

- A. Preconstruction adhesion and compatibility test report.

1.6 QUALITY ASSURANCE

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

1. GANA Publications: GANA's "Glazing Manual."
2. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."

- B. Safety Glazing Labeling: Where safety glazing labeling is indicated, permanently mark glazing with certification label of the SGCC. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.

1.7 WARRANTY

- A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer's standard form in which coated-glass manufacturer agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.

1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GLASS PRODUCTS, GENERAL

- A. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass lites in thicknesses as needed to comply with requirements indicated.
- B. Strength: Where float glass is indicated, provide annealed float glass, Kind HS heat-treated float glass, or Kind FT heat-treated float glass. Where heat-strengthened glass is indicated, provide Kind HS heat-treated float glass or Kind FT heat-treated float glass. Where fully tempered glass is indicated, provide Kind FT heat-treated float glass.
- C. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:

1. U-Factors: Center-of-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F (W/sq. m x K).
2. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
3. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

## 2.2 GLASS PRODUCTS

- A. Float Glass: ASTM C 1036, Type I, Quality-Q3, Class I (clear) unless otherwise indicated.
- B. Heat-Treated Float Glass: ASTM C 1048; Type I; Quality-Q3; Class I (clear) unless otherwise indicated; of kind and condition indicated.
- C. Fully Tempered Etched Glass: ASTM C 1036, Type I, Quality-Q3, Class 1 (clear), Acid-etched on one side.
  1. Products: Subject to compliance with requirements, provide the following:
    - a. Walker Glass Co. Ltd.
    - b. Pattern: Acid Etched Velour
    - c. Thickness: 6mm

## 2.3 GLAZING GASKETS

- A. Dense Compression Gaskets: Molded or extruded gaskets of profile and hardness required to maintain watertight seal, made from one of the following:
  1. Neoprene complying with ASTM C 864.
  2. EPDM complying with ASTM C 864.
  3. Silicone complying with ASTM C 1115.
  4. Thermoplastic polyolefin rubber complying with ASTM C 1115.
- B. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned neoprene silicone or thermoplastic polyolefin rubber gaskets complying with ASTM C 509, Type II, black; of profile and hardness required to maintain watertight seal.
  1. Application: Use where soft compression gaskets will be compressed by inserting dense compression gaskets on opposite side of glazing or pressure applied by means of pressure-glazing stops on opposite side of glazing.

## 2.4 GLAZING SEALANTS

- A. General:
  1. Compatibility: Provide glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and

application, as demonstrated by sealant manufacturer based on testing and field experience.

2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.

## 2.5 GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C 1281 and AAMA 800 for products indicated below:
  1. AAMA 804.3 tape, where indicated.
  2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
  3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.
- B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:
  1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
  2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

## 2.6 MISCELLANEOUS GLAZING MATERIALS

- A. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- B. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
- C. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- D. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
- E. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.
- F. Perimeter Insulation for Fire-Resistive Glazing: Product that is approved by testing agency that listed and labeled fire-resistant glazing product with which it is used for application and fire- protection rating indicated.

## 2.6 MONOLITHIC-GLASS TYPES

- A. Glass Type GL-1: Clear float glass.
  - 1. Thickness: 6.0 mm.
  - 2. Use: Typical unless noted otherwise
- B. Glass Type GL-2: Clear fully tempered float glass.
  - 1. Thickness: 6.0 mm.
  - 2. Provide safety glazing labeling.
- C. Glass Type GL -3: Fully tempered acid-etched clear float glass
  - 1. Thickness: 6.0 mm.
  - 2. Provide safety glazing labeling.

## PART 3 - EXECUTION

### 3.1 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Adjust glazing channel dimensions as required by Project conditions during installation to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
- E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- G. Provide spacers for glass lites where length plus width is larger than 50 inches (1270 mm).
- H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.

### 3.2 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover horizontal framing joints by applying tapes to jambs and then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Apply heel bead of elastomeric sealant.
- F. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- G. Apply cap bead of elastomeric sealant over exposed edge of tape.

### 3.3 SEALANT GLAZING (WET)

- A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
- C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

### 3.4 CLEANING AND PROTECTION

- A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer.
- C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.

- D. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.

END OF SECTION 088000



## SECTION 092216 - NON-STRUCTURAL METAL FRAMING

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Non-load-bearing steel framing systems for interior gypsum board assemblies.
2. Suspension systems for interior gypsum ceilings and soffits.

#### 1.2 ACTION SUBMITTALS

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

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- ##### A. Fire-Test-Response Characteristics: Provide materials and construction identical to those tested according to ASTM E 119.
- ##### B. STC-Rated Assemblies: Provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413.

#### 2.2 FRAMING SYSTEMS

##### A. Steel Studs and Runners: ASTM C 645.

1. Minimum Base-Metal Thickness: 0.018 inch or gauge as needed to meet L/360 deflection requirements at 5 psf lateral load.
2. Depth: As indicated on Drawings.

##### B. Slip-Type Head Joints: Where indicated, provide one of the following in thickness not less than indicated for studs and in width to accommodate depth of studs:

1. Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch-deep flanges, installed with studs friction fit into top runner and with continuous bridging located within 12 inches of the top of studs to provide lateral bracing.
2. Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch-deep flanges and fastened to studs, and outer runner sized to friction fit inside runner.
3. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes due to deflection of structure above.

- C. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
  - 1. Minimum Base-Metal Thickness: 0.018 inch.
- D. Cold-Rolled Channel Bridging: Steel, 0.053-inch minimum base-metal thickness, with minimum 1/2-inch-wide flanges.
  - 1. Depth: 1-1/2 inches.
  - 2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch-thick, galvanized steel.
- E. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
  - 1. Minimum Base-Metal Thickness: 0.018 inch.
  - 2. Depth: 7/8 inch.

### 2.3 SUSPENSION SYSTEMS

- A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch-diameter wire, or double strand of 0.048-inch-diameter wire.
- B. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.16 inch in diameter.
- C. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.053 inch and minimum 1/2-inch-wide flanges.
  - 1. Depth: 1-1/2 inches.
- D. Furring Channels (Furring Members):
  - 1. Cold-Rolled Channels: 0.053-inch uncoated-steel thickness, with minimum 1/2-inch-wide flanges, 3/4 inch deep.
  - 2. Steel Studs and Runners: ASTM C 645.
    - a. Minimum Base-Metal Thickness: 0.018 inch.
    - b. Depth: 1-5/8 inches.
  - 3. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch deep.
    - a. Minimum Base-Metal Thickness: 0.018 inch.

### 2.4 AUXILIARY MATERIALS

- A. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

- B. Isolation Strip at Exterior Walls: Provide foam gasket.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754.
  - 1. Gypsum Plaster Assemblies: Also comply with requirements in ASTM C 841 that apply to framing installation.
  - 2. Portland Cement Plaster Assemblies: Also comply with requirements in ASTM C 1063 that apply to framing installation.
  - 3. Gypsum Veneer Plaster Assemblies: Also comply with requirements in ASTM C 844 that apply to framing installation.
  - 4. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.
- B. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- C. Install bracing at terminations in assemblies.
- D. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

### 3.2 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.
- B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- C. Install studs so flanges within framing system point in same direction.
- D. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.
  - 1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
  - 2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.

- a. Install two studs at each jamb unless otherwise indicated.
  - b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
  - c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
  4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
    - a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.
  5. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
- D. Direct Furring:
1. Screw to wood framing.
  2. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.

### 3.3 INSTALLING SUSPENSION SYSTEMS

- A. Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
- B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.
- E. Suspend hangers from building structure as follows:
  1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.
    - a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
  2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
  3. Do not attach hangers to steel roof deck.
  4. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
  5. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.

- 6. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- D. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.
- E. Seismic Bracing: Sway-brace suspension systems.
- F. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

END OF SECTION 092216

## SECTION 092900 - GYPSUM BOARD

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. Interior gypsum board.

#### 1.2 ACTION SUBMITTALS

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

### PART 2 – PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

#### 2.2 INTERIOR GYPSUM BOARD

- 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. American Gypsum.
  2. CertainTeed Corp.
  3. Georgia-Pacific Gypsum LLC.
  4. Lafarge North America Inc.
  5. National Gypsum Company.
  6. PABCO Gypsum.
  7. Temple-Inland.
  8. USG Corporation.

- B. Gypsum Board, Type X: ASTM C 1396/C 1396M.
  - 1. Thickness: 5/8 inch (15.9 mm).
  - 2. Long Edges: Tapered.
- C. Gypsum Ceiling Board: ASTM C 1396/C 1396M.
  - 1. Thickness: 1/2 inch (12.7 mm).
  - 2. Long Edges: Tapered.
- D. Moisture- and Mold-Resistant Gypsum Board: ASTM C 1396/C 1396M. With moisture- and mold-resistant core and paper surfaces.
  - 1. Core: 5/8 inch (15.9 mm), Type X.
  - 2. Long Edges: Tapered.
  - 3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

### 2.3 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
  - 1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized steel sheet. Provide plastic trim at surfaces adjacent to exterior windows.

### 2.4 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.
- B. Joint Tape:
  - 1. Interior Gypsum Board: Paper.
- C. Joint Compound for Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

### 2.5 AUXILIARY MATERIALS

- A. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
- B. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing).
- C. Acoustical Joint Sealant: ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings as demonstrated by testing according to ASTM E 90.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
  - a. Accumetric LLC; BOSS 824 Acoustical Sound Sealant.
  - b. Grabber Construction Products; Acoustical Sealant GSC.
  - c. Pecora Corporation; AIS-919.
  - d. Specified Technologies, Inc.; Smoke N Sound Acoustical Sealant.
  - e. USG Corporation; SHEETROCK Acoustical Sealant.

### 3.1 APPLYING AND FINISHING PANELS

- A. Comply with ASTM C 840.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- (6.4- to 12.7-mm-) wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- D. Install trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
  1. Control Joints: Install control joints at locations indicated on Drawings.
- E. Prefill open joints and damaged surface areas.
- F. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- G. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
  1. Level 1: Ceiling plenum areas, concealed areas, and where indicated
  2. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.
    - a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."
- H. Protect adjacent surfaces from drywall compound and texture finishes and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- I. Remove and replace panels that are wet, moisture damaged, and mold damaged.

END OF SECTION 092900



## SECTION 095113 - ACOUSTICAL PANEL CEILINGS

### PART 1 - GENERAL

#### 1.1 SUMMARY

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

#### 1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified.

#### 1.3 INFORMATIONAL SUBMITTALS

- A. Product test reports.
- B. Evaluation reports.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Maintenance data.

#### 1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to NVLAP.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Acoustical ceiling shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
- B. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1. Flame-Spread Index: Comply with ASTM E 1264 for Class A materials.
  - 2. Smoke-Developed Index: 50 or less.

2.2 ACOUSTICAL PANEL CEILINGS, GENERAL

- A. Glass-Fiber-Based Panels: Made with binder containing no urea formaldehyde.
- B. Acoustical Panel Standard: Comply with ASTM E 1264.
- C. Metal Suspension System Standard: Comply with ASTM C 635.
- D. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.

2.3 ACOUSTICAL PANELS ACT-1

- A. Manufacturers: Subject to compliance with requirements, provide the following.

- 1. Armstrong World Industries, Inc., Cortega Tegular No. 704
- 2. Classification: Type III, Form 2, Pattern C D.
- 3. Color: White.
- 4. LR: 0.82.
- 5. NRC: 0.55, Type E-400 mounting according to ASTM E 795.
- 6. CAC: 33.
- 7. Edge/Joint Detail: Angled Tegular
- 8. Thickness: 5/8 inch.
- 9. Modular Size: 24 by 24 inches.

2.4 ACOUSTICAL PANELS ACT-2

- A. Manufacturers: Subject to compliance with requirements, provide the following.

- 1. Armstrong World Industries, Inc., Optima Open Plan Square Tegular No. 3250
- 2. Classification: Type XII, Form 2, Pattern E.
- 3. Color: White.
- 4. LR: 0.90.
- 5. NRC: 0.95, Type E-400 mounting according to ASTM E 795.
- 6. CAC: n/a.
- 7. AC: 190
- 8. Edge/Joint Detail: Beveled Tegular
- 9. Thickness: 1 inch.
- 10. Modular Size: 24 by 24 inches.

2.5 METAL SUSPENSION SYSTEM

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:

- 1. Armstrong World Industries, Inc.

- B. Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; prepainted, electrolytically zinc coated, or hot-dip

galvanized according to ASTM A 653/A 653M, not less than G30 (Z90) coating designation; with prefinished 9/16-inch- (15-mm-) wide metal caps on flanges.

1. Structural Classification: Intermediate-duty system.
  2. End Condition of Cross Runners: Override (stepped) type.
  3. Face Design: Flat, flush.
  4. Cap Material: Steel or aluminum cold-rolled sheet.
  5. Cap Finish: Painted white.
- C. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension-system runners.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install acoustical panel ceilings to comply with ASTM C 636/C 636M and seismic design requirements indicated, according to manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
- B. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply with layout shown on reflected ceiling plans.
  1. Arrange directionally patterned acoustical panels as indicated on reflected ceiling plans.

END OF SECTION 095113

## SECTION 096513 - RESILIENT BASE AND ACCESSORIES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Resilient base.
  - 2. Resilient molding accessories.

#### 1.2 ACTION SUBMITTALS

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

### PART 2 - PRODUCTS

#### 2.1 THERMOPLASTIC-RUBBER BASE- WB

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Armstrong World Industries, Inc.
  - 2. Johnsonite; A Tarkett Company.
  - 3. Roppe Corporation, USA.
- B. Product Standard: ASTM F 1861, Type TP (rubber, thermoplastic).
  - 1. Group: I (solid, homogeneous).
  - 2. Style: Cove:
- C. Thickness: 0.125 inch min..
- D. Height: 4 inches.
- E. Lengths: Coils in manufacturer's standard length
- F. Outside Corners: Job formed.
- G. Inside Corners: Job formed.
- H. Colors: As selected by Architect from full range of industry colors.

## 2.2 RUBBER MOLDING ACCESSORY

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
  - 1. Armstrong World Industries, Inc.
  - 2. Johnsonite; A Tarkett Company.
  - 3. Roppe Corporation, USA.
- B. Description: Rubber transition strips.
- C. Profile and Dimensions: Transition strip from tile or sheet flooring to carpet.
- D. Colors and Patterns: As selected by Architect from full range of industry colors.

## 2.3 INSTALLATION MATERIALS

- A. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.
  - 1. Adhesives shall have a VOC content of 50 g/L or less

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- C. Do not install resilient products until they are the same temperature as the space where they are to be installed.
- D. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

### 3.2 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.

- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
- G. Preformed Corners: Install preformed corners before installing straight pieces.
- H. Job-Formed Corners:
  - 1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches in length.
    - a. Form without producing discoloration (whitening) at bends.
  - 2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches.
    - a. Miter corners to minimize open joints.

### 3.3 RESILIENT ACCESSORY INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient accessories.
- B. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor covering that would otherwise be exposed.

### 3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.
- B. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 096513

## SECTION 096519 - RESILIENT TILE FLOORING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Vinyl composition floor tile.

#### 1.2 ACTION SUBMITTALS

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

#### 1.3 CLOSEOUT SUBMITTALS

- A. Maintenance data.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For resilient tile flooring, as determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
  - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

#### 2.2 VINYL COMPOSITION FLOOR TILE RTF1

- A. Products: Subject to compliance with requirements, provide the following:
  - 1. Armstrong Commercial Flooring; Imperial Texture Standard Excelon
- B. Tile Standard: ASTM F 1066, Type 2, through-pattern tile.
- C. Wearing Surface: Smooth.
- D. Thickness: 0.125 inch.
- E. Size: 12 by 12 inches.
- F. Colors and Patterns: As selected by Architect from full range of industry colors.

### 2.3 VINYL COMPOSITION FLOOR TILE RTF2

- A. Products: Subject to compliance with requirements, provide the following:
  - 1. Armstrong Commercial Flooring; Raffia
- B. Tile Standard: ASTM F 1066, Type 2, through-pattern tile.
- C. Wearing Surface: Smooth.
- D. Thickness: 0.125 inch.
- E. Size: 12 by 24 inches.
- F. Colors and Patterns: As selected by Architect from full range of industry colors.

### 2.4 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by floor tile manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by floor tile and adhesive manufacturers to suit floor tile and substrate conditions indicated.
  - 1. Adhesives shall comply with the following limits for VOC content:
    - a. Vinyl Composition Tile Adhesives: 50 g/L or less.
    - b. Rubber Floor Adhesives: 60 g/L or less.
  - 2. Adhesives shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- C. Floor Polish: Provide protective, liquid floor-polish products recommended by floor tile manufacturer.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Prepare substrates according to floor tile manufacturer's written instructions to ensure adhesion of resilient products.



- B. Concrete Substrates: Prepare according to ASTM F 710.
  - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
  - 2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor tile manufacturer. Do not use solvents.
  - 3. Alkalinity and Adhesion Testing: Perform tests recommended by floor tile manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9 pH.
  - 4. Moisture Testing: Proceed with installation only after substrates pass testing according to floor tile manufacturer's written recommendations, but not less stringent than the following:
    - a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 5 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) in 24 hours.
    - b. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have a maximum 80 percent relative humidity level.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install floor tiles until they are the same temperature as the space where they are to be installed.
- E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor tile.

### 3.2 FLOOR TILE INSTALLATION

- A. Comply with manufacturer's written instructions for installing floor tile.
- B. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
  - 1. Lay tiles square with room axis, in pattern indicated.
- C. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
  - 1. Lay 12 by 12 inch tiles with grain direction alternating in adjacent tiles (basket-weave pattern).

- D. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.
- E. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent marking device.
- G. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in finished floor areas. Maintain overall continuity of color and pattern between pieces of tile installed on covers and adjoining tiles. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.
- H. Adhere floor tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

### 3.3 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting floor tile.
- B. Floor Polish: Remove soil, adhesive, and blemishes from floor tile surfaces before applying liquid floor polish.
  - 1. Apply three coats.
- C. Cover floor tile until Substantial Completion.

END OF SECTION 096519

## SECTION 099123 - INTERIOR PAINTING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes surface preparation and the application of paint systems on the following interior substrates:
  - 1. Steel.
  - 2. Gypsum board.

#### 1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide product listed in other Part 2 articles for the paint category indicated.

#### 2.2 PAINT, GENERAL

- A. Material Compatibility:
  - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
  - 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- B. Colors: To be selected from EMMC paint color standards
- C. Application: All surfaces to receive one coat of primer and two finish coats unless noted otherwise.

#### 2.3 PRIMERS/SEALERS

- A. Primer Sealer, Latex, Interior:

1. Sherwin Williams Superpaint

#### 2.4 METAL PRIMERS

- A. Primer, Rust-Inhibitive, Water Based:

1. Sherwin Williams DTM Acrylic Primer/Finish

#### 2.5 WATER-BASED PAINTS

- A. Latex, Interior Walls, Low Sheen

1. Sherwin Williams Superpaint
2. Typical at gypsum board surfaces

- B. Latex, Interior Trim, Semi-gloss

1. Sherwin Williams Superpaint
2. Typical at metal surfaces

- C. Latex, Ceilings, Flat

1. Sherwin Williams Superpaint
2. Typical at gypsum board ceilings

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
  1. Concrete: 12 percent.
  2. Masonry (Clay and CMU): 12 percent.
  3. Wood: 15 percent.
  4. Gypsum Board: 12 percent.
  5. Plaster: 12 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

### 3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

### 3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."

B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

### 3.4 CLEANING AND PROTECTION

A. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

B. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

END OF SECTION 099123

## SECTION 099300 - STAINING AND TRANSPARENT FINISHING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes surface preparation and application of wood finishes on the following substrates:
  - 1. Interior Substrates:
    - a. Interior Trim.

#### 1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include preparation requirements and application instructions.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide product listed in other Part 2 articles for the category indicated.

#### 2.2 MATERIALS, GENERAL

- A. Material Compatibility:
  - 1. Provide materials for use within each finish system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
  - 2. For each coat in a finish system, provide products recommended in writing by manufacturers of topcoat for use in finish system and on substrate indicated.
- B. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction and, Manufacturers' names and product designations can be inserted into subsequent articles. Products in these articles are specified by reference to MPI product categories and MPI numbers. Note that each product category below is unique within this Section and is identical to that used in the schedules at the end of Part 3.

### 2.3 WOOD FILLERS

- A. Wood Filler Paste: As recommended by finish manufacturer.

### 2.5 WATER-BASED VARNISHES

- A. Varnish, Water Based, Clear, Satin (Gloss Level 4):
  - 1. Benjamin Moore Stays Clear Acrylic Polyurethane
  - 2. Minwax PolyCrylic Polyurethane
  - 3. Sherwin Williams Wood Classics Waterborne Polyurethane Varnish A68 Series

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Interior Wood Substrates: 10 percent, when measured with an electronic moisture meter.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Proceed with finish application only after unsatisfactory conditions have been corrected.
  - 1. Beginning finish application constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and finishing.
  - 1. After completing finishing operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

- C. Clean and prepare surfaces to be finished according to manufacturer's written instructions for each particular substrate condition and as specified.
  - 1. Remove dust, dirt, oil, and grease by washing with a detergent solution; rinse thoroughly with clean water and allow to dry. Remove grade stamps and pencil marks by sanding lightly. Remove loose wood fibers by brushing.
  - 2. Remove mildew by scrubbing with a commercial wash formulated for mildew removal and as recommended by stain manufacturer.

### 3.3 APPLICATION

- A. Apply finishes according to manufacturer's written instructions and recommendations in "MPI Manual."
- B. Apply finishes to produce surface films without cloudiness, holidays, lap marks, brush marks, runs, ropiness, or other surface imperfections.

### 3.4 CLEANING AND PROTECTION

- A. Protect work of other trades against damage from finish application. Correct damage by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- B. At completion of construction activities of other trades, touch up and restore damaged or defaced finished wood surfaces.

### 3.5 INTERIOR WOOD-FINISH-SYSTEM SCHEDULE

- A. Wood substrates, nontraffic surfaces, including wood trim, architectural woodwork, wood-based panel products.
  - 1. Water-Based Varnish System:
    - a. Prime Coat: Water-based varnish matching topcoat.
    - b. Intermediate Coat: Water-based varnish matching topcoat.
    - c. Topcoat: Varnish, water based, clear, satin (Gloss Level 4)

END OF SECTION 099300



## SECTION 102600 - WALL AND DOOR PROTECTION

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Corner guards.
  - 2. Impact resistant wall coverings
- B. Related Requirements:
  - 1. Section 012300 "Alternates."

#### 1.2 ACTION SUBMITTALS

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

#### 1.3 CLOSEOUT SUBMITTALS

- A. Maintenance data.
- B. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of impact-resistant wall protection units that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Structural failures.
    - b. Deterioration of plastic and other materials beyond normal use.
  - 2. Warranty Period: Five years from date of Substantial Completion.

### PART 2 - PRODUCTS

#### 2.1 CORNER GUARDS CG-1 and CG-2 (pair)

- A. Non-PVC Surface-Mounted, Resilient, Plastic Corner Guards: Assembly consisting of snap-on plastic cover installed over continuous retainer; including mounting hardware; fabricated with 90-degree turn to match wall condition.

- B. Textured, chemical- and stain-resistant, high-impact-resistant Engineered PETG plastic with integral color throughout.
- C. Basis-of-Design Product: Subject to compliance with requirements provide:
  - 1. ConstructionSpecialties, Inc.. C/S Acrovyn Model SSM-20N.
    - a. Wing Size: Nominal 2 by 2 inches
    - b. Height: 4 feet or to nearest horizontal interruption including but not limited to wood rails, unless noted otherwise.
    - b. Mounting: Recycled PETG retainer
    - c. Color: To be selected from Manufacturer’s full range.

2.2 CORNER GUARDS CG-3

- A. Non-PVC Surface-Mounted, Resilient, Plastic Corner Guards: Assembly consisting of snap-on plastic cover installed over continuous retainer; including mounting hardware; fabricated with 135- degree turn to match wall condition.
- B. Textured, chemical- and stain-resistant, high-impact-resistant Engineered PETG plastic with integral color throughout.
- C. Basis-of-Design Product: Subject to compliance with requirements provide:
  - 1. Construction Specialties, Inc.. C/S Acrovyn Model SSM-20MN
    - a. Wing Size: Nominal 3 by 3 inches
    - b. Height: 4 feet or to nearest horizontal interruption including but not limited to wood rails, unless noted otherwise.
    - c. Mounting: Recycled PETG retainer
    - d. Color: To be selected from Manufacturer’s full range.

2.3 IMPACT - RESISTANT WALL COVERINGS IWC

- A. Non-PVC Impact-Resistant Sheet Wall Covering: Engineered PETG
- B. Textured, chemical- and stain-resistant, high-impact-resistant Engineered PETG plastic with integral color throughout.
- C. Basis-of-Design Product: Subject to compliance with requirements provide:
  - 1. Construction Specialties, Inc.. Acrovyn 4000 or approved equal by one of the following:
    - a. Sheet Thickness: 0.040 inch
    - b. Texture: Suede

- c. Trim and Joint Moldings: Extruded rigid plastic that matches sheet wall covering color.
- d. Mounting: Adhesive
- e. Color: To be selected from Manufacturer's full range.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. General: Install impact-resistant wall protection units level, plumb, and true to line without distortions. Do not use materials with chips, cracks, voids, stains, or other defects that might be visible in the finished Work.
  - 1. Install impact-resistant wall protection units in locations and at mounting heights indicated on Drawings.
  - 2. Provide splices, mounting hardware, anchors, and other accessories required for a complete installation.
    - a. Provide anchoring devices to withstand imposed loads.
    - b. Adjust top and bottom caps as required to ensure tight seams.
- B. Immediately after completion of installation, clean plastic covers and accessories using a standard, ammonia-based, household cleaning agent.
- C. Remove excess adhesive using methods and materials recommended in writing by manufacturer.

END OF SECTION 102600

## SECTION 102800 - TOILET, BATH, AND LAUNDRY ACCESSORIES

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Public-use washroom accessories.
2. Owner-Furnished Contractor installed materials schedule.

#### 1.2 ACTION SUBMITTALS

##### A. Product Data: For each type of product indicated.

##### B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.

1. Identify locations using room designations indicated.
2. Identify products using designations indicated.

### PART 2 - PRODUCTS

##### A. Robe Hook:

1. Basis-of-Design Product: Peter Pepper Products
2. Model: 2072
3. Description: Single-prong unit.
4. Material and Finish: Anodized Aluminum
5. Location: Provide pair of hooks at indicated mounting heights on back of new doors in the following rooms
  - a. Interview/Exam 065
  - b. Interview Exam 066
  - c. Office 189
  - d. Interview 190
  - e. Phlebotomy 194
  - f. Phlebotomy 195

B. Owner-Furnished Contractor Installed Materials:

1. Paper Towel Dispenser
  - a. Location: As indicated on Drawings
2. Soap Dispenser
  - a. Location: As indicated on Drawings
3. Sharps Container
  - a. Location: One in each of the following rooms
    - i. Interview/Exam 065
    - ii. Interview Exam 066
4. Glove Box Holder
  - a. Location: One in each of the following rooms
    - i. Interview/Exam 065
    - ii. Interview Exam 066
5. Hand Sanitizer Dispenser
  - a. Location: One in each of the following rooms
    - i. Interview/Exam 065
    - ii. Interview Exam 066
    - iii. Multi-Purpose 067
    - iv. Interview 190
    - v. Phlebotomy 195
6. Pamphlet/Magazine Rack
  - a. Location: One in each of the following rooms unless noted otherwise
    - i. Interview/Exam 065
    - ii. Interview Exam 066
    - iii. Waiting 071 (install two)
    - iv. Interview 190

PART 3 - EXECUTION

3.1 INSTALLATION

TOILET AND BATH ACCESSORIES

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

END OF SECTION 102800

## SECTION 123623.13 - PLASTIC-LAMINATE-CLAD COUNTERTOPS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes plastic-laminate countertops.
- B. Related Requirements:
  - 1. Section 012300 "Alternates."

#### 1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
- C. Samples:
  - 1. Plastic laminates, for initial selection.

#### 1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Fabricator of products.

#### 1.4 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install countertops until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

### PART 2 - PRODUCTS

#### 2.1 PLASTIC-LAMINATE COUNTERTOPS

- A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades indicated for construction, installation, and other requirements.
- B. Grade: Custom.

- C. High-Pressure Decorative Laminate: NEMA LD 3, Grade HGP.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Formica Corporation.
    - b. Panolam Industries International, Inc.
    - c. Wilsonart International; Div. of Premark International, Inc.
- D. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
  - 1. As selected by Architect from manufacturer's full range in the following categories:
    - a. Patterns, matte finish.
- E. Edge Treatment: 3-mm PVC edging.
- F. Core Material at Sinks: Particleboard made with exterior glue, medium-density fiberboard made with exterior glue or exterior-grade plywood.
- G. Core Thickness: 3/4 inch (19 mm).
  - 1. Build up countertop thickness to 1-1/2 inches (38 mm) at front, back, and ends with additional layers of core material laminated to top.
- H. Backer Sheet: Provide plastic-laminate backer sheet, NEMA LD 3, Grade BKL, on underside of countertop substrate.
- I. Paper Backing: Provide paper backing on underside of countertop substrate.

## 2.2 ACCESSORIES

- A. Grommets for Cable Passage through Countertops at workcounters : 3-inch OD, black, molded-plastic grommets and matching plastic caps with slot for wire passage.
  - 1. Product: Subject to compliance with requirements, provide "EDP" series" by Doug Mockett & Company, Inc.
  - 2. Location: As required by Owner

## 2.3 MISCELLANEOUS MATERIALS

- A. Adhesives: Do not use adhesives that contain urea formaldehyde.



## 2.4 FABRICATION

- A. Fabricate countertops to dimensions, profiles, and details indicated. Provide front and end overhang of 1 inch (25 mm) over base cabinets. Ease edges to radius indicated for the following:
  - 1. Solid-Wood (Lumber) Members: 1/16 inch (1.5 mm) unless otherwise indicated.
- B. Complete fabrication, including assembly, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
- C. Shop cut openings to maximum extent possible to receive appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
  - 1. Seal edges of openings in countertops with a coat of varnish.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Before installation, condition countertops to average prevailing humidity conditions in installation areas.

### 3.2 INSTALLATION

- A. Grade: Install countertops to comply with same grade as item to be installed.
- B. Assemble countertops and complete fabrication at Project site to the extent that it was not completed in the shop.
  - 1. Provide cutouts for appliances, plumbing fixtures, electrical work, and similar items.
  - 2. Seal edges of cutouts by saturating with varnish.
- C. Field Jointing: Prepare edges to be joined in shop so Project-site processing of top and edge surfaces is not required.
  - 1. Secure field joints in plastic-laminate countertops with concealed clamping devices located within 6 inches of front and back edges and at intervals not exceeding 24 inches. Tighten according to manufacturer's written instructions to exert a constant, heavy-clamping pressure at joints.

- D. Install countertops level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.
- E. Scribe and cut countertops to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- F. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
  - 1. Install countertops with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
  - 2. Secure backsplashes to tops with concealed metal brackets at 16 inches o.c. and to walls with adhesive.
  - 3. Seal junctures of tops, splashes, and walls with mildew-resistant silicone sealant or another permanently elastic sealing compound recommended by countertop material manufacturer.

END OF SECTION 123623

## SECTION 123661 - SIMULATED STONE COUNTERTOPS

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. Solid-surface-material countertops.

#### 1.2 ACTION SUBMITTALS

- A. Product Data: For countertop materials.
- B. Samples: For each type of material exposed to view.

### PART 2 - PRODUCTS

#### 2.1 SOLID-SURFACE-MATERIAL COUNTERTOPS

A. Configuration: Provide countertops with the following front edge style:

1. Front: Beveled.
- B. Countertops: 1/2-inch-thick, solid surface material, front edge built up with same material as indicated on Drawings.

#### 2.2 COUNTERTOP MATERIALS

- A. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue, made with binder containing no urea formaldehyde.
- B. Solid Surface Material: Homogeneous solid sheets of filled plastic resin complying with ANSI SS1.
1. Subject to compliance with requirements, Basis of Design product is:
    - a. Corian as manufactured by E. I. du Pont de Nemours and Company
  2. Type: Provide Standard Type unless Special Purpose Type is indicated.
  3. Colors and Patterns: As selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Fasten countertops by screwing through corner blocks of base units into underside of countertop. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.

END OF SECTION 12366