

**PROJECT MANUAL**  
**June 28, 2017**

# **South Jordan Locker Public Works Room Remodel**

**Project No.: 16038**



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## SECTION 092900 - GYPSUM BOARD ASSEMBLIES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Interior gypsum wallboard.
  - 2. Non-load-bearing steel framing.
  - 3. Exterior gypsum sheathing board for soffits and soffit substrates.
- B. Related Sections include the following:
  - 1. Division 7 Section "Building Insulation" for insulation and vapor retarders installed in gypsum board assemblies.
  - 2. Division 9 Section "Ceramic Tile" for cementitious backer units installed as substrates for ceramic tile.

#### 1.3 DEFINITIONS

- A. Gypsum Board Terminology: Refer to ASTM C 11 for definitions of terms for gypsum board assemblies not defined in this Section or in other referenced standards.

#### 1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show locations, fabrication, and installation of control and expansion joints including plans, elevations, sections, details of components, and attachments to other units of Work.
- C. Samples: For the following products:
  - 1. Trim Accessories: Full-size sample in 12-inch- (300-mm-) long length for each trim accessory indicated.

#### 1.5 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: For gypsum board assemblies with fire-resistance ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
  - 1. Fire-Resistance-Rated Assemblies: Indicated by design designations from FM's "Approval Guide, Building Products." UL's "Fire Resistance Directory." GA-600, "Fire Resistance Design Manual." ITS's "Directory of Listed Products."

- B. Sound Transmission Characteristics: For gypsum board assemblies with STC ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by a qualified independent testing agency.
  - 1. STC-Rated Assemblies: Indicated by design designations from GA-600, "Fire Resistance Design Manual."
  
- C. Gypsum Board Finish Mockups: Before finishing gypsum board assemblies, install mockups of at least 100 sq. ft. (9 sq. m) in surface area to demonstrate aesthetic effects and qualities of materials and execution.
  - 1. Install mockups for the following applications:
    - a. Surfaces indicated to receive nontextured paint finishes.
  - 2. Simulate finished lighting conditions for review of mockups.
  - 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

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

#### 1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Steel Framing and Furring:
    - a. Clark Steel Framing Systems.
    - b. Consolidated Systems, Inc.
    - c. BPB America, Inc.
    - d. Dale Industries, Inc. - Dale/Incor.
    - e. Dietrich Industries, Inc.
    - f. MarinoWare; Division of Ware Ind.
    - g. National Gypsum Company.
    - h. Scafco Corporation.
    - i. Unimast, Inc.
    - j. Western Metal Lath & Steel Framing Systems.
  
  - 2. Gypsum Board and Related Products:
    - a. American Gypsum Co.

- b. G-P Gypsum Corp.
- c. National Gypsum Company.
- d. United States Gypsum Co.

## 2.2 STEEL SUSPENDED CEILING AND SOFFIT FRAMING

- A. Components, General: Comply with ASTM C 754 for conditions indicated.
- B. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch- (1.59-mm-) diameter wire, or double strand of 0.0475-inch- (1.21-mm-) diameter wire.
- C. Hangers: As follows:
  - 1. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.162-inch (4.12-mm) diameter.
  - 2. Rod Hangers: ASTM A 510 (ASTM A 510M), mild carbon steel.
    - a. Diameter: 1/4-inch (6.34-mm).
    - b. Protective Coating: Corrosion-resistant paint.
- D. Carrying Channels: Cold-rolled, commercial-steel sheet with a base metal thickness of 0.0538 inch (1.37 mm), a minimum 1/2-inch- (12.7-mm-) wide flange, with manufacturer's standard corrosion-resistant zinc coating.
  - 1. Depth: 2-1/2 inches (63.5 mm) unless indicated otherwise on drawings.
- E. Furring Channels (Furring Members): Commercial-steel sheet with manufacturer's standard corrosion-resistant zinc coating.
  - 1. Cold Rolled Channels: 0.0538-inch (1.37-mm) bare steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flange, 3/4 inch (19.1 mm) deep.
  - 2. Steel Studs: ASTM C 645.
    - a. Minimum Base Metal Thickness: 0.0312 inch (0.79 mm), unless indicated otherwise on drawings.
    - b. Depth: 3-5/8 inches (92.1 mm), unless indicated otherwise on drawings.
  - 3. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch (22.2 mm) deep.
    - a. Minimum Base Metal Thickness: 0.0312 inch (0.79 mm)
- F. Grid Suspension System for Interior Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.
  - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Armstrong World Industries, Inc.; Furring Systems/Drywall.
    - b. Chicago Metallic Corporation; Drywall Furring 640 System.
    - c. USG Interiors, Inc.; Drywall Suspension System.

## 2.3 STEEL PARTITION AND SOFFIT FRAMING

- A. Components, General: As follows:
  - 1. Comply with ASTM C 754 for conditions indicated.
  - 2. Steel Sheet Components: Complying with ASTM C 645 requirements for metal and with zinc coating, for interior ASTM A 653/A 653M, G-60 (Z180) Hot-Dip Galvanized, for all

exterior soffit applications.

- B. Steel Studs and Runners: ASTM C 645.
  - 1. Minimum Base Metal Thickness: 0.0312 inch (0.79 mm), unless indicated otherwise on drawings.
  - 2. Depth: As indicated.
- C. Deep-Leg Deflection Track: ASTM C 645 top runner with 2-inch- (50.8-mm-) deep flanges.
- D. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
  - 1. Minimum Base Metal Thickness: 0.0179 inch (0.45 mm)
- E. Cold-Rolled Channel Bridging: 0.0538-inch (1.37-mm) bare steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flange.
  - 1. Depth: 1-1/2 inches (38.1 mm)
  - 2. Clip Angle: 1-1/2 by 1-1/2 inch (38.1 by 38.1 mm), 0.068-inch- (1.73-mm-) thick, galvanized steel.
- F. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
  - 1. Minimum Base Metal Thickness: 0.0312 inch (0.79 mm)
  - 2. Depth: 7/8 inch (22.2 mm)
- G. Resilient Furring Channels: 1/2-inch- (12.7-mm-) deep, steel sheet members designed to reduce sound transmission.
  - 1. Configuration: Asymmetrical, with face attached to single flange by a slotted leg (web).
- H. Cold-Rolled Furring Channels: 0.0538-inch (1.37-mm) bare steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flange.
  - 1. Depth: 3/4 inch (19.1 mm).
  - 2. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum bare steel thickness of 0.0312 inch (0.79 mm).
  - 3. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch- (1.59-mm-) diameter wire, or double strand of 0.0475-inch- (1.21-mm-) diameter wire.
- I. Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4 inches (31.8 mm), wall attachment flange of 7/8 inch (22.2 mm), minimum bare metal thickness of 0.0179 inch (0.45 mm), and depth required to fit insulation thickness indicated.
- J. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

## 2.4 INTERIOR GYPSUM WALLBOARD

- A. Panel Size: Provide in maximum lengths and widths available that will minimize joints in each area and correspond with support system indicated.
- B. Gypsum Wallboard: ASTM C 36.
  - 1. Type X:
    - a. Thickness: 5/8 inch (15.9 mm).
    - b. Long Edges: Tapered

- c. Location: All locations.
- C. Sag-Resistant Gypsum Wallboard: ASTM C 36, manufactured to have more sag resistance than regular-type gypsum board.
  - 1. Thickness: 1/2 inch (12.7 mm).
  - 2. Long Edges: Tapered.
  - 3. Location: Ceiling surfaces.
- D. *Water-Resistant Gypsum Backing Board: ASTM C 630/C 630M*
  - 1. *Core: 5/8", Type X.*

## 2.5 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
  - 1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
  - 2. Shapes:
    - a. Cornerbead: Use at outside corners, unless otherwise indicated.
    - b. L-Bead: Use where indicated
    - c. Movable edge trim: use where indicated; L-shaped angle edge trim without back flange, finish with joint compound.
- B. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Fry Reglet Corp.
    - b. Gordon, Inc.
    - c. MM Systems Corporation.
    - d. Pittcon Industries.
  - 2. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B 221 (ASTM B 221M), alloy 6063-T5.
  - 3. Finish: Baked-enamel finishes.

## 2.6 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475.
- B. Joint Tape:
  - 1. Interior Gypsum Wallboard: Paper.
  - 2. Exterior Gypsum Soffit Board: Paper.
  - 3. Glass-Mat Gypsum Sheathing Board: 10-by-10 glass mesh.
- C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
  - 1. Prefilling: At open joints, beveled panel edges, and damaged surface areas, use setting-type taping compound.
  - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.

- a. Use setting-type compound for installing paper-faced metal trim accessories.
  - 3. Fill Coat: For second coat, use setting-type, sandable topping compound.
  - 4. Finish Coat: For third coat, use drying-type, all-purpose compound.
  - 5. Skim Coat: For final coat of Level 5 finish, use drying-type, all-purpose compound.
- D. Joint Compound for Exterior Applications:
- 1. Glass-Mat Gypsum Sheathing Board: As recommended by manufacturer.

## 2.7 ACOUSTICAL SEALANT

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
- 1. Acoustical Sealant for Exposed and Concealed Joints:
    - a. Pecora Corp.; AC-20 FTR Acoustical and Insulation Sealant.
    - b. United States Gypsum Co.; SHEETROCK Acoustical Sealant.
- B. Acoustical Sealant for Exposed and Concealed Joints: Nonsag, paintable, nonstaining, latex sealant complying with ASTM C 834 that effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

## 2.8 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
- C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
- 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.
  - 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- D. Isolation Strip at Exterior Walls:
- 1. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), nonperforated.
  - 2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch (3.2 mm) thick, in width to suit steel stud size.
- E. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
- 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
- F. Thermal Insulation: As specified in Division 7 Section "Building Insulation."
- G. Polyethylene Vapor Retarder: As specified in Division 7 Section "Building Insulation."

## PART 3 - EXECUTION

### 3.1 EXAMINATION

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

### 3.2 PREPARATION

- A. Suspended Ceilings: Coordinate installation of ceiling suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive ceiling hangers at spacing required to support ceilings and that hangers will develop their full strength.
  - 1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.

### 3.3 INSTALLING STEEL FRAMING, GENERAL

- A. Installation Standards: ASTM C 754, and ASTM C 840 requirements that apply to framing installation.
- B. Install supplementary framing, blocking, and bracing at terminations in gypsum board assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction. Comply with details indicated and with gypsum board manufacturer's written recommendations or, if none available, with United States Gypsum's "Gypsum Construction Handbook."
- C. Isolate steel framing from building structure at locations indicated to prevent transfer of loading imposed by structural movement.
  - 1. Isolate ceiling assemblies where they abut or are penetrated by building structure.
  - 2. Isolate partition framing and wall furring where it abuts structure, except at floor. Install slip-type joints at head of assemblies that avoid axial loading of assembly and laterally support assembly.
    - a. Use deep-leg deflection track where indicated.
    - b. Use proprietary firestop track where indicated.
- D. Do not bridge building control and expansion joints with steel framing or furring members. Frame both sides of joints independently.

### 3.4 INSTALLING STEEL SUSPENDED CEILING AND SOFFIT FRAMING

- A. Suspend ceiling 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 ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
  - 2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers required to support standard

suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.

3. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail.
  4. Secure rod hangers to structure, including intermediate framing members, by attaching to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or otherwise fail.
  5. Do not support ceilings directly from permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
  6. Do not attach hangers to steel deck tabs.
  7. Do not attach hangers to steel roof deck. Attach hangers to structural members.
  8. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- B. Installation Tolerances: Install steel framing components for suspended ceilings so members for panel attachment are level to within 1/8 inch in 12 feet (3 mm in 3.6 m) measured lengthwise on each member and transversely between parallel members.
- C. Sway-brace suspended steel framing with hangers used for support.
- D. For exterior soffits, install cross bracing and framing to resist wind uplift.
- E. Screw furring to wood framing.
- F. Wire-tie or clip furring channels to supports, as required to comply with requirements for assemblies indicated.
- G. Install suspended steel framing components in sizes and spacings indicated, but not less than that required by the referenced steel framing and installation standards.
1. Hangers: 48 inches (1219 mm) 1200 mm o.c.
  2. Carrying Channels (Main Runners): 48 inches (1219 mm) 1200 mm o.c.
  3. Furring Channels (Furring Members): 16 inches (406 mm) o.c.
- H. Grid Suspension System: Attach perimeter wall track or angle where grid suspension system meets vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

### 3.5 INSTALLING STEEL PARTITION AND SOFFIT FRAMING

- A. Install tracks (runners) at floors, ceilings, and structural walls and columns where gypsum board assemblies abut other construction.
1. Where studs are installed directly against exterior walls, install asphalt-felt or foam-gasket isolation strip between studs and wall.
- B. Installation Tolerance: Install each steel framing and furring member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by the faces of adjacent framing.
- C. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
1. Cut studs 1/2 inch (13 mm) short of full height to provide perimeter relief.

2. For fire-resistance-rated and STC-rated partitions that extend to the underside of floor/roof slabs and decks or other continuous solid-structure surfaces to obtain ratings, install framing around structural and other members extending below floor/roof slabs and decks, as needed to support gypsum board closures and to make partitions continuous from floor to underside of solid structure.
  - a. Terminate partition framing at suspended ceilings where indicated.
- D. Install steel studs and furring at the following spacings:
  1. Single-Layer Construction: 16 inches (406 mm) o.c., unless otherwise indicated.
  2. Multilayer Construction: 16 inches (406 mm) o.c., unless otherwise indicated.
- E. Install steel studs so flanges point in the same direction and leading edge or end of each panel can be attached to open (unsupported) edges of stud flanges first.
- F. Frame door openings to comply with GA-600 and with gypsum board manufacturer's applicable written recommendations, unless otherwise indicated. Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
  1. Install two studs at each jamb, unless otherwise indicated.
  2. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch (13-mm) clearance from jamb stud to allow for installation of control joint.
  3. Extend jamb studs through suspended ceilings and attach to underside of floor or roof structure above.
- G. 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.
- H. Z-Furring Members:
  1. Erect insulation vertically and hold in place with Z-furring members spaced 24 inches (610 mm) 600 mm o.c.
  2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (600 mm) o.c.
  3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches (300 mm) from corner and cut insulation to fit.
  4. Until gypsum board is installed, hold insulation in place with 10-inch (250-mm) staples fabricated from 0.0625-inch- (1.59-mm-) diameter, tie wire and inserted through slot in web of member.
- I. Polyethylene Vapor Retarder: Install to comply with requirements specified in Division 7 Section "Building Insulation."

### 3.6 APPLYING AND FINISHING PANELS, GENERAL

- A. Gypsum Board Application and Finishing Standards: ASTM C 840 and GA-216.
- B. Install sound attenuation blankets before installing gypsum panels, unless blankets are readily installed after panels have been installed on one side.
- C. Install ceiling board panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

- D. Install gypsum panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch (1.5 mm) of open space between panels. Do not force into place.
- E. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- F. Attach gypsum panels to steel studs so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- G. Attach gypsum panels to framing provided at openings and cutouts.
- H. Form control and expansion joints with space between edges of adjoining gypsum panels.
- I. Cover both faces of steel stud partition framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
  - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. (0.7 sq. m) in area.
  - 2. Fit gypsum panels around ducts, pipes, and conduits.
  - 3. Where partitions intersect open concrete coffers, concrete joists, and other structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by coffers, joists, and other structural members; allow 1/4- to 3/8-inch- (6.4- to 9.5-mm-) wide joints to install sealant.
- J. Isolate perimeter of non-load-bearing gypsum board partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- (6.4- to 12.7-mm-) wide spaces at these locations, and trim edges with U-bead edge trim where edges of gypsum panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- K. Floating Construction: Where feasible, including where recommended in writing by manufacturer, install gypsum panels over wood framing, with floating internal corner construction.
- L. STC-Rated Assemblies: Seal construction at perimeters, behind control and expansion joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through gypsum board assemblies, including sealing partitions above acoustical ceilings.
- M. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's written recommendations.
  - 1. Space screws a maximum of 12 inches (304.8 mm) o.c. for vertical applications.

### 3.7 PANEL APPLICATION METHODS

- A. Single-Layer Application:
  - 1. On ceilings, apply gypsum panels before wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.
  - 2. On partitions/walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
    - a. Stagger abutting end joints not less than one framing member in alternate courses

- of board.
  - b. At stairwells and other high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.
3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
- B. Multilayer Application on Ceilings: Apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints 1 framing member, 16 inches (400 mm) minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.
- C. Multilayer Application on Partitions/Walls: Apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
- 1. Z-Furring Members: Apply base layer vertically (parallel to framing) and face layer either vertically (parallel to framing) or horizontally (perpendicular to framing) with vertical joints offset at least one furring member. Locate edge joints of base layer over furring members.
- D. Single-Layer Fastening Methods: Apply gypsum panels to supports with steel drill screws.
- E. Multilayer Fastening Methods: Fasten base layers and face layers separately to supports with screws.
- F. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written recommendations and temporarily brace or fasten gypsum panels until fastening adhesive has set.
- G. Exterior Soffits and Ceilings: Apply exterior gypsum soffit board panels perpendicular to supports, with end joints staggered and located over supports.
- 1. Install with 1/4-inch (6.4-mm) open space where panels abut other construction or structural penetrations.
  - 2. Fasten with corrosion-resistant screws.

### 3.8 INSTALLING TRIM ACCESSORIES

- A. General: For 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.
- B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.

### 3.9 FINISHING GYPSUM BOARD ASSEMBLIES

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints beveled edges, and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for

tape.

- D. Gypsum Board Finish Levels: Finish panels to levels indicated below, according to ASTM C 840, for locations indicated:
1. Level 1: Embed tape at joints in ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistance-rated assemblies and sound-rated assemblies
  2. Level 2: Embed tape and apply separate first coat of joint compound to tape, fasteners, and trim flanges where panels are substrate for acoustical tile.
  3. Level 4: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges at panel surfaces that will be exposed to view, unless otherwise indicated.

END OF SECTION 092900

## SECTION 093000 - TILE

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the following:

1. Ceramic mosaic tile.
2. Paver tile.
3. Glazed wall tile.
4. Stone thresholds installed as part of tile installations.
5. Waterproof membrane for thin-set tile installations.
6. Crack-suppression membrane for thin-set tile installations.
7. Cementitious backer units installed as part of tile installations.
8. Metal edge strips installed as part of tile installations.

- B. Related Sections include the following:

1. Division 3 Section "Cast-in-Place Concrete" for monolithic slab finishes specified for tile substrates.

#### 1.3 DEFINITIONS

- A. Module Size: Actual tile size (minor facial dimension as measured per ASTM C 499) plus joint width indicated.
- B. Facial Dimension: Actual tile size (minor facial dimension as measured per ASTM C 499).
- C. Facial Dimension: Nominal tile size as defined in ANSI A137.1.

#### 1.4 PERFORMANCE REQUIREMENTS

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

#### 1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.

- C. Samples for Initial Selection: For each type of tile and grout indicated. Include Samples of accessories involving color selection.
- D. Samples for Verification:
  - 1. Full-size units of each type and composition of tile and for each color and finish required.
  - 2. Assembled samples with grouted joints for each type and composition of tile and for each color and finish required, at least 12 inches (300 mm) square and mounted on rigid panel. Use grout of type and in color or colors approved for completed work.
  - 3. Full-size units of each type of trim and accessory for each color and finish required.
  - 4. Stone thresholds in 6-inch (150-mm) lengths.
  - 5. Metal edge strips in 6-inch (150-mm) lengths.
- E. Master Grade Certificates: For each shipment, type, and composition of tile, signed by tile manufacturer and Installer.
- F. Product Certificates: For each type of product, signed by product manufacturer.
- G. Qualification Data: For Installer.
- H. Material Test Reports: For each tile-setting and -grouting product and special-purpose tile.

## 1.6 QUALITY ASSURANCE

- A. Source Limitations for Tile: Obtain all tile of same type from one source or producer.
  - 1. Obtain tile from same production run and of consistent quality in appearance and physical properties for each contiguous area.
- B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacturer and each aggregate from one source or producer.
- C. Source Limitations for Other Products: Obtain each of the following products specified in this Section through one source from a single manufacturer for each product:
  - 1. Stone thresholds.
  - 2. Waterproofing.
  - 3. Joint sealants.
  - 4. Cementitious backer units.
  - 5. Metal edge strips.
- D. Mockups: Build mockups to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution.
  - 1. Build mockup of each type of floor tile installation.
  - 2. Build mockup of each type of wall tile installation.
  - 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement in ANSI A137.1 for labeling sealed tile packages.
- B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.

- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Store liquid latexes in unopened containers and protected from freezing.
- E. Handle tile that has temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.

## 1.8 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

## 1.9 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed, for each type, composition, color, pattern, and size indicated.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:
  - 1. Products: Subject to compliance with requirements, provide one of the products specified.
  - 2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

### 2.2 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.
  - 1. Provide tile complying with Standard grade requirements, unless otherwise indicated.
  - 2. For facial dimensions of tile, comply with requirements relating to tile sizes specified in Part 1 "Definitions" Article.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI standards referenced in "Setting and Grouting Materials" Article.
- C. Colors, Textures, and Patterns: Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials complying with the following requirements:
  - 1. As indicated in the installation schedules at the end of this section.

- D. Factory Blending: For tile exhibiting color variations within ranges selected during Sample submittals, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.
- E. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer, unless otherwise indicated.
  - 1. Where tile is indicated for installation in swimming pools on exteriors or in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.
- F. Factory-Applied Temporary Protective Coating: Where indicated under tile type, protect exposed surfaces of tile against adherence of mortar and grout by precoating with continuous film of petroleum paraffin wax, applied hot. Do not coat unexposed tile surfaces.

## 2.3 TILE PRODUCTS

- A. Manufacturers:
  - 1. American Olean; Div. of Dal-Tile International Corp.
  - 2. Crossville Ceramics Company, L.P.
  - 3. Daltile; Div. of Dal-Tile International Inc.
  - 4. Florida Tile Industries, Inc.
  - 5. GranitiFiandre.
- B. Unglazed Ceramic Mosaic Tile F4: Factory-mounted flat tile as follows:
  - 1. Composition: Porcelain.
  - 2. Surface: Smooth, without abrasive admixture.
  - 3. Module Size: 2 by 2 inches (50.8 by 50.8 mm).
  - 4. Nominal Thickness: 1/4 inch (6.35 mm).
  - 5. Face: Plain with cushion edges.
- C. Unglazed Paver Tile F5: Flat tile as follows:
  - 1. Composition: Porcelain.
  - 2. Facial Dimensions: 7-7/8 by 7-7/8 inches (200 by 200 mm).
  - 3. Thickness: 1/4 inch (6.35 mm).
  - 4. Face: Plain with square edges.
  - 5. For latex-portland cement-mortared and -grouted paver tile, precoat with temporary protective coating.
- D. Unglazed Paver Tile F3: Flat tile as follows:
  - 1. Composition: Porcelain.
  - 2. Facial Dimensions: 19-3/4" x 19-3/4".
  - 3. Thickness: 1/4 inch (6.35 mm).
  - 4. Face: Plain with square edges.
  - 5. For latex-portland cement-mortared and- grouted paver tile, precoat with temporary protective coating.
  - 6. Products:
    - a. Daltile; Veranda.
- E. Glazed Wall Tile: Flat tile as follows:
  - 1. Module Size: 6 by 6 inches (152 by 152 mm).
  - 2. Thickness: 5/16 inch (8 mm).

3. Face: Plain with modified square edges or cushion edges.
4. Finish: Bright, opaque glaze.
5. Mounting: Factory back-mounted.

F. Glazed Wall Tile Trim Units: Matching characteristics of adjoining flat tile and coordinated with sizes and coursing of adjoining flat tile where applicable. Provide shapes as follows, selected from manufacturer's standard shapes:

1. Base for Portland Cement Mortar Installations: Coved, module size 6 by 6 inches (152 by 152 mm).
2. Base for Thin-Set Mortar Installations: Straight, module size 6 by 6 inches (152 by 152 mm).
3. Wainscot Cap for Portland Cement Mortar Installations: Bullnose cap, module size 6 by 6 inches (152 by 152 mm).
4. Wainscot Cap for Thin-Set Mortar Installations: Surface bullnose, module size 6 by 6 inches (152 by 152 mm).
5. Wainscot Cap for Flush Conditions: Regular flat tile for conditions where tile wainscot is shown flush with wall surface above.
6. External Corners for Portland Cement Mortar Installations: Bullnose shape with radius of at least 3/4 inch (19 mm), unless otherwise indicated.
7. External Corners for Thin-Set Mortar Installations: Surface bullnose.
8. Internal Corners: Field-buttet square corners except with coved base and cap angle pieces designed to fit with stretcher shapes.

G. Accessories for Glazed Wall Tile: Provide vitreous china accessories of type and size indicated, in color and finish to match adjoining wall tile, and intended for installing by same method as adjoining wall tile.

1. One soap holder for each shower.

## 2.4 THRESHOLDS

A. General: Fabricate to sizes and profiles indicated or required to provide transition between adjacent floor finishes.

1. Bevel edges at 1:2 slope, aligning lower edge of bevel with adjacent floor finish. Limit height of bevel to 1/2 inch (12.7 mm) or less, and finish bevel to match face of threshold.

B. Marble Thresholds: ASTM C 503 with a minimum abrasion resistance of 10 per ASTM C 1353 or ASTM C 241 and with honed finish.

1. Description: Uniform, fine- to medium-grained white stone with gray veining.

## 2.5 CRACK-SUPPRESSION MEMBRANES FOR THIN-SET TILE INSTALLATIONS

A. Polyethylene-Sheet Product: Polyethylene faced on both sides with fleece webbing for adhering to latex-portland cement mortar; 39 inches (1000 mm) wide by 0.008-inch (0.203-mm) nominal thickness.

1. Product: Schluter Systems L.P.; KERDI.

## 2.6 WATERPROOFING FOR SHOWER INSTALLATIONS

A. General: Provide products that comply with ANSI A118.10 and the descriptions in this Article.

B. Acrylic-Latex Waterproofing: Manufacturer's standard proprietary product consisting of one-part acrylic-latex additive and flexible cementitious fiber mortar, factory packaged for job-mixing and trowel application.

C. Products: Subject to compliance with requirements, provide one of the following:

1. Acrylic-Latex Waterproofing:
  - a. PRP 315; Mapei Corporation.

## 2.7 SETTING MATERIALS

A. Portland Cement Mortar Installation Materials: Provide materials complying with ANSI A108.1A and as specified below:

1. Cleavage Membrane: Asphalt felt, ASTM D 226, Type 1 (no. 15), or polyethylene sheeting ASTM D 4397, 4.0 mils (0.1 mm) thick.

B. Latex Portland Cement Mortar: ANSI A118.4, composed as follows:

1. Prepackaged Dry-Mortar Mix: Factory-prepared mixture of portland cement; dry, redispersible, ethylene vinyl acetate additive; and other ingredients to which only water needs to be added at project site
  - a. For wall applications, provide nonsagging, latex-portland cement mortar complying with ANSI A118.4 for mortar of this type defined in Section F-2.1.2.

C. Medium-Bed, Latex-Portland Cement Mortar: Provide materials composed as follows, with physical properties equaling or exceeding those required for thin-set mortars based on testing of medium-bed specimens according to ANSI A118.4:

1. Prepackaged Dry-Mortar Mix: Factory-prepared mixture of portland cement; dry, redispersible, ethylene vinyl acetate additive; and other ingredients to which only water needs to be added at project site.

## 2.8 GROUTING MATERIALS

A. Latex-Portland Cement Grout: ANSI A118.6 for materials described in Section H-2 4, composed as follows:

1. Factory-Prepared. Dry-Grout Mixture: Factory-prepared mixture of portland cement; dry, redispersible, ethylene vinyl acetate additive; and other ingredients to produce the following:
  - a. Unsanded grout mixture for joints 1/8 inch (3.2 mm) and narrower.
  - b. Sanded grout mixture for joints 1/8 inch (3.2 mm) and wider.

## 2.9 ELASTOMERIC SEALANTS

A. General: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer and characteristics indicated that comply with applicable requirements in Division 7 Section "Joint Sealants."

1. Use sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints, unless otherwise indicated.

- C. One-Part, Mildew-Resistant Silicone Sealant: ASTM C 920; Type S; Grade NS; Class 25; Uses NT, G, A, and, as applicable to nonporous joint substrates indicated, O; formulated with fungicide, intended for sealing interior ceramic tile joints and other nonporous substrates that are subject to in-service exposures of high humidity and extreme temperatures.
  - 1. Products:
    - a. Dow Corning Corporation; Dow Corning 786.
    - b. GE Silicones; Sanitary 1700.
    - c. Pecora Corporation; Pecora 898 Sanitary Silicone Sealant.
    - d. Tremco, Inc.; Tremsil 600 White.

## 2.10 CEMENTITIOUS BACKER UNITS

- A. Provide cementitious backer units complying with ANSI A118.9 in maximum lengths available to minimize end-to-end butt joints.
  - 1. Thickness: 1/2 inch (12.7 mm).
  - 2. Width: Manufacturer's standard width, but not less than 32 inches (813 mm).
- B. Products:
  - 1. C-Cure; C-Cure Board 990.
  - 2. Custom Building Products; Wonderboard.
  - 3. FinPan, Inc.; Util-A-Crete Concrete Backer Board.
  - 4. USG Corporation; DUROCK Cement Board.

## 2.11 MISCELLANEOUS MATERIALS

- A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
- B. Metal Edge Strips: Angle or L-shape, height to match tile and setting-bed thickness, metallic or combination of metal and PVC or neoprene base, designed specifically for flooring applications, nickel silver exposed-edge material.
- C. Temporary Protective Coating: Either product indicated below that is formulated to protect exposed surfaces of tile against adherence of mortar and grout; compatible with tile, mortar, and grout products; and easily removable after grouting is completed without damaging grout or tile.
  - 1. Petroleum paraffin wax, fully refined and odorless, containing at least 0.5 percent oil with a melting point of 120 to 140 deg F (49 to 60 deg C) per ASTM D 87.
  - 2. Grout release in form of manufacturer's standard proprietary liquid coating that is specially formulated and recommended for use as temporary protective coating for tile.
- D. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.
- E. Grout Sealer: Manufacturer's standard product for sealing grout joints that does not change color or appearance of grout.
  - 1. Products:
    - a. Bonsal, W. R., Company; Grout Sealer.
    - b. Bostik; CeramaSeal Grout Sealer.
    - c. C-Cure; Penetrating Sealer 978.
    - d. Southern Grouts & Mortars, Inc.; Silicone Grout Sealer.

- e. Summitville Tiles, Inc.; SL-15, Invisible Seal Penetrating Grout and Tile Sealer.

## 2.12 MIXING MORTARS AND GROUT

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

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
  - 1. Verify that substrates for setting tile are firm; dry; clean; free of oil, waxy films, and curing compounds; and within flatness tolerances required by referenced ANSI A108 Series of tile installation standards for installations indicated.
  - 2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.
  - 3. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Remove coatings, including curing compounds and other substances that contain soap, wax, oil, or silicone, that are incompatible with tile-setting materials.
- B. Provide concrete substrates for tile floors installed with thin-set mortar that comply with flatness tolerances specified in referenced ANSI A108 Series of tile installation standards.
  - 1. Fill cracks, holes, and depressions with trowelable leveling and patching compound according to tile-setting material manufacturer's written instructions. Use product specifically recommended by tile-setting material manufacturer.
  - 2. Remove protrusions, bumps, and ridges by sanding or grinding.
- C. Blending: For tile exhibiting color variations within ranges selected during Sample submittals, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.
- D. Field-Applied Temporary Protective Coating: Where indicated under tile type or needed to prevent grout from staining or adhering to exposed tile surfaces, precoat them with continuous film of temporary protective coating, taking care not to coat unexposed tile surfaces.

### 3.3 INSTALLATION, GENERAL

- A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.
- B. TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation." Comply with TCA installation methods indicated in ceramic tile installation schedules.
- C. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions, unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
- E. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise indicated.
  - 1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.
- F. Lay out tile wainscots to next full tile beyond dimensions indicated.
- G. Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
  - 1. Locate joints in tile surfaces directly above joints in concrete substrates.
  - 2. Prepare joints and apply sealants to comply with requirements in Division 7 Section "Joint Sealants."
- H. Grout tile to comply with requirements of the following tile installation standards:
  - 1. For ceramic tile grouts (sand-portland cement; dry-set, commercial portland cement; and latex-portland cement grouts), comply with ANSI A108.10.
  - 2. For chemical-resistant epoxy grouts, comply with ANSI A108.6.
  - 3. For chemical-resistant furan grouts, comply with ANSI A108.8.
- I. At showers, tubs, and where indicated, install cementitious backer units and treat joints to comply with ANSI A108.11 and manufacturer's written instructions for type of application indicated.

### 3.4 WATERPROOFING AND CRACK-SUPPRESSION MEMBRANE INSTALLATION

- A. Install waterproofing to comply with ANSI A108.13 and waterproofing manufacturer's written instructions to produce waterproof membrane of uniform thickness bonded securely to substrate.
- B. Install crack-suppression membrane to comply with manufacturer's written instructions to produce membrane of uniform thickness bonded securely to substrate.
- C. Do not install tile over waterproofing until waterproofing has cured and been tested to determine that it is watertight.

### 3.5 FLOOR TILE INSTALLATION

- A. General: Install tile to comply with requirements in the Floor Tile Installation Schedule, including those referencing TCA installation methods and ANSI A108 Series of tile installation standards.
  - 1. For installations indicated below, follow procedures in ANSI A108 Series tile installation standards for providing 95 percent mortar coverage.
    - a. Exterior tile floors.
    - b. Tile floors in wet areas.
    - c. Tile swimming pool decks.
    - d. Tile floors in laundries.
    - e. Tile floors composed of tiles 8 by 8 inches (200 by 200 mm) or larger.
    - f. Tile floors composed of rib-backed tiles.
- B. Stone Thresholds: Install stone thresholds at locations indicated; set in same type of setting bed as abutting field tile, unless otherwise indicated.
  - 1. Set thresholds in latex-portland cement mortar for locations where mortar bed would otherwise be exposed above adjacent nontile floor finish.
- C. Metal Edge Strips: Install at locations indicated or where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with top of tile.
- D. Grout Sealer: Apply grout sealer to grout joints according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer that has gotten on tile faces by wiping with soft cloth.

### 3.6 WALL TILE INSTALLATION

- A. Install types of tile designated for wall installations to comply with requirements in the Wall Tile Installation Schedule, including those referencing TCA installation methods and ANSI setting-bed standards.
- B. Install metal lath and scratch coat for walls to comply with ANSI A108.1A, Section 4.1.

### 3.7 CLEANING AND PROTECTING

- A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
  - 1. Remove grout residue from tile as soon as possible.
  - 2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions, but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.
  - 3. Remove temporary protective coating by method recommended by coating manufacturer that is acceptable to tile and grout manufacturer. Trap and remove coating to prevent it from clogging drains.
- B. When recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.
- C. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.
- D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

### 3.8 FLOOR TILE INSTALLATION SCHEDULE

- A. Tile Installation F4: Interior floor installation on concrete; cement mortar bed (thickset) bonded to concrete; TCA F112.
1. Color: Field Color: Price Group 1 & 2; Accent Color: Price Group 2 & 3.
  2. Tile Type: Unglazed ceramic mosaic tile.
  3. Thin-Set Mortar: Latex- portland cement mortar.
  4. Grout: Polymer-modified unsanded grout.
  5. Joint Size: 1/16 Inch.
- B. Tile Installation (Shower Locations): Interior floor installation on waterproof membrane over concrete and wood; cement mortar bed (thickset); TCA F121.
1. Color: Price Group 1 and 2.
  2. Tile Type: Unglazed ceramic mosaic tile.
  3. Thin-Set Mortar: Latex-portland cement mortar.
  4. Grout: Polymer-modified unsanded grout.
  5. Joint Size: 1/16 Inch.
- C. Tile Installation (F6): Interior floor installation on crack-suppression membrane over concrete; thin-set mortar; TCA F122.
1. Color: Full Range.
  2. Tile Type: 20" x 20:" Unglazed Paver tile.
  3. Thin-Set Mortar: Latex-portland cement mortar.
  4. Grout: Polymer-modified unsanded grout.
  5. **Joint Width: 1/8 Inch.**
  6. Crack-Suppression membrane o cover entire floor.
- D. Tile Installation (F5): Interior floor installation on concrete; thin-set mortar; TCA F113.
1. Color: Field (Price Group1 & 2).
  2. Tile Type: 8" x 8" Unglazed Paver tile.
  3. Thin-Set Mortar: Latex-portland cement mortar.
  4. Grout: Polymer-modified sanded grout.
  5. Joint Width: 1/4 inch.

### 3.9 WALL TILE INSTALLATION SCHEDULE

- A. Tile Installation: Interior wall installation over gypsum board; thin-set mortar; TCA W243 and ANSI A108.5.
1. Color: Field (Price group 1); Accents (Price group 2).
  2. Tile Type: Glazed wall tile.
  3. Thin-Set Mortar: Latex-]portland cement mortar.
  4. Grout: Polymer-modified unsanded grout.
  5. Joint Width: 1/16 Inch.
- B. Tile Installation (Shower Locations): Interior wall installation over cementitious backer units; thin-set mortar; TCA W244 and ANSI A108.5.
1. Color: Field (Price group 1); Accents (Price group 2).
  2. Tile Type: Glazed wall tile.
  3. Thin-Set Mortar: Latex-]portland cement mortar.
  4. Grout: Polymer-modified unsanded grout.
  5. Joint Width: 1/16 Inch.

END OF SECTION 093000

## SECTION 095123 - ACOUSTICAL TILE CEILINGS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Ceilings consisting of acoustical tiles directly attached to substrates with adhesive.
- B. Related Sections include the following:
  - 1. Division 9 Section "Acoustical Panel Ceilings" for ceilings consisting of mineral-base and glass-fiber-base acoustical panels and exposed suspension systems.

#### 1.3 SUBMITTALS

- A. Product Data: For each type of product specified.
- B. Coordination Drawings: Reflected ceiling plans drawn to scale and coordinating penetrations and ceiling-mounted items. Show the following:
  - 1. Ceiling suspension system members.
  - 2. Method of attaching suspension system hangers to building structure.
  - 3. Initial direct-access openings.
  - 4. Ceiling-mounted items including light fixtures; air outlets and inlets; speakers; sprinklers; and special moldings at walls, column penetrations, and other junctures of acoustical ceilings with adjoining construction.
- C. Samples for Initial Selection: Manufacturer's color charts consisting of actual acoustical tiles or sections of acoustical tiles, suspension systems, and moldings showing the full range of colors, textures, and patterns available for each type of ceiling assembly indicated.
- D. Samples for Verification: Full-size units of each type of ceiling assembly indicated; in sets for each color, texture, and pattern specified, showing the full range of variations expected in these characteristics.
  - 1. Full-size samples of each acoustical tile type, pattern, and color.
- E. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- F. Product Test Reports: Indicate compliance of acoustical tile ceilings and components with requirements based on comprehensive testing of current products.
- G. Research/Evaluation Reports: Evidence of acoustical tile ceiling's and components' compliance with building code in effect for Project, from a model code organization acceptable to authorities

having jurisdiction.

#### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer who has completed acoustical tile ceilings similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
- B. Source Limitations for Ceiling Units: Obtain each acoustical ceiling tile from one source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.
- C. Source Limitations for Suspension System: Obtain each suspension system from one source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

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

#### 1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install acoustical tile ceilings until spaces are enclosed and weatherproof, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

#### 1.7 COORDINATION

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

#### 1.8 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.
  - 1. Acoustical Ceiling Units: Full-size units equal to 5.0 percent of amount installed.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products indicated for each designation in the Acoustical Tile Ceiling Schedule at the end of Part 3.

## 2.2 ACOUSTICAL TILES, GENERAL

- A. Acoustical Tile Standard: Provide manufacturer's standard tiles of configuration indicated that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical ratings, and light reflectances, unless otherwise indicated.
  - 1. Mounting Method for Measuring Noise Reduction Coefficient: Type E-400; plenum mounting in which face of test specimen is 15-3/4 inches (400 mm) away from test surface per ASTM E 795.
- B. Acoustical Tile Colors and Patterns: Match appearance characteristics indicated for each product type.
  - 1. Where appearance characteristics of acoustical tiles are indicated by referencing ASTM E 1264 pattern designations and not manufacturers' proprietary product designations, provide products selected by Architect from each manufacturer's full range of products that comply with requirements indicated for type, pattern, color, light reflectance, acoustical performance, edge detail, and size.
- C. Antimicrobial Treatment: Provide acoustical tiles treated with manufacturer's standard antimicrobial solution consisting of a synergistic blend of substituted ammonium salts of alkylated phosphoric acids admixed with free alkylated phosphoric acid that inhibits fungus, mold, mildew, and gram-positive and gram-negative bacteria.
- D. Tile Characteristics: Comply with requirements indicated in the Acoustical Tile Ceiling Schedule at the end of Part 3, including those referencing ASTM E 1264 classifications.

## 2.3 ACOUSTICAL SEALANT

- A. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 and the following requirements:
  - 1. Product is effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
- B. Acoustical Sealant for Concealed Joints: Manufacturer's standard nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce airborne sound transmission.
- C. Products: Subject to compliance with requirements, provide one of the following:
  - 1. Acoustical Sealant for Exposed and Concealed Joints:
    - a. PL Acoustical Sealant; ChemRex, Inc., Contech Brands.
    - b. AC-20 FTR Acoustical and Insulation Sealant; Pecora Corp.
    - c. SHEETROCK Acoustical Sealant; United States Gypsum Co.
  - 2. Acoustical Sealant for Concealed Joints:
    - a. BA-98; Pecora Corp.
    - b. Tremco Acoustical Sealant; Tremco, Inc.

## 2.4 MISCELLANEOUS MATERIALS

- A. Tile Adhesive: Type as recommended by tile manufacturer, bearing UL label for Class 0-25 flame spread.
- B. Edge Trim: Metal (Pre-Finished white) edge trim.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and structural framing to which acoustical tile ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage, and other conditions affecting performance of acoustical tile ceilings.
  - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Testing Substrates: Before installing adhesively applied tiles on wet-placed substrates such as cast-in-place concrete or plaster, test and verify that moisture level is below tile manufacturer's recommended limits.
- B. Measure each ceiling area and establish layout of acoustical tiles to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width units at borders, and comply with layout shown on reflected ceiling plans.

### 3.3 INSTALLATION

- A. General: Install acoustical tile ceilings to comply with publications referenced below per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
  - 1. Standard for Ceiling Suspension System Installations: Comply with ASTM C 636.
- B. Arrange directionally patterned acoustical tiles as follows:
  - 1. Install tiles with pattern running in one direction parallel to short axis of space.
- C. Adhesive Installation: Install acoustical tile by cementing to substrate, using amount of adhesive and procedure recommended by tile manufacturer and as follows:
  - 1. Remove loose dust from backs of tiles by brushing and then priming them with a thin coat of adhesive.
  - 2. Install splines in joints between tiles; maintain level of bottom surface of tiles to a tolerance of 1/8 inch in 12 feet (3 mm in 3.6 m) and not exceeding 1/4 inch (6.35 mm) cumulatively.
  - 3. Maintain tight butt joints, aligned in both directions and coordinated with ceiling fixtures.

### 3.4 CLEANING

- A. Clean exposed surfaces of acoustical tile ceilings, including trim, edge moldings, and suspension

system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace tiles and other ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

### 3.5 ACOUSTICAL TILE CEILING SCHEDULE

- A. Cast or Molded, Mineral-Base Acoustical Tiles for Acoustical Tile Ceiling: Where 12x12 acoustic tile ceiling is indicated, provide acoustical tiles, treated with antimicrobial solution, and complying with the following:
1. Products: Provide one of the following:
    - a. "F" Fissured; USG Interiors, Inc.
  2. Color: White.
  3. Edge Detail: Beveled.
  4. Thickness: 3/4 inch (19 mm).
  5. Size: 12 by 12 inches (305 by 305 mm).

END OF SECTION 095123

## SECTION 096513 - RESILIENT WALL BASE AND ACCESSORIES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Resilient wall base.
  - 2. Resilient carpet accessories.

#### 1.3 SUBMITTALS

- A. Product Data: For each type of product specified.
- B. Samples for Initial Selection: Manufacturer's standard sample sets consisting of sections of units showing the full range of colors and patterns available for each type of product indicated.
- C. Samples for Verification: In manufacturer's standard sizes, but not less than 12 inches (300 mm) long, of each product color and pattern specified.
- D. Product Certificates: Signed by manufacturers of resilient wall base and accessories certifying that each product furnished complies with requirements.

#### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer to perform work of this Section who has specialized in installing resilient products similar to those required for this Project and with a record of successful in-service performance.
- B. Source Limitations: Obtain each type and color of product specified from one source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.
- C. Fire-Test-Response Characteristics: Provide products with the following fire-test-response characteristics as determined by testing identical products per test method indicated below by a testing and inspecting agency acceptable to authorities having jurisdiction.
  - 1. Critical Radiant Flux: 0.45 W/sq. cm or greater when tested per ASTM E 648.
  - 2. Smoke Density: Maximum specific optical density of 450 or less when tested per ASTM E 662.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to Project site in manufacturer's original, unopened cartons and containers, each bearing names of product and manufacturer, Project identification, and shipping and handling instructions.

- B. Store products in dry spaces protected from the weather, with ambient temperatures maintained between 50 and 90 deg F (10 and 32 deg C).
- C. Move products into spaces where they will be installed at least 48 hours before installation, unless longer conditioning period is recommended in writing by manufacturer.

## 1.6 PROJECT CONDITIONS

- A. Maintain a temperature of not less than 70 deg F (21 deg C) or more than 95 deg F (35 deg C) in spaces to receive resilient products for at least 48 hours before installation, during installation, and for at least 48 hours after installation, unless manufacturer's written recommendations specify longer time periods. After postinstallation period, maintain a temperature of not less than 55 deg F (13 deg C) or more than 95 deg F (35 deg C).
- B. Do not install products until they are at the same temperature as the space where they are to be installed.
- C. For resilient products installed on traffic surfaces, close spaces to traffic during installation and for time period after installation recommended in writing by manufacturer.
- D. Coordinate resilient product installation with other construction to minimize possibility of damage and soiling during remainder of construction period. Install resilient products after other finishing operations, including painting, have been completed.

## 1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.
  - 1. Furnish not less than 10 linear feet (3 linear m) for each 500 linear feet (150 linear m) or fraction thereof, of each different type, color, pattern, and size of resilient product installed.
  - 2. Deliver extra materials to Owner.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products indicated for each designation in the Resilient Wall Base and Accessory Schedule at the end of Part 3.

### 2.2 RESILIENT WALL BASE

- A. Rubber Wall Base: Products complying with FS SS-W-40, Type I and with requirements specified in the Resilient Wall Base and Accessory Schedule.

### 2.3 RESILIENT ACCESSORIES

- A. Rubber Accessories: Products complying with requirements specified in the Resilient Wall Base and Accessory Schedule.

### 2.4 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based formulation provided or approved by resilient product manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where installation of resilient products will occur, with Installer present, for compliance with manufacturer's requirements, including those for maximum moisture content. Verify that substrates and conditions are satisfactory for resilient product installation and comply with requirements specified. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. General: Comply with manufacturer's written installation instructions for preparing substrates indicated to receive resilient products.
- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, and depressions in substrates.
- C. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
- D. Broom and vacuum clean substrates to be covered immediately before installing resilient products. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.3 INSTALLATION

- A. General: Install resilient products according to manufacturer's written installation instructions.
- B. Apply resilient wall base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
  - 1. Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
  - 2. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
  - 3. Do not stretch base during installation.
  - 4. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.
  - 5. Install premolded outside and inside corners before installing straight pieces.
- C. Place resilient products so they are butted to adjacent materials and bond to substrates with adhesive. Install reducer strips at edges of flooring that would otherwise be exposed.
- D. Apply resilient products to stairs as indicated and according to manufacturer's written installation instructions.

### 3.4 CLEANING AND PROTECTING

- A. Perform the following operations immediately after installing resilient products:
  - 1. Remove adhesive and other surface blemishes using cleaner recommended by resilient product manufacturers.
  - 2. Sweep or vacuum horizontal surfaces thoroughly.
  - 3. Do not wash resilient products until after time period recommended by resilient product manufacturer.
  - 4. Damp-mop or sponge resilient products to remove marks and soil.
- B. Protect resilient products against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by resilient product manufacturer.
- C. Clean resilient products not more than 4 days before dates scheduled for inspections intended to establish date of Substantial Completion in each area of Project. Clean products according to manufacturer's written recommendations.

### 3.5 RESILIENT WALL BASE AND ACCESSORY SCHEDULE

- A. Rubber Wall Base: Where rubber wall base is indicated, provide rubber wall base complying with the following:
  - 1. Products: Provide one of the following:
    - a. Roppe
    - b. Burke
    - c. Flexco
  - 2. Color and Pattern: As selected by Architect from manufacturer's full range of colors and patterns produced for rubber wall base complying with requirements indicated.
  - 3. Style: Straight with no toe where installed with carpet, cove with top-set toe else where.
  - 4. Minimum Thickness: 1/8 inch (3.2 mm).
  - 5. Height: 4 inches (101.6 mm).
  - 6. Lengths: Coils in lengths standard with manufacturer, but not less than 96 feet (29.26 m).
  - 7. Outside Corners: Premolded.
  - 8. Inside Corners: Job Formed.
  - 9. Surface: Smooth.
- B. Rubber Accessory Molding: Provide rubber accessory molding complying with the following at all locations where carpet transitions to other floor material:
  - 1. Products: Provide one of the following:
    - a. Roppe
    - b. Burke
    - c. Flexco
  - 2. Color: As selected by Architect from manufacturer's full range of colors produced for rubber accessory molding complying with requirements indicated.
  - 3. Product Description: Carpet edge for glue-down applications.
  - 4. Profile and Dimensions: As indicated or if not indicated manufacturer's standard.
  - 5.

END OF SECTION 096513

## SECTION 096816 - CARPET

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Tufted carpet.
  - 2. Entry Carpet.
- B. Related Sections include the following:
  - 1. Division 9 Section "Resilient Wall Base and Accessories" for resilient wall base and accessories installed with carpet.

#### 1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include manufacturer's written data on physical characteristics, durability, and fade resistance. Include installation recommendations for each type of substrate required.
- B. Shop Drawings: Show the following:
  - 1. Columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet.
  - 2. Existing flooring materials to be removed.
  - 3. Existing flooring materials to remain.
  - 4. Carpet type, color, and dye lot.
  - 5. Locations where dye lot changes occur.
  - 6. Seam locations, types, and methods.
  - 7. Type of subfloor.
  - 8. Type of installation.
  - 9. Pattern type, repeat size, location, direction, and starting point.
  - 10. Pile direction.
  - 11. Type, color, and location of insets and borders.
  - 12. Type, color, and location of edge, transition, and other accessory strips.
  - 13. Transition details to other flooring materials.
  - 14. Type of cushion.
- C. Samples: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.
  - 1. Carpet: 12-inch- (300-mm-) square Sample.
  - 2. Exposed Edge Stripping and Accessory: 12-inch- (300-mm-) long Samples.
  - 3. Carpet Seam: 6-inch (150-mm) Sample.
  - 4. Mitered Carpet Border Seam: 12-inch- (300-mm-) square Sample. Show carpet pattern alignment.

- D. Product Schedule: Use same room and product designations indicated on Drawings and in schedules.
- E. Maintenance Data: For carpet to include in maintenance manuals specified in Division 1. Include the following:
  - 1. Methods for maintaining carpet, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
  - 2. Precautions for cleaning materials and methods that could be detrimental to carpet.

#### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who is certified by the Floor Covering Installation Board or who can demonstrate compliance with its certification program requirements.
- B. Fire-Test-Response Characteristics: Provide products with the critical radiant flux classification indicated in Part 2, as determined by testing identical products per ASTM E 648 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
- C. Product Options: Products and manufacturers named in Part 2 establish requirements for product quality in terms of appearance, construction, and performance. Other manufacturers' products comparable in quality to named products and complying with requirements may be considered. Refer to Division 1 Section "Substitutions."
- D. Mockups: Before installing carpet, install mockups for each type of carpet installation required to demonstrate aesthetic effects and qualities of materials and execution. Install mockups to comply with the following requirements, using materials indicated for the completed Work:
  - 1. Install mockups in the location and of the size indicated or, if not indicated, as directed by Architect.
  - 2. Notify Architect seven days in advance of dates and times when mockups will be installed.
  - 3. Demonstrate the proposed range of aesthetic effects and workmanship.
  - 4. Obtain Architect's approval of mockups before starting work.
  - 5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
  - 6. Remove mockups when directed.
  - 7. Approved mockups may become part of the completed Work if undamaged at time of Substantial Completion.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. General: Comply with CRI 104, Section 5, "Storage and Handling."

#### 1.6 PROJECT CONDITIONS

- A. General: Comply with CRI 104, Section 6.1, "Site Conditions; Temperature and Humidity."
- B. Environmental Limitations: Do not install carpet until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- C. Do not install carpet over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet manufacturer.
- D. Where demountable partitions or other items are indicated for installation on top of carpet, install carpet before installing these items.

## 1.7 WARRANTY

- A. General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Carpet Warranty: Written warranty, signed by carpet manufacturer agreeing to replace carpet that does not comply with requirements or that fails within specified warranty period. Warranty does not include deterioration or failure of carpet due to unusual traffic, failure of substrate, vandalism, or abuse. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, and delamination.
  - 1. Warranty Period: 15 years from date of Substantial Completion.

## 1.8 EXTRA MATERIALS

- A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Carpet: Full-width rolls equal to 3 percent of amount installed for each type indicated, but not less than 10 sq. yd. (8.3 sq. m).

## PART 2 - PRODUCTS

### 2.1 CARPET

- A. Products: Subject to compliance with requirements, provide one of the following:
  - 1. Crossley; Pennant Race (**Custom Fiber Content**).
    - a. Fiber Content: 100% Dupont, **Type 6, 6 Nylon**.
    - b. Color: As selected by Architect from manufacturer's full range.
    - c. Backing: Lifespan.
  - 2. Bigelow Commercial; MOD (**custom fiber content**).
    - a. Fiber Content: **100% Solutia, Type 6, 6 Nylon**.
    - b. Color: As selected by Architect from manufacturer's full range.
    - c. Backing: Weldlok Plus.
    - d. Pile Weight: 30 oz./yd.
- B. Gauge: 1/10 inch.
- C. Stitches: 11 / inch.
- D. Width: 12 Feet.

### 2.2 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided by or recommended by the following:
  - 1. Carpet manufacturer.
  - 2. Carpet cushion manufacturer.

- B. Adhesives: Water-resistant, mildew-resistant, nonstaining type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet and that is recommended by carpet manufacturer.
  - 1. VOC Limits: Provide adhesives that comply with the following limits for VOC content when tested according to ASTM D 5116:
    - a. Total VOCs: 10.00 mg/sq. m x h.
    - b. Formaldehyde: 0.05 mg/sq. m x h.
    - c. 2-Ethyl-1-Hexanol: 3.00 mg/sq. m x h.
- C. Seaming Cement: Hot-melt adhesive tape or similar product recommended by carpet manufacturer for taping seams and butting cut edges at backing to form secure seams and to prevent pile loss at seams.
- D. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edge of carpet, and of maximum lengths to minimize running joints.

### 2.3 ENTRY CARPET

- A. Products: *Champion Deluxe Walk Off Carpet.*
- B. Contact: *LBI Company 800-662-4327.*

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet performance. Verify that substrates and conditions are satisfactory for carpet installation and comply with requirements specified.
- B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
  - 1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by the following:
    - a. Carpet manufacturer.
    - b. Carpet cushion manufacturer.
  - 2. Subfloor finishes comply with requirements specified in Division 3 Section "Cast-in-Place Concrete" for slabs receiving carpet.
  - 3. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.
- C. For wood subfloors, verify the following:
  - 1. Underlayment over subfloor complies with requirements specified in Division 6 Section "Rough Carpentry."
  - 2. Underlayment surface is free of irregularities and substances that may interfere with adhesive bond or show through surface.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. General: Comply with CRI 104, Section 6.2, "Site Conditions; Floor Preparation," and carpet manufacturer's written installation instructions for preparing substrates indicated to receive carpet installation.
- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, and depressions in substrates.
- C. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by the following:
  - 1. Carpet manufacturer.
  - 2. Carpet cushion manufacturer.
- D. Broom and vacuum clean substrates to be covered immediately before installing carpet. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.3 INSTALLATION

- A. Direct-Glue-Down Installation: Comply with CRI 104, Section 8, "Direct Glue-Down Installation."
- B. Stair Installation: Comply with CRI 104, Section 12, "Carpet on Stairs."
- C. Comply with carpet manufacturer's written recommendations for seam locations and direction of carpet; maintain uniformity of carpet direction and lay of pile. At doorways, center seams under the door in closed position.
  - 1. Bevel adjoining border edges at seams with hand shears.
  - 2. Level adjoining border edges.
- D. Do not bridge building expansion joints with carpet.
- E. Cut and fit carpet to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet manufacturer.
- F. Extend carpet into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- G. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use nonpermanent, nonstaining marking device.
- H. Install pattern parallel to walls and borders.

### 3.4 CLEANING AND PROTECTION

- A. Perform the following operations immediately after installing carpet:
  - 1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet manufacturer.
  - 2. Remove yarns that protrude from carpet surface.
  - 3. Vacuum carpet using commercial machine with face-beater element.

- B. Protect installed carpet to comply with CRI 104, Section 15, "Protection of Indoor Installations."
- C. Protect carpet against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet manufacturer.

END OF SECTION 096816

## SECTION 099110 - PAINTING (CONSUMER LINE PRODUCTS)

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes surface preparation and field painting of exposed exterior and interior items and surfaces.
  - 1. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.
- B. Paint exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Architect will select from standard colors and finishes available.
  - 1. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron supports, and surfaces of mechanical and electrical equipment that do not have a factory-applied final finish.
- C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
  - 1. Prefinished items include the following factory-finished components:
    - a. Architectural woodwork.
    - b. Acoustical wall panels.
    - c. Metal toilet enclosures.
    - d. Metal lockers.
    - e. Unit kitchens.
    - f. Elevator entrance doors and frames.
    - g. Elevator equipment.
    - h. Finished mechanical and electrical equipment.
    - i. Light fixtures.
  - 2. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:
    - a. Foundation spaces.
    - b. Furred areas.
    - c. Ceiling plenums.
    - d. Utility tunnels.
    - e. Pipe spaces.
    - f. Duct shafts.
    - g. Elevator shafts.
  - 3. Finished metal surfaces include the following:
    - a. Anodized aluminum.
    - b. Stainless steel.
    - c. Chromium plate.

- d. Copper and copper alloys.
  - e. Bronze and brass.
4. Operating parts include moving parts of operating equipment and the following:
- a. Valve and damper operators.
  - b. Linkages.
  - c. Sensing devices.
  - d. Motor and fan shafts.
5. Labels: Do not paint over UL, FMG, or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

D. Related Sections include the following:

- 1. Division 2 Section "Hot-Mix Asphalt Paving" for traffic-marking paint.
- 2. Division 2 Section "Cement Concrete Pavement" for traffic-marking paint.
- 3. Division 5 Section "Structural Steel" for shop priming structural steel.
- 4. Division 5 Section "Metal Fabrications" for shop priming ferrous metal.
- 5. Division 8 Section "Steel Doors and Frames" for factory priming steel doors and frames.
- 6. Division 9 Section "Gypsum Board Assemblies" for surface preparation of gypsum board.

### 1.3 DEFINITIONS

A. General: Standard coating terms defined in ASTM D 16 apply to this Section.

- 1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
- 2. Eggshell refers to low-sheen finish with a gloss range between 20 and 35 when measured at a 60-degree meter.
- 3. Semigloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60-degree meter.
- 4. Full gloss refers to high-sheen finish with a gloss range more than 70 when measured at a 60-degree meter.

### 1.4 SUBMITTALS

A. Product Data: For each paint system indicated. Include block fillers and primers.

- 1. Material List: An inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
- 2. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.

B. Samples for Initial Selection: For each type of finish-coat material indicated.

- 1. After color selection, Architect will furnish color chips for surfaces to be coated.

C. Samples for Verification: For each color and material to be applied, with texture to simulate actual conditions, on representative Samples of the actual substrate.

- 1. Provide stepped Samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing Samples for review. Resubmit until required sheen, color, and texture are achieved.
- 2. Provide a list of materials and applications for each coat of each Sample. Label each Sample for location and application.

- D. Qualification Data: For Applicator.

## 1.5 QUALITY ASSURANCE

- A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.
- B. Source Limitations: Obtain block fillers and primers for each coating system from the same manufacturer as the finish coats.
- C. Benchmark Samples (Mockups): Provide a full-coat benchmark finish sample for each type of coating and substrate required. Comply with procedures specified in PDCA P5. Duplicate finish of approved sample Submittals.
  - 1. Architect will select one room or surface to represent surfaces and conditions for application of each type of coating and substrate.
    - a. Wall Surfaces: Provide samples on at least 100 sq. ft. (9 sq. m).
    - b. Small Areas and Items: Architect will designate items or areas required.
  - 2. Apply benchmark samples, according to requirements for the completed Work, after permanent lighting and other environmental services have been activated. Provide required sheen, color, and texture on each surface.
    - a. After finishes are accepted, Architect will use the room or surface to evaluate coating systems of a similar nature.
  - 3. Final approval of colors will be from benchmark samples.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:
  - 1. Product name or title of material.
  - 2. Product description (generic classification or binder type).
  - 3. Manufacturer's stock number and date of manufacture.
  - 4. Contents by volume, for pigment and vehicle constituents.
  - 5. Thinning instructions.
  - 6. Application instructions.
  - 7. Color name and number.
  - 8. VOC content.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F (7 deg C). Maintain storage containers in a clean condition, free of foreign materials and residue.
  - 1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily.

## 1.7 PROJECT CONDITIONS

- A. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F (10 and 32 deg C).

- B. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F (7 and 35 deg C).
- C. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.
  - 1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

## 1.8 EXTRA MATERIALS

- A. Furnish extra paint materials from the same production run as the materials applied and in the quantities described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner.
  - 1. Quantity: Furnish Owner with an additional 3 percent, but not less than 1 gal. (3.8 L) or 1 case, as appropriate, of each material and color applied.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.
- B. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:
  - 1. Benjamin Moore & Co. (Benjamin Moore).
  - 2. Coronado Paint Company (Coronado).
  - 3. ICI Dulux Paint Centers (ICI Dulux Paints).
  - 4. Kelly-Moore Paint Co. (Kelly-Moore).
  - 5. M. A. Bruder & Sons, Inc. (M. A. B. Paint).
  - 6. PPG Industries, Inc. (Pittsburgh Paints).
  - 7. Sherwin-Williams Co. (Sherwin-Williams).
  - 8. Kwall-Howells.

### 2.2 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
  - 1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.
- C. Chemical Components of Interior Paints and Coatings: Provide products that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and the following chemical restrictions:

1. Flat Paints and Coatings: VOC content of not more than 50 g/L.
2. Non-Flat Paints and Coatings: VOC content of not more than 150 g/L.
3. Anticorrosive Coatings: VOC content of not more than 250 g/L.
4. Varnishes and Sanding Sealers: VOC content of not more than 350 g/L.
5. Stains: VOC content of not more than 250 g/L.
6. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
7. Restricted Components: Paints and coatings shall not contain any of the following:
  - a. Acrolein.
  - b. Acrylonitrile.
  - c. Antimony.
  - d. Benzene.
  - e. Butyl benzyl phthalate.
  - f. Cadmium.
  - g. Di (2-ethylhexyl) phthalate.
  - h. Di-n-butyl phthalate.
  - i. Di-n-octyl phthalate.
  - j. 1,2-dichlorobenzene.
  - k. Diethyl phthalate.
  - l. Dimethyl phthalate.
  - m. Ethylbenzene.
  - n. Formaldehyde.
  - o. Hexavalent chromium.
  - p. Isophorone.
  - q. Lead.
  - r. Mercury.
  - s. Methyl ethyl ketone.
  - t. Methyl isobutyl ketone.
  - u. Methylene chloride.
  - v. Naphthalene.
  - w. Toluene (methylbenzene).
  - x. 1,1,1-trichloroethane.
  - y. Vinyl chloride.

D. Colors: Match Architect's samples.

## 2.3 CONCRETE UNIT MASONRY BLOCK FILLERS

A. Concrete Unit Masonry Block Filler: Factory-formulated high-performance latex block fillers.

1. Benjamin Moore; Moorcraft Super Craft Latex Block Filler No. 285: Applied at a dry film thickness of not less than 8.1 mils (0.206 mm).
2. Coronado; 946-11 Super Kote 5000 Commercial Latex Block Filler: Applied at a dry film thickness of not less than 8.4 mils (0.214 mm).
3. ICI Dulux Paints; Bloxfil 4000-1000 Interior/Exterior Heavy Duty Acrylic Block Filler: Applied at a dry film thickness of not less than 7.0 to 14.5 mils (0.178 to 0.368 mm).
4. Kelly-Moore; 521 Fill and Prime Acrylic Block Filler: Applied at a dry film thickness of not less than 10.0 mils (0.254 mm).
5. M. A. B. Paint; Block Kote No. 1000 Acrylic Latex Block Filler 064-145: Applied at a dry film thickness of not less than 12.0 mils (0.305 mm).
6. Pittsburgh Paints; 6-7 SpeedHide Interior/Exterior Masonry Latex Block Filler: Applied at a dry film thickness of not less than 6.0 to 12.5 mils (0.152 to 0.318 mm).
7. Sherwin-Williams; PrepRite Interior/Exterior Block Filler B25W25: Applied at a dry film thickness of not less than 8.0 mils (0.203 mm).

## 2.4 EXTERIOR PRIMERS

- A. Exterior Concrete and Masonry Primer: Factory-formulated alkali-resistant acrylic-latex primer for exterior application.
1. Benjamin Moore; Moore's Latex Exterior Primer No. 102: Applied at a dry film thickness of not less than 1.4 mils (0.036 mm).
  2. Benjamin Moore; Moorwhite Primer No. 100: Applied at a dry film thickness of not less than 2.1 mils (0.053 mm).
  3. Coronado; 48-11 Elast-O-Meric Acrylic Masonry Sealer: Applied at a dry film thickness of not less than 1.2 mils (0.031 mm).
  4. ICI Dulux Paints; 2001-1200 Dulux Exterior Latex Primer: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
  5. Kelly-Moore; 247 Chem-Guard Acrylic Masonry Primer: Applied at a dry film thickness of not less than 1.9 mils (0.048 mm).
  6. M. A. B. Paint; Lok Tite Latex Masonry Primer 056-125: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  7. Pittsburgh Paints; 6-603 SpeedHide Interior/Exterior Acrylic Latex Alkali Resistant Primer: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  8. Sherwin-Williams; Loxon Exterior Masonry Acrylic Primer A24W300: Applied at a dry film thickness of not less than 3.0 mils (0.076 mm).
- B. Exterior Gypsum Soffit Board Primer: Factory-formulated alkyd- or alkali-resistant acrylic-latex primer for exterior application.
1. Benjamin Moore; Moorwhite Primer No. 100: Applied at a dry film thickness of not less than 2.1 mils (0.053 mm).
  2. Coronado; 410-11 Crylicote Gold Exterior Acrylic House Paint Primer: Applied at a dry film thickness of not less than 1.3 mils (0.033 mm).
  3. ICI Dulux Paints; 2001-1200 Dulux Exterior Latex Primer: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
  4. Kelly-Moore; 250 Color Shield Exterior Acrylic Primer: Applied at a dry film thickness of not less than 1.7 mils (0.043 mm).
  5. M. A. B. Paint; Lok Tite Latex Masonry Primer 056-125: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  6. Pittsburgh Paints; 6-603 SpeedHide Interior/Exterior Acrylic Latex Alkali Resistant Primer: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  7. Sherwin-Williams; A-100 Exterior Latex Wood Primer B42W41: Applied at a dry film thickness of not less than 3.0 mils (0.076 mm).
- C. Exterior Wood Primer for Acrylic Enamels: Factory-formulated alkyd or latex wood primer for exterior application.
1. Benjamin Moore; Moorwhite Primer No. 100: Applied at a dry film thickness of not less than 2.1 mils (0.053 mm).
  2. Coronado; 410-11 Crylicote Gold Exterior Acrylic House Paint Primer: Applied at a dry film thickness of not less than 1.3 mils (0.033 mm).
  3. ICI Dulux Paints; 2001-1200 Dulux Exterior Latex Primer: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
  4. Kelly-Moore; 255 Stain--Lock II Stain Resistant Acrylic Primer: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
  5. M. A. B. Paint; Sea Shore/Four Seasons Latex Primer Coat 056-958: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  6. Pittsburgh Paints; 72-1 Sun-Proof Exterior House & Trim Wood Primer Flat--Latex: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
  7. Sherwin-Williams; A-100 Exterior Latex Wood Primer B42W41: Applied at a dry film thickness of not less than 1.4 mils (0.036 mm).
- D. Exterior Wood Primer for Alkyd Enamels: Factory-formulated alkyd or latex wood primer for exterior application.

1. Benjamin Moore; Moorwhite Primer No. 100: Applied at a dry film thickness of not less than 2.1 mils (0.053 mm).
  2. Coronado; 5-11 Supreme Collection Oil House Paint Primer: Applied at a dry film thickness of not less than 1.9 mils (0.048 mm).
  3. ICI Dulux Paints; 2001-1200 Dulux Exterior Latex Primer: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
  4. Kelly-Moore; 220 Weather Shield Exterior Alkyd Primer: Applied at a dry film thickness of not less than 2.3 mils (0.058 mm).
  5. M. A. B. Paint; Sea Shore/Four Seasons Primer Coat 056-987: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
  6. Pittsburgh Paints; 72-1 Sun-Proof Exterior House & Trim Wood Primer Flat--Latex: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
  7. Sherwin-Williams; A-100 Exterior Latex Wood Primer B42W41: Applied at a dry film thickness of not less than 1.4 mils (0.036 mm).
- E. Exterior Wood Trim Primer for Full-Gloss Alkyd Enamels: Factory-formulated alkyd or latex primer for exterior application.
1. Benjamin Moore; Moorwhite Primer No. 100: Applied at a dry film thickness of not less than 2.1 mils (0.053 mm).
  2. Coronado; 5-11 Supreme Collection Oil House Paint Primer: Applied at a dry film thickness of not less than 1.9 mils (0.048 mm).
  3. ICI Dulux Paints; 2110-1200 Ultra-Hide Durus Exterior Alkyd Primecoat: Applied at a dry film thickness of not less than 1.9 mils (0.048 mm).
  4. Kelly-Moore; 220 Weather Shield Exterior Alkyd Primer: Applied at a dry film thickness of not less than 2.3 mils (0.058 mm).
  5. M. A. B. Paint; Sea Shore/Four Seasons Latex Primer 056-958: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
  6. Pittsburgh Paints; 6-19 SpeedHide Exterior Wood Primer: Applied at a dry film thickness of not less than 2.2 mils (0.056 mm).
  7. Sherwin-Williams; A-100 Exterior Latex Wood Primer B42W41: Applied at a dry film thickness of not less than 1.4 mils (0.036 mm).
- F. Exterior Ferrous-Metal Primer: Factory-formulated rust-inhibitive metal primer for exterior application.
1. Benjamin Moore; IronClad Alkyd Low Lustre Metal & Wood Enamel No. 163: Applied at a dry film thickness of not less than 1.3 mils (0.033 mm).
  2. Coronado; 35-147 Rust Scat Alkyd Metal Primer: Applied at a dry film thickness of not less than 1.8 mils (0.046 mm).
  3. ICI Dulux Paints; 4160-XXXX Devguard Multi-Purpose Tank & Structural Primer: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
  4. Kelly-Moore; 1711 Kel-Guard Alkyd White Rust Inhibitive Primer: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
  5. Kelly-Moore; 5725 DTM-Acrylic Metal Primer: Applied at a dry film thickness of not less than 1.8 mils (0.046 mm).
  6. M. A. B. Paint; Rust-O-Lastic Anti-Corrosive Primer 073-132: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
  7. Pittsburgh Paints; 7-858 Pittsburgh Paints Industrial Rust Inhibitive Steel Primer: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  8. Sherwin-Williams; Kem Kromik Universal Metal Primer B50NZ6/B50WZ1: Applied at a dry film thickness of not less than 3.0 mils (0.076 mm).
- G. Exterior Galvanized Metal Primer: Factory-formulated galvanized metal primer for exterior application.
1. Benjamin Moore; IronClad Latex Low-Lustre Metal & Wood Enamel No. 363: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).

2. Coronado; 36-11 Rust Scat Latex Metal Primer: Applied at a dry film thickness of not less than 1.3 mils (0.033 mm).
3. ICI Dulux Paints; 4020-XXXX Devflex DTM Flat Interior/Exterior Waterborne Primer & Finish: Applied at a dry film thickness of not less than 2.2 mils (0.056 mm).
4. ICI Dulux Paints; 4160-XXXX Devguard Multi-Purpose Tank & Structural Primer: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
5. Kelly-Moore; 1722 Kel-Guard Acrylic Galvanized Iron Primer: Applied at a dry film thickness of not less than 1.8 mils (0.046 mm).
6. Kelly-Moore; 5725 DTM-Acrylic Metal Primer: Applied at a dry film thickness of not less than 1.8 mils (0.046 mm).
7. M. A. B. Paint; Rust-O-Lastic Hydro-Prime II Acrylic (DTM) Maintenance Primer 073-189: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
8. Pittsburgh Paints; 90-709 Pitt-Tech One Pack Interior/Exterior Primer/Finish DTM Industrial Enamel: Applied at a dry film thickness of not less than 3.0 mils (0.076 mm).
9. Sherwin-Williams; primer not required over this substrate.
10. Sherwin-Williams; Galvite HS Paint B50WZ3: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).

H. Exterior Aluminum Primer under Acrylic Finishes: Factory-formulated acrylic-based metal primer for exterior application.

1. Benjamin Moore; IronClad Latex Low-Lustre Metal & Wood Enamel No. 363: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
2. Coronado; 180-11 High Performance Acrylic Metal Primer: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
3. ICI Dulux Paints; 4020-XXXX Devflex DTM Flat Interior/Exterior Waterborne Primer & Finish: Applied at a dry film thickness of not less than 2.2 mils (0.056 mm).
4. Kelly-Moore; 1722 Kel-Guard Acrylic Galvanized Iron Primer: Applied at a dry film thickness of not less than 1.8 mils (0.046 mm).
5. M. A. B. Paint; Rust-O-Lastic Hydro-Prime II Acrylic (DTM) Maintenance Primer 073-189: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
6. Pittsburgh Paints; 90-709 Pitt-Tech One Pack Interior/Exterior Primer/Finish DTM Industrial Enamel: Applied at a dry film thickness of not less than 3.0 mils (0.076 mm).
7. Sherwin-Williams; primer not required over this substrate.
8. Sherwin-Williams; DTM Acrylic Primer/Finish B66W1: Applied at a dry film thickness of not less than 2.5 mils (0.064 mm).

I. Exterior Aluminum Primer under Alkyd Finishes: Factory-formulated acrylic-based metal primer for exterior application.

1. Benjamin Moore; IronClad Latex Low-Lustre Metal & Wood Enamel No. 363: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
2. Coronado; 180-11 High Performance Acrylic Metal Primer: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
3. ICI Dulux Paints; 4020-XXXX Devflex DTM Flat Interior/Exterior Waterborne Primer & Finish: Applied at a dry film thickness of not less than 2.2 mils (0.056 mm).
4. Kelly-Moore; 1722 Kel-Guard Acrylic Galvanized Iron Primer: Applied at a dry film thickness of not less than 1.8 mils (0.046 mm).
5. M. A. B. Paint; Rust-O-Lastic Hydro-Prime II Acrylic (DTM) Maintenance Primer 073-189: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
6. Pittsburgh Paints; 90-709 Pitt-Tech One Pack Interior/Exterior Primer/Finish DTM Industrial Enamel: Applied at a dry film thickness of not less than 3.0 mils (0.076 mm).
7. Sherwin-Williams; DTM Wash Primer B71Y1: Applied at a dry film thickness of not less than 2.5 mils (0.064 mm).

## 2.5 INTERIOR PRIMERS

A. Interior Concrete and Masonry Primer: Factory-formulated alkali-resistant acrylic-latex interior primer for interior application.

1. Benjamin Moore; Regal FirstCoat Interior Latex Primer & Underbody No. 216: Applied at a dry film thickness of not less than 1.0 mil (0.025 mm).
2. Coronado; 78-11 Super Kote 5000 Acrylic Enamel Undercoat: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
3. ICI Dulux Paints; 1000-1200 Dulux Ultra Basecoat Interior Latex Wall Primer: Applied at a dry film thickness of not less than 1.2 mils (0.031 mm).
4. Kelly-Moore; 971 Acry-Prime Interior Latex Primer/Sealer: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
5. M. A. B. Paint; Rich Lux Prime Fast 037-138: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
6. Pittsburgh Paints; 6-2 SpeedHide Interior Quick-Drying Latex Sealer: Applied at a dry film thickness of not less than 1.0 mil (0.025 mm).
7. Sherwin-Williams; PrepRite Masonry Primer B28W300: Applied at a dry film thickness of not less than 3.0 mils (0.076 mm).

B. Interior Gypsum Board Primer: Factory-formulated latex-based primer for interior application.

1. Benjamin Moore; Regal FirstCoat Interior Latex Primer & Underbody No. 216: Applied at a dry film thickness of not less than 1.0 mil (0.025 mm).
2. Coronado; 40-11 Super Kote 5000 Latex Primer-Sealer: Applied at a dry film thickness of not less than 1.1 mils (0.028 mm).
3. ICI Dulux Paints; 1000-1200 Dulux Ultra Basecoat Interior Latex Wall Primer: Applied at a dry film thickness of not less than 1.2 mils (0.031 mm).
4. Kelly-Moore; 971 Acry-Prime Interior Latex Primer/Sealer: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
5. M. A. B. Paint; Rich Lux Prime Fast 037-138: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
6. Pittsburgh Paints; 6-2 SpeedHide Interior Quick-Drying Latex Sealer: Applied at a dry film thickness of not less than 1.0 mil (0.025 mm).
7. Sherwin-Williams; PrepRite 200 Latex Wall Primer B28W200 Series: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
8. Sherwin-Williams; PrepRite Masonry Primer B28W300 Series: Applied at a dry film thickness of not less than 3.0 mils (0.076 mm).

C. Interior Plaster Primer: Factory-formulated latex-based primer for interior application.

1. Benjamin Moore; Regal FirstCoat Interior Latex Primer & Underbody No. 216: Applied at a dry film thickness of not less than 1.0 mil (0.025 mm).
2. Coronado; 40-11 Super Kote 5000 Latex Primer-Sealer: Applied at a dry film thickness of not less than 1.1 mils (0.028 mm).
3. ICI Dulux Paints; 1000-1200 Dulux Ultra Basecoat Interior Latex Wall Primer: Applied at a dry film thickness of not less than 1.2 mils (0.031 mm).
4. Kelly-Moore; 247 Chem-Guard Acrylic Masonry Primer: Applied at a dry film thickness of not less than 1.9 mils (0.048 mm).
5. M. A. B. Paint; Rich Lux Prime Fast 037-138: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
6. Pittsburgh Paints; 6-2 SpeedHide Interior Quick-Drying Latex Sealer: Applied at a dry film thickness of not less than 1.0 mil (0.025 mm).
7. Sherwin-Williams; PrepRite 200 Latex Wall Primer B28W200 Series: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
8. Sherwin-Williams; PrepRite Masonry Primer B28W300 Series: Applied at a dry film thickness of not less than 3.0 mils (0.076 mm).

D. Interior Wood Primer for Acrylic-Enamel and Semigloss Alkyd-Enamel Finishes: Factory-formulated alkyd- or acrylic-latex-based interior wood primer.

1. Benjamin Moore; Moore's Alkyd Enamel Underbody No. 217: Applied at a dry film thickness of not less than 1.4 mils (0.036 mm).

2. Coronado; 78-11 Super Kote 5000 Acrylic Enamel Undercoat: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
  3. ICI Dulux Paints; 1000-1200 Dulux Ultra Basecoat Interior Latex Wall Primer: Applied at a dry film thickness of not less than 1.2 mils (0.031 mm).
  4. Kelly-Moore; 975 Acry Plex Interior Latex Enamel Undercoat: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
  5. Kelly-Moore; 985 Flo-Cote Acrylic Enamel Undercoater: Applied at a dry film thickness of not less than 2.5 mils (0.064 mm).
  6. M. A. B. Paint; Rich Lux Latex Undercoat 037-154: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  7. Pittsburgh Paints; 6-855 SpeedHide Latex Enamel Undercoater: Applied at a dry film thickness of not less than 1.0 mil (0.025 mm).
  8. Sherwin-Williams; PrepRite Classic Interior Primer B28W101 Series: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
- E. Interior Wood Primer for Full-Gloss Alkyd-Enamel Finishes: Factory-formulated alkyd- or acrylic-latex-based interior wood primer.
1. Benjamin Moore; Moore's Alkyd Enamel Underbody No. 217: Applied at a dry film thickness of not less than 1.4 mils (0.036 mm).
  2. Coronado; 75-11 Super Kote 5000 Acrylic Enamel Undercoater: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
  3. ICI Dulux Paints; 1120-1200 Ultra-Hide Oil/Alkyd Interior Wood Undercoat: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
  4. Kelly-Moore; 985 Flo-Cote Alkyd Enamel Undercoater: Applied at a dry film thickness of not less than 2.5 mils (0.064 mm).
  5. M. A. B. Paint; Rich Lux Latex Undercoat 037-154: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  6. Pittsburgh Paints; 6-6 SpeedHide Interior Quick-Drying Enamel Undercoater: Applied at a dry film thickness of not less than 1.4 mils (0.036 mm).
  7. Sherwin-Williams; PrepRite Classic Interior Primer B28W101 Series: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
- F. Interior Ferrous-Metal Primer: Factory-formulated quick-drying rust-inhibitive alkyd-based metal primer.
1. Benjamin Moore; IronClad Alkyd Low Lustre Medal and Wood Enamel No. 163: Applied at a dry film thickness of not less than 1.3 mils (0.033 mm).
  2. Coronado; 35-147 Rust Scat Alkyd Metal Primer: Applied at a dry film thickness of not less than 1.8 mils (0.046 mm).
  3. ICI Dulux Paints; 4130-6130 Devshield Rust Penetrating Metal Primer: Applied at a dry film thickness of not less than 2.2 mils (0.056 mm).
  4. ICI Dulux Paints; 4160-6130 Devguard Multi-Purpose Tank & Structural Primer: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
  5. Kelly-Moore; 1711 Kel-Guard Alkyd White Rust Inhibitive Primer: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
  6. M. A. B. Paint; Rust-O-Lastic Anti-Corrosive Primer 073-132: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
  7. Pittsburgh Paints; 7-858 Pittsburgh Paints Industrial Rust Inhibitive Steel Primer: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  8. Sherwin-Williams; Kem Kromik Universal Metal Primer B50NZ6/B50WZ1: Applied at a dry film thickness of not less than 3.0 mils (0.076 mm).
- G. Interior Zinc-Coated Metal Primer: Factory-formulated galvanized metal primer.
1. Benjamin Moore; IronClad Latex Low Lustre Metal and Wood Enamel No. 363: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
  2. Coronado; 36-11 Rust Scat Latex Metal Primer: Applied at a dry film thickness of not less than 1.3 mils (0.033 mm).

3. ICI Dulux Paints; 4160-6130 Devguard Multi-Purpose Tank & Structural Primer: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
4. Kelly-Moore; 1722 Kel-Guard Acrylic Galvanized Iron Primer: Applied at a dry film thickness of not less than 1.8 mils (0.046 mm).
5. M. A. B. Paint; Rust-O-Lastic Hydro-Prime II Acrylic (DTM) Maintenance Primer 073-189: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
6. Pittsburgh Paints; 90-709 Pitt-Tech One Pack Interior/Exterior Primer/Finish DTM Industrial Enamel: Applied at a dry film thickness of not less than 3.0 mils (0.076 mm).
7. Sherwin-Williams; primer not required over this substrate.
8. Sherwin-Williams; Galvite Paint B50W3: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).

## 2.6 EXTERIOR FINISH COATS

- A. Exterior Flat Acrylic Paint: Factory-formulated flat acrylic-emulsion latex paint for exterior application.
  1. Benjamin Moore; MoorLife Latex House Paint No. 105: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  2. Coronado; 10-Line Premium Gold Collection Acrylic One Coat Flat House Paint: Applied at a dry film thickness of not less than 1.4 mils (0.036 mm).
  3. ICI Dulux Paints; 2201-XXXX Dulux Ultra Latex Flat Finish: Applied at a dry film thickness of not less than 1.4 mils (0.036 mm).
  4. Kelly-Moore; 1240 Acry-Shield Exterior Acrylic Flat Finish: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
  5. M. A. B. Paint; Sea Shore/Four Seasons Acrylic Latex House Paint 061 Line: Applied at a dry film thickness of not less than 1.8 mils (0.046 mm).
  6. Pittsburgh Paints; 10 Line Pitt-Cryl Exterior Water Base Paint: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  7. Pittsburgh Paints; 72 Line Sun-Proof Exterior Flat Latex House Paint: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  8. Sherwin-Williams; SuperPaint Exterior Latex Flat House and Trim Paint, A80 Series: Applied at a dry film thickness of not less than 1.4 mils (0.036 mm).
- B. Exterior Low-Luster Acrylic Paint: Factory-formulated low-sheen (eggshell) acrylic-latex paint for exterior application.
  1. Benjamin Moore; MoorGard Latex House Paint No. 103: Applied at a dry film thickness of not less than 1.1 mils (0.028 mm).
  2. Coronado; 410 Line Crylicote Gold Collection Satin Acrylic House & Trim: Applied at a dry film thickness of not less than 1.2 mils (0.031 mm).
  3. ICI Dulux Paints; 2403-XXXX Dulux Exterior Latex Satin Finish: Applied at a dry film thickness of not less than 1.4 mils (0.036 mm).
  4. Kelly-Moore; 1245 Acry-Velvet Exterior Low Sheen Acrylic Finish: Applied at a dry film thickness of not less than 1.8 mils (0.046 mm).
  5. M. A. B. Paint; Sea Shore/Four Seasons Acrylic Latex Satin House Paint 060 Line: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  6. Pittsburgh Paints; 76 Line Sun-Proof Exterior House & Trim Acrylic Satin Latex: Applied at a dry film thickness of not less than 1.0 mil (0.025 mm).
  7. Sherwin-Williams; SuperPaint Exterior Latex Satin Wall Paint A89 Series: Applied at a dry film thickness of not less than 1.4 mils (0.036 mm).
- C. Exterior Semigloss Acrylic Enamel: Factory-formulated semigloss waterborne acrylic-latex enamel for exterior application.
  1. Benjamin Moore; MoorGlo Latex House & Trim Paint No. 096: Applied at a dry film thickness of not less than 1.2 mils (0.031 mm).
  2. Coronado; 2 Line Crylicote Gold Collection Gloss Acrylic House & Trim Enamel: Applied at a dry film thickness of not less than 1.2 mils (0.031 mm).

3. ICI Dulux Paints; 2407-XXXX Dulux Exterior Latex Semi-Gloss Finish: Applied at a dry film thickness of not less than 1.3 mils (0.033 mm).
  4. Kelly-Moore; 1250 Acry-Lustre Exterior Semi-Gloss Acrylic Finish: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
  5. M. A. B. Paint; Sea Shore/Four Seasons Acrylic Latex Trim Enamel 024 Line: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  6. Pittsburgh Paints; 78 Line Sun-Proof Semi-Gloss Acrylic Latex House and Trim Paint: Applied at a dry film thickness of not less than 1.2 mils (0.031 mm).
  7. Sherwin-Williams; SuperPaint Exterior Gloss Latex A-84 Series: Applied at a dry film thickness of not less than 1.4 mils (0.036 mm).
- D. Exterior Full-Gloss Acrylic Enamel for Concrete, Masonry, and Wood: Factory-formulated full-gloss waterborne acrylic-latex enamel for exterior application.
1. Benjamin Moore; Impervex Latex High Gloss Metal & Wood Enamel No. 309: Applied at a dry film thickness of not less than 1.2 mils (0.031 mm).
  2. Coronado; 80 Line Rust Scat Acrylic Latex High Gloss Enamel: Applied at a dry film thickness of not less than 1.1 mils (0.028 mm).
  3. ICI Dulux Paints; 3028-XXXX Dulux Interior/Exterior Acrylic Gloss Finish: Applied at a dry film thickness of not less than 3.0 mils (0.076 mm).
  4. Kelly-Moore; 5780 DTM Acrylic Gloss Enamel: Applied at a dry film thickness of not less than 1.7 mils (0.043 mm).
  5. M. A. B. Paint; Rust-O-Lastic Gloss Acrylic (DTM) Maintenance Finish 043 Line: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
  6. Pittsburgh Paints; 90 Line Pitt-Tech One Pack Interior/Exterior High Performance Waterborne High Gloss DTM Industrial Enamels: Applied at a dry film thickness of not less than 3.0 mils (0.076 mm).
  7. Pittsburgh Paints; 52-Line Brilliant Reflections Interior/Exterior Latex Gloss Enamel: Applied at a dry film thickness of not less than 1.3 mils (0.033 mm).
  8. Sherwin-Williams; SuperPaint Exterior High Gloss Latex Enamel A85 Series: Applied at a dry film thickness of not less than 1.3 mils (0.033 mm).
- E. Exterior Full-Gloss Acrylic Enamel for Ferrous and Other Metals: Factory-formulated full-gloss waterborne acrylic-latex enamel for exterior application.
1. Benjamin Moore; Impervex Enamel High Gloss Metal & Wood Enamel No. 309: Applied at a dry film thickness of not less than 1.2 mils (0.031 mm).
  2. Coronado; 80 Line Rust Scat Acrylic Latex High Gloss Enamel: Applied at a dry film thickness of not less than 1.1 mils (0.028 mm).
  3. ICI Dulux Paints; 3028-XXXX Dulux Interior/Exterior Acrylic Gloss Finish: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
  4. Kelly-Moore; 5780 DTM Acrylic Gloss Enamel: Applied at a dry film thickness of not less than 1.7 mils (0.043 mm).
  5. M. A. B. Paint; Rust-O-Lastic Gloss Acrylic (DTM) Maintenance Finish 043 Line: Applied at a dry film thickness of not less than 3.0 mils (0.076 mm).
  6. Pittsburgh Paints; 90-Line Pitt-Tech One Pack Interior/Exterior High Performance Waterborne High Gloss DTM Industrial Enamels: Applied at a dry film thickness of not less than 3.0 mils (0.076 mm).
  7. Pittsburgh Paints; 51-Line Brilliant Reflections Interior/Exterior Latex Gloss Enamel: Applied at a dry film thickness of not less than 1.3 mils (0.033 mm).
  8. Sherwin-Williams; DTM Acrylic Coating Gloss (Waterborne) B66W100 Series: Applied at a dry film thickness of not less than 2.4 mils (0.061 mm).
- F. Exterior Full-Gloss Alkyd Enamel: Factory-formulated full-gloss alkyd enamel for exterior application.
1. Benjamin Moore; Moore's House Paint No. 110: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
  2. Benjamin Moore; Impervo Enamel No. 133: Applied at a dry film thickness of not less than 1.7 mils (0.043 mm).

3. Coronado; 9 Line Gold Collection Gloss Oil House & Trim Enamel: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
4. ICI Dulux Paints; 4308-XXXX Devguard Alkyd Industrial Gloss Enamel: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
5. Kelly-Moore; 1700 Kel-Guard Gloss Alkyd Rust Inhibitive Enamel: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
6. M. A. B. Paint; Rust-O-Lastic Finish Coating 074 Line: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
7. Pittsburgh Paints; 7-814 Pittsburgh Paints Industrial Gloss-Oil Interior/Exterior Enamel: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
8. Sherwin-Williams; Industrial Enamel B54 Series: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).

## 2.7 INTERIOR FINISH COATS

### A. Interior Flat Acrylic Paint: Factory-formulated flat acrylic-emulsion latex paint for interior application.

1. Benjamin Moore; Regal Wall Satin No. 215 Premium Interior Finishes Flat Finish: Applied at a dry film thickness of not less than 1.3 mils (0.033 mm).
2. Coronado; 26 Line Gold Acrylic Latex Flat Wall Paint: Applied at a dry film thickness of not less than 1.1 mils (0.028 mm).
3. ICI Dulux Paints; 1201-XXXX Dulux Ultra Velvet Sheen Interior Flat Latex Wall & Trim Finish: Applied at a dry film thickness of not less than 1.7 mils (0.043 mm).
4. Kelly-Moore; 550 Super Latex Interior Flat Wall Paint: Applied at a dry film thickness of not less than 1.9 mils (0.048 mm).
5. M. A. B. Paint; Rich Lux Wal-Shield Latex Flat 041 Line: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
6. Pittsburgh Paints; 80-Line Wallhide Interior Wall Flat Latex Paint: Applied at a dry film thickness of not less than 1.2 mils (0.031 mm).
7. Sherwin-Williams; SuperPaint Interior Latex Flat Wall Paint, A86 Series: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).

### B. Interior Flat Latex-Emulsion Size: Factory-formulated flat latex-based interior paint.

1. Benjamin Moore; Colorscapes Interior Latex Flat No. 515: Applied at a dry film thickness of not less than 1.4 mils (0.036 mm).
2. Coronado; 28 Line Super Kote 5000 Vinyl Latex Flat Wall: Applied at a dry film thickness of not less than 1.0 mil (0.025 mm).
3. ICI Dulux Paints; 1201-XXXX Dulux Ultra Velvet Sheen Interior Flat Latex Wall & Trim Finish: Applied at a dry film thickness of not less than 1.7 mils (0.043 mm).
4. Kelly-Moore; 550 Super Latex Interior Flat Wall Paint: Applied at a dry film thickness of not less than 1.9 mils (0.048 mm).
5. M. A. B. Paint; Rich Lux Wal-Shield Latex Flat 041 Line: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
6. Pittsburgh Paints; 6-700 Series SpeedHide Ultra Interior Wall Flat Latex 100 Percent Acrylic: Applied at a dry film thickness of not less than 1.0 mil (0.025 mm).
7. Sherwin-Williams; SuperPaint Flat Wall Paint A86 Series: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).

### C. Interior Low-Luster Acrylic Enamel: Factory-formulated eggshell acrylic-latex interior enamel.

1. Benjamin Moore; Moore's Regal AquaVelvet No. 319: Applied at a dry film thickness of not less than 1.4 mils (0.036 mm).
2. Coronado; 34 Line Tough Walls Acrylic Eggshell Wall & Trim Enamel: Applied at a dry film thickness of not less than 1.2 mils (0.031 mm).
3. ICI Dulux Paints; 1403-XXXX Dulux Ultra Eggshell Interior Latex Wall & Trim Enamel: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
4. Kelly-Moore; 1610 Sat-N-Sheen Interior Latex Low Sheen Wall and Trim Finish: Applied at a dry film thickness of not less than 1.7 mils (0.043 mm).

5. Kelly-Moore; 1686 Dura-Poxy Eggshell Acrylic Enamel: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
  6. M. A. B. Paint; Rich Lux Low Lustre Latex Enamel 028 Line: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  7. Pittsburgh Paints; 89-Line Manor Hall Interior Eggshell Wall and Trim: Applied at a dry film thickness of not less than 1.4 mils (0.036 mm).
  8. Sherwin-Williams; SuperPaint Interior Latex Satin Wall Paint A87 Series: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
- D. Interior Semigloss Acrylic Enamel: Factory-formulated semigloss acrylic-latex enamel for interior application.
1. Benjamin Moore; Regal AquaGlo No. 333 Premium Interior Finishes Latex Semi-Gloss: Applied at a dry film thickness of not less than 1.3 mils (0.033 mm).
  2. Coronado; 22 Line Tough Walls Acrylic Semi-Gloss Enamel: Applied at a dry film thickness of not less than 1.1 mils (0.028 mm).
  3. ICI Dulux Paints; 1407-XXXX Dulux Ultra Semi-Gloss Interior Acrylic Wall & Trim Enamel: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
  4. Kelly-Moore; 1650 Acry-Plex Latex Interior Latex Semi-Gloss Enamel: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  5. Kelly-Moore; 1685 Dura-Poxy Semi-Gloss Acrylic Enamel: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  6. M. A. B. Paint; Rich Lux Semi-Gloss Latex Enamel 023 Line: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  7. Pittsburgh Paints; 88-110 Satinhide Interior Enamel Wall & Trim Lo-Lustre Semi-Gloss Latex: Applied at a dry film thickness of not less than 1.1 mils (0.028 mm).
  8. Sherwin-Williams; SuperPaint Interior Latex Semi-Gloss Enamel A88 Series: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
- E. Interior Full-Gloss Acrylic Enamel: Factory-formulated full-gloss acrylic-latex interior enamel.
1. Benjamin Moore; Impervex Enamel No. 309: Applied at a dry film thickness of not less than 1.2 mils (0.031 mm).
  2. Coronado; 414 Line Super Kote 5000 Acrylic High Gloss Enamel: Applied at a dry film thickness of not less than 1.2 mils (0.031 mm).
  3. ICI Dulux Paints; 3028-XXXX Dulux Interior/Exterior Acrylic Gloss Finish: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
  4. Kelly-Moore; 1680 Dura-Poxy Gloss Acrylic Enamel: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
  5. M. A. B. Paint; Rich Lux Architectural High Gloss Latex Enamel 022-127 Line: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  6. Pittsburgh Paints; 51 Line Brilliant Reflections Interior/Exterior Latex Gloss Enamel: Applied at a dry film thickness of not less than 1.3 mils (0.033 mm).
  7. Sherwin-Williams; ProMar 200 Interior Latex Gloss Enamel B21W201: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
- F. Interior Semigloss Alkyd Enamel: Factory-formulated semigloss alkyd enamel for interior application.
1. Benjamin Moore; Satin Impervo Alkyd Low Lustre Enamel No. 235: Applied at a dry film thickness of not less than 1.3 mils (0.033 mm).
  2. Coronado; 23 Line Premium Gold Collection Alkyd Semi-Gloss Enamel: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
  3. ICI Dulux Paints; 1516-XXXX Ultra-Hide Alkyd Semi-Gloss Interior Wall & Trim Enamel: Applied at a dry film thickness of not less than 1.7 mils (0.043 mm).
  4. Kelly-Moore; 1630--Kel-Cote Interior Alkyd Semi-Gloss Enamel: Applied at a dry film thickness of not less than 2.2 mils (0.056 mm).
  5. M. A. B. Paint; Fresh Kote Semi-Gloss 403 Line: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).

6. Pittsburgh Paints; 27 Line Wallhide Low Odor Interior Enamel Wall and Trim Semi-Gloss Oil: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  7. Sherwin-Williams; Classic 99 Interior Alkyd Semi-Gloss Enamel A-40 Series: Applied at a dry film thickness of not less than 1.7 mils (0.043 mm).
- G. Interior Full-Gloss Alkyd Enamel for Gypsum Board and Plaster: Factory-formulated full-gloss alkyd interior enamel.
1. Benjamin Moore; Impervo Enamel No. 133: Applied at a dry film thickness of not less than 1.7 mils (0.043 mm).
  2. Coronado; 1223 Line Super Kote 5000 High Gloss Alkyd Enamel: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  3. ICI Dulux Paints; 4308-XXXX Devguard Alkyd Industrial Gloss Enamel: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
  4. Kelly-Moore; 1700 Kel-Guard Gloss Alkyd Rust Inhibitive Enamel: Applied at a dry film thickness of not less than 2.0 mils (0.051 mm).
  5. M. A. B. Paint; Rich Lux Architectural Bright White Enamel 026-127 Line: Applied at a dry film thickness of not less than 1.9 mils (0.048 mm).
  6. Pittsburgh Paints; 7-814 Series Pittsburgh Paints Industrial Gloss-Oil Interior/Exterior Enamel: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  7. Sherwin-Williams; ProMar 200 Alkyd Gloss Enamel B35W200 Series: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).
- H. Interior Full-Gloss Alkyd Enamel for Wood and Metal Surfaces: Factory-formulated full-gloss alkyd interior enamel.
1. Benjamin Moore; Impervo Enamel No. 133: Applied at a dry film thickness of not less than 1.7 mils (0.043 mm).
  2. Coronado; 1223 Line Super Kote 5000 High Gloss Alkyd Enamel: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  3. ICI Dulux Paints; 70XX Mirrolac Interior/Exterior Alkyd-Urethane Gloss Enamel: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  4. Kelly-Moore; 1630--Kel-Cote Interior Alkyd Semi-Gloss Enamel: Applied at a dry film thickness of not less than 2.2 mils (0.056 mm).
  5. M. A. B. Paint; Rich Lux Architectural Bright White Enamel 026-127 Line: Applied at a dry film thickness of not less than 1.9 mils (0.048 mm).
  6. Pittsburgh Paints; 7-814 Series Pittsburgh Paints Industrial Gloss-Oil Interior/Exterior Enamel: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  7. Pittsburgh Paints; 54 Line Pittsburgh Paints Gloss-Oil Interior/Exterior Enamel: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
  8. Sherwin-Williams; ProMar 200 Alkyd Gloss Enamel B35W200 Series: Applied at a dry film thickness of not less than 1.6 mils (0.041 mm).

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application.
  1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
  2. Start of painting will be construed as Applicator's acceptance of surfaces and conditions within a particular area.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.

1. Notify Architect about anticipated problems when using the materials specified over substrates primed by others.

### 3.2 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.
  1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
- B. Cleaning: Before applying paint or other surface treatments, clean substrates of substances that could impair bond of the various coatings. Remove oil and grease before cleaning.
  1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
  1. Provide barrier coats over incompatible primers or remove and reprime.
  2. Cementitious Materials: Prepare concrete, concrete unit masonry, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
    - a. Use abrasive blast-cleaning methods if recommended by paint manufacturer.
    - b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not paint surfaces if moisture content exceeds that permitted in manufacturer's written instructions.
    - c. Clean concrete floors to be painted with a 5 percent solution of muriatic acid or other etching cleaner. Flush the floor with clean water to remove acid, neutralize with ammonia, rinse, allow to dry, and vacuum before painting.
  3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
    - a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
    - b. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and back sides of wood, including cabinets, counters, cases, and paneling.
    - c. If transparent finish is required, backprime with spar varnish.
    - d. Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on back side.
    - e. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.
  4. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC's recommendations.

- a. Blast steel surfaces clean as recommended by paint system manufacturer and according to SSPC-SP 6/NACE No. 3.
  - b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
  - c. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with same primer as the shop coat.
5. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
- D. Material Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
- 1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
  - 2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
  - 3. Use only thinners approved by paint manufacturer and only within recommended limits.
- E. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

### 3.3 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
- 1. Paint colors, surface treatments, and finishes are indicated in the paint schedules.
  - 2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
  - 3. Provide finish coats that are compatible with primers used.
  - 4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, convector covers, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
  - 5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  - 6. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
  - 7. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
  - 8. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
  - 9. Finish interior of wall and base cabinets and similar field-finished casework to match exterior.
  - 10. Sand lightly between each succeeding enamel or varnish coat.
- B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
- 1. The number of coats and film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
  - 2. Omit primer over metal surfaces that have been shop primed and touchup painted.

3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
  4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion.
- C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brushes: Use brushes best suited for type of material applied. Use brush of appropriate size for surface or item being painted.
  2. Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
  3. Spray Equipment: Use airless spray equipment with orifice size as recommended by manufacturer for material and texture required.
- D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.
- E. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and occupied spaces.
- F. Mechanical items to be painted include, but are not limited to, the following:
1. Uninsulated metal piping.
  2. Uninsulated plastic piping.
  3. Pipe hangers and supports.
  4. Tanks that do not have factory-applied final finishes.
  5. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
  6. Duct, equipment, and pipe insulation having "all-service jacket" or other paintable jacket material.
  7. Mechanical equipment that is indicated to have a factory-primed finish for field painting.
- G. Electrical items to be painted include, but are not limited to, the following:
1. Switchgear.
  2. Panelboards.
  3. Electrical equipment that is indicated to have a factory-primed finish for field painting.
- H. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.
- I. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.
- J. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- K. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections.
1. Provide satin finish for final coats.

- L. Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling, such as laps, irregularity in texture, skid marks, or other surface imperfections.
- M. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

### 3.4 FIELD QUALITY CONTROL

- A. Owner reserves the right to invoke the following test procedure at any time and as often as Owner deems necessary during the period when paint is being applied:
  - 1. Owner will engage a qualified independent testing agency to sample paint material being used. Samples of material delivered to Project will be taken, identified, sealed, and certified in the presence of Contractor.
  - 2. Owner may direct Contractor to stop painting if test results show material being used does not comply with specified requirements. Contractor shall remove noncomplying paint from Project site, pay for testing, and repaint surfaces previously coated with the noncomplying paint. If necessary, Contractor may be required to remove noncomplying paint from previously painted surfaces if, on repainting with specified paint, the two coatings are incompatible.

### 3.5 CLEANING

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.
  - 1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

### 3.6 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.
- B. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.
  - 1. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

### 3.7 EXTERIOR PAINT SCHEDULE

- A. Ferrous Metal: Provide the following finish systems over exterior ferrous metal. Primer is not required on shop-primed items.
  - 1. Semigloss Acrylic-Enamel Finish: Two finish coats over a rust-inhibitive primer.
    - a. Primer: Exterior ferrous-metal primer.
    - b. Finish Coats: Exterior semigloss acrylic enamel.
- B. Zinc-Coated Metal: Provide the following finish systems over exterior zinc-coated metal surfaces:
  - 1. Semigloss Acrylic-Enamel Finish: Two finish coats over a galvanized metal primer.
    - a. Primer: Exterior galvanized metal primer.

- b. Finish Coats: Exterior semigloss acrylic enamel.

### 3.8 INTERIOR PAINT SCHEDULE

- A. Concrete and Masonry (Other Than Concrete Unit Masonry): Provide the following paint systems over interior concrete and brick masonry substrates:
  - 1. Semigloss Acrylic-Enamel Finish: Two finish coats over a primer.
    - a. Primer: Interior concrete and masonry primer.
    - b. Finish Coats: Interior semigloss acrylic enamel.
- B. Concrete Unit Masonry: Provide the following finish systems over interior concrete masonry:
  - 1. Semigloss Acrylic-Enamel Finish: Two finish coats over a block filler.
    - a. Block Filler: Concrete unit masonry block filler.
    - b. Finish Coats: Interior semigloss acrylic enamel.
- C. Gypsum Board: Provide the following finish systems over interior gypsum board surfaces:
  - 1. Low-Luster Acrylic-Enamel Finish: Two finish coats over a primer.
    - a. Primer: Interior gypsum board primer.
    - b. Finish Coats: Interior low-luster acrylic enamel.
- D. Ferrous Metal: Provide the following finish systems over ferrous metal:
  - 1. Semigloss Acrylic-Enamel Finish: Two finish coats over a primer.
    - a. Primer: Interior ferrous-metal primer.
    - b. Finish Coats: Interior semigloss acrylic enamel.
- E. Zinc-Coated Metal: Provide the following finish systems over interior zinc-coated metal surfaces:
  - 1. Semigloss Acrylic-Enamel Finish: Two finish coats over a primer.
    - a. Primer: Interior zinc-coated metal primer.
    - b. Finish Coats: Interior semigloss acrylic enamel.
- F. All-Service Jacket over Insulation: Provide the following finish system on cotton or canvas insulation covering:
  - 1. Flat Acrylic Finish: Two finish coats. Add fungicidal agent to render fabric mildew proof.
    - a. Finish Coats: Interior flat latex-emulsion size.

END OF SECTION 099110

## SECTION 102113 - TOILET COMPARTMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes toilet compartments and screens as follows:
  - 1. Type: Solid-plastic, phenolic core.
  - 2. Compartment Style: Overhead braced and floor anchored.
  - 3. Screen Style: Wall hung.
- B. Related Sections include the following:
  - 1. Division 10 "Toilet and Bath Accessories" for toilet paper holders, grab bars, purse shelves, and similar accessories.

#### 1.3 SUBMITTALS

- A. Product Data: For each type and style of toilet compartment and screen specified. Include details of construction relative to materials, fabrication, and installation. Include details of anchors, hardware, and fastenings.
- B. Shop Drawings: For fabrication and installation of toilet compartment and screen assemblies. Include plans, elevations, sections, details, and attachments to other work.
  - 1. Show locations of reinforcement and cutouts for compartment-mounted toilet accessories.
- C. Samples for Initial Selection: Manufacturer's color charts consisting of sections of actual units showing the full range of colors, textures, and patterns available for each type of compartment or screen indicated.
- D. Samples for Verification: Of each compartment or screen color and finish required, prepared on 6-inch- (150-mm-) square Samples of same thickness and material indicated for Work.

#### 1.4 PROJECT CONDITIONS

- A. Field Measurements: Verify dimensions in areas of installation by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
  - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating units without field measurements. Coordinate supports, adjacent construction, and fixture locations to ensure actual dimensions correspond to established dimensions.

### PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Accurate Partitions Corporation.
  2. All American Metal Corp.
  3. Ampco Products, Inc.
  4. Bobrick Washroom Equipment, Inc.
  5. Capitol Partitions, Inc.
  6. Commercial and Architectural Products, Inc.; Marlite.
  7. Compression Polymers Group; Comtec Industries.
  8. Crane Plumbing; Sanymetal.
  9. General Partitions Mfg. Corp.
  10. Global Steel Products Corp.
  11. Hadrian Inc.
  12. Knickerbocker Partition Corporation.
  13. Lambaton/Universal.
  14. MASCO; Flush-Metal Partition Corp.
  15. Metpar Corp.
  16. Mills Company (The).
  17. Partition Systems, Inc.; Columbia Partitions.
  18. Santana Products, Inc.
  19. Tex-Lam Manufacturing, Inc.
  20. Turan Partition Corporation.
  21. Weis/Robart Partitions, Inc.
  22. Young Sales Corp.; DesignRite.

## 2.2 MATERIALS

- A. General: Provide materials that have been selected for surface flatness and smoothness. Exposed surfaces that exhibit pitting, seam marks, roller marks, stains, discolorations, telegraphing of core material, or other imperfections on finished units are unacceptable.
- B. Solid-Plastic, Phenolic Core: Solid phenolic core with melamine facing on both sides, fused to substrate without visible glue line or seam. Provide units with eased edges and with minimum 3/4-inch- (19-mm-) thick doors and pilasters and minimum 1/2-inch- (13-mm-) thick panels and screens. Provide black edges. Provide melamine color as follows:
1. Color: One color in each room as selected by Architect from manufacturer's full range of colors.
- C. Pilaster Shoes and Sleeves (Caps): ASTM A 666, Type 302 or 304 stainless steel, not less than 0.0312 inch (0.8 mm) thick and 3 inches (75 mm) high, finished to match hardware.
- D. Full-Height (Continuous) Brackets: Manufacturer's standard design for attaching panels and screens to walls and pilasters of the following material:
1. Material: Stainless steel.
- E. Hardware and Accessories: Manufacturer's standard design, heavy-duty operating hardware and accessories of the following material:
1. Material: Stainless steel.
- F. Overhead Bracing: Manufacturer's standard continuous, clear anodized, extruded-aluminum head rail with antigrip profile.

- G. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel, finished to match hardware, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use hot-dip galvanized or other rust-resistant, protective-coated steel.

## 2.3 FABRICATION

- A. General: Provide standard doors, panels, screens, and pilasters fabricated for compartment system. Provide units with cutouts and drilled holes to receive compartment-mounted hardware, accessories, and grab bars, as indicated.
- B. Overhead-Braced-and-Floor-Anchored Compartments: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, fasteners, and anchors at pilasters to suit floor conditions. Make provisions for setting and securing continuous head rail at top of each pilaster. Provide shoes at pilasters to conceal supports and leveling mechanism.
- C. Wall-Hung Screens: Provide units in sizes indicated of same construction and finish as compartment panels, unless otherwise indicated. Provide full height brackets.
  - 1. Provide metal-faced screens with integral full-height flanges for attachment to wall.
  - 2. Provide V-shaped, metal-faced screens with manufacturer's standard sound-deadening core material bonded to inner surface of face sheets. Provide metal top and bottom caps. Fabricate screens to form unit that is a maximum of 6 inches (150 mm) wide at wall and 1 inch (25 mm) wide at its protruding end. Provide complete with concealed anchoring devices for attachment to wall and mechanical leveling adjustment.
- D. Doors: Unless otherwise indicated, provide 24-inch- (610-mm-) wide in-swinging doors for standard toilet compartments and 36-inch- (914-mm-) wide out-swinging doors with a minimum 32-inch- (813-mm-) wide clear opening for compartments indicated to be handicapped accessible.
  - 1. Hinges: Manufacturer's standard self-closing type that can be adjusted to hold door open at any angle up to 90 degrees.
  - 2. Latch and Keeper: Manufacturer's standard surface-mounted latch unit with combination rubber-faced door strike and keeper designed for emergency access. Provide units that comply with accessibility requirements of authorities having jurisdiction at compartments indicated to be handicapped accessible.
  - 3. Coat Hook: Manufacturer's standard combination hook and rubber-tipped bumper, sized to prevent door from hitting compartment-mounted accessories.
  - 4. Door Bumper: Manufacturer's standard rubber-tipped bumpers at out-swinging doors or entrance screen doors.
  - 5. Door Pull: Manufacturer's standard unit that complies with accessibility requirements of authorities having jurisdiction at out-swinging doors. Provide units on both sides of doors at compartments indicated to be handicapped accessible.

## 2.4 STAINLESS-STEEL SHEET FINISHES

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations relative to applying and designating finishes.
  - 1. Remove or blend tool and die marks and stretch lines into finish.
  - 2. Grind and polish surfaces to produce uniform, directional textured, polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.
- B. Finish: No. 3 directional polish.
- C. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter

and leave surfaces chemically clean.

- D. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipment.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, plumb, and level. Provide clearances of not more than 1/2 inch (13 mm) between pilasters and panels and not more than 1 inch (25 mm) between panels and walls. Secure units in position with manufacturer's recommended anchoring devices.
  - 1. Secure panels to walls and panels with not less than 2 stirrup brackets attached near top and bottom of panel. Locate wall brackets so holes for wall anchors occur in masonry or tile joints. Align brackets at pilasters with brackets at walls.
- B. Overhead-Braced-and-Floor-Anchored Compartments: Secure pilasters to floor and level, plumb, and tighten. Secure continuous head rail to each pilaster with not less than 2 fasteners. Hang doors and adjust so tops of doors are parallel with overhead brace when doors are in closed position.
- C. Screens: Attach with anchoring devices according to manufacturer's written instructions and to suit supporting structure. Set units level and plumb and to resist lateral impact.

### 3.2 ADJUSTING AND CLEANING

- A. Hardware Adjustment: Adjust and lubricate hardware according to manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors and swing doors in entrance screens to return to fully closed position.
- B. Provide final protection and maintain conditions that ensure toilet compartments and screens are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 10155

## SECTION 102800 - TOILET AND BATH ACCESSORIES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Toilet and bath accessories.
  - 2. Under lavatory guards.
- B. Related Sections include the following:
  - 1. Division 10 Section "Toilet Compartments" for compartments and screens.

#### 1.3 SUBMITTALS

- A. Product Data: Include construction details, material descriptions and thicknesses, dimensions, profiles, fastening and mounting methods, specified options, and finishes for each type of accessory specified.
- B. Samples: For each accessory item to verify design, operation, and finish requirements.
  - 1. Approved full-size Samples will be returned and may be used in the Work.
- C. Setting Drawings: For cutouts required in other work; include templates, substrate preparation instructions, and directions for preparing cutouts and installing anchoring devices.
- D. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required. Use designations indicated in the Toilet and Bath Accessory Schedule and room designations indicated on Drawings in product schedule.
- E. Maintenance Data: For accessories to include in maintenance manuals specified in Division 1. Provide lists of replacement parts and service recommendations.

#### 1.4 QUALITY ASSURANCE

- A. Source Limitations: Provide products of same manufacturer for each type of accessory unit and for units exposed to view in same areas, unless otherwise approved by Architect.
- B. Product Options: Accessory requirements, including those for materials, finishes, dimensions, capacities, and performance, are established by specific products indicated in the Toilet and Bath Accessory Schedule.
  - 1. Products of other manufacturers listed in Part 2 with equal characteristics, as judged solely by Architect, may be provided.
  - 2. Do not modify aesthetic effects, as judged solely by Architect, except with Architect's approval. Where modifications are proposed, submit comprehensive explanatory data to Architect for review.

## 1.5 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by disabled persons, proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

## 1.6 WARRANTY

- A. General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Manufacturer's Mirror Warranty: Written warranty, executed by mirror manufacturer agreeing to replace mirrors that develop visible silver spoilage defects within minimum warranty period indicated.
  - 1. Minimum Warranty Period: 15 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide accessories by one of the following:
  - 1. Toilet and Bath Accessories:
    - a. A & J Washroom Accessories, Inc.
    - b. American Specialties, Inc.
    - c. Bobrick Washroom Equipment, Inc.
    - d. Bradley Corporation.
  - 2. Underlavatory Guards:
    - a. Brocar Products, Inc.
    - b. Truebro, Inc.

### 2.2 MATERIALS

- A. Stainless Steel: ASTM A 666, Type 304, with No. 4 finish (satin), in 0.0312-inch (0.8-mm) minimum nominal thickness, unless otherwise indicated.
- B. Brass: ASTM B 19, leaded and unleaded flat products; ASTM B 16 (ASTM B 16M), rods, shapes, forgings, and flat products with finished edges; ASTM B 30, castings.
- C. Sheet Steel: ASTM A 366/A 366M, cold rolled, commercial quality, 0.0359-inch (0.9-mm) minimum nominal thickness; surface preparation and metal pretreatment as required for applied finish.
- D. Galvanized Steel Sheet: ASTM A 653/A 653M, G60 (Z180).
- E. Chromium Plating: ASTM B 456, Service Condition Number SC 2 (moderate service), nickel plus chromium electrodeposited on base metal.

- F. Baked-Enamel Finish: Factory-applied, gloss-white, baked-acrylic-enamel coating.
- G. Mirror Glass: ASTM C 1036, Type I, Class 1, Quality q2, nominal 6.0 mm thick, with silvering, electroplated copper coating, and protective organic coating complying with FS DD—411.
- H. Galvanized Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.
- I. Fasteners: Screws, bolts, and other devices of same material as accessory unit, tamper and theft resistant when exposed, and of galvanized steel when concealed.

## 2.3 FABRICATION

- A. General: Names or labels are not permitted on exposed faces of accessories. On interior surface not exposed to view or on back surface of each accessory, provide printed, waterproof label or stamped nameplate indicating manufacturer's name and product model number.
- B. Surface-Mounted Toilet Accessories: Unless otherwise indicated, fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with continuous stainless-steel hinge. Provide concealed anchorage where possible.
- C. Recessed Toilet Accessories: Unless otherwise indicated, fabricate units of all-welded construction, without mitered corners. Hang doors and access panels with full-length, stainless-steel hinge. Provide anchorage that is fully concealed when unit is closed.
- D. Framed Glass-Mirror Units: Fabricate frames for glass-mirror units to accommodate glass edge protection material. Provide mirror backing and support system that permits rigid, tamper-resistant glass installation and prevents moisture accumulation.
  - 1. Provide galvanized steel backing sheet, not less than 0.034 inch (0.85 mm) and full mirror size, with nonabsorptive filler material. Corrugated cardboard is not an acceptable filler material.
  - 2. Provide stainless steel filler piece between back of frame and wall surface.
- E. Mirror-Unit Hangers: Provide mirror-unit mounting system that permits rigid, tamper- and theft-resistant installation, as follows:
  - 1. One-piece, galvanized steel, wall-hanger device with spring-action locking mechanism to hold mirror unit in position with no exposed screws or bolts.
  - 2. Heavy-duty wall brackets of galvanized steel, equipped with concealed locking devices requiring a special tool to remove.
- F. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
- B. Secure mirrors to walls in concealed, tamper-resistant manner with special hangers, toggle bolts, or screws. Set units level, plumb, and square at locations indicated, according to manufacturer's written instructions for substrate indicated.

- C. Install grab bars to withstand a downward load of at least 250 lbf (1112 N), when tested according to method in ASTM F 446.

### 3.2 ADJUSTING AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation and verify that mechanisms function properly. Replace damaged or defective items.
- B. Remove temporary labels and protective coatings.
- C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

### 3.3 TOILET AND BATH ACCESSORY SCHEDULE

- A. Model number listed in the following schedule refer to Bobrick Products, unless noted otherwise. Quantities indicated are per room.

<u>Room No.:</u>	<u>Item</u>	<u>Quantity</u>	<u>Model No.:</u>
Janitor 251	Mop and Broom Holder	1	B224 x 36
Restroom 217, 218	Sanitary Napkin Receptacle	1	B270
	Grab Bar 42"	1	B6806.99 x 42
	Grab Bar 36"	1	B6806.99 x 36
	Soap Dispenser	1	B306
	Mirror	1	B165 24 x 36
	Waste Receptacle	1	B3644
	Under LAVORATORY Guard	1	
Men's 248	Vertical Grab Bar 18"	1	B6806.99 x 18
	Grab Bar 42"	1	B6806.99 x 42
	Grab Bar 36"	1	B6806.99 x 36
	Soap Dispenser	3	B8226
	Mirror	1	B290 24" x 72"
	Mirror	1	B290 82" x 36" (custom)
	Waste Receptacle	2	B3644
	Under LAVORATORY Guard	3	
	Warm Air Dryer	2	American Specialties, Inc. - 0185
	Shower Grab Bar	1	B-6861.99
	Robe Hook	3	B76717
	Folding Shower Seat	1	B5181
	Shower Curtain Rod	6	B6047
	Shower Curtain	6	2402
	Shower Curtain Hooks	42	2401
Women's 249	Vertical Grab Bar 18"	1	B6806.99 x 18
	Grab Bar 42"	1	B6806.99 x 42
	Grab Bar 36"	1	B6806.99 x 36
	Soap Dispenser	2	B822
	Mirror	1	

Waste Receptacle	2	B290 58" x 36" (custom)
Under LAVORATORY Guard	2	
Warm Air Dryer	2	American Specialties, Inc. -0185
Shower Grab Bar	1	B-6861.99
Robe Hook	2	B76717
Folding Shower Seat	1	B5181
Shower Curtain Rod	4	B6047
Shower Curtain	4	2402
Shower Curtain Hooks	28	2401
Vending	1	B3500 x 2
Mirror	1	B290 24" x 72"

END OF SECTION 102800

## SECTION 105113 - METAL LOCKERS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Knocked-down, metal lockers.
  - 2. Locker benches.
- B. Related Sections include the following:
  - 1. Division 6 Section "Miscellaneous Carpentry" for furring, blocking, and shims required for installing metal lockers and concealed within other construction before metal locker installation.

#### 1.3 DEFINITIONS

- A. Uncoated Steel Sheet Thicknesses: Indicated as the minimum thicknesses.

#### 1.4 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of metal locker and bench.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
  - 1. Show base, sloping tops, filler panels, recess trim, and other accessories.
  - 2. Include locker identification system.
- C. Samples for Initial Selection: For units with factory-applied color finishes.
- D. Samples for Verification: For metal lockers and locker benches, in manufacturer's standard sizes.
- E. Qualification Data: For Installer.
- F. Maintenance Data: For adjusting, repairing, and replacing locker doors and latching mechanisms to include in maintenance manuals.
- G. Warranty: Special warranty specified in this Section.

#### 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An authorized representative of metal locker manufacturer for installation and maintenance of units required for this Project.
- B. Source Limitations: Obtain metal lockers and accessories through one source from a single manufacturer.
- C. Product Options: Drawings indicate size, profiles, and dimensional requirements of metal lockers and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."
  - 1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.
- D. Regulatory Requirements: Where metal lockers are indicated to comply with accessibility requirements, comply with the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)."
  - 1. Provide not less than 1 shelf located no higher than 48 inches (1219 mm) above the floor for forward reach.
  - 2. Provide 1 shelf located at bottom of locker no lower than 15 inches (381 mm) above the floor for forward reach.
  - 3. Provide hardware that does not require tight grasping, pinching, or twisting of the wrist, and that operates with a force of not more than 5 lbf (22.2 N).
- E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver metal lockers until spaces to receive them are clean, dry, and ready for metal locker installation.
- B. Deliver master and control keys to Owner by registered mail or overnight package service.

#### 1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify the following by field measurements before fabrication and indicate measurements on Shop Drawings:
  - 1. Concealed framing, blocking, and reinforcements that support metal lockers before they are enclosed.
  - 2. Recessed openings.
  - 3. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish recessed opening dimensions and proceed with fabricating metal lockers without field measurements. Coordinate wall and floor construction to ensure that actual recessed opening dimensions correspond to established dimensions.

#### 1.8 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that metal lockers can be supported and installed as indicated.

## 1.9 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal lockers that fail in materials or workmanship, excluding finish, within specified warranty period.
1. Failures include, but are not limited to, the following:
    - a. Structural failures.
    - b. Faulty operation of latches and other door hardware.
  2. Damage from deliberate destruction and vandalism is excluded.
  3. Warranty Period for Knocked-Down Metal Lockers: Two years from date of Substantial Completion.

## 1.10 EXTRA MATERIALS

- A. Furnish extra materials described below, before construction begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Full-size units of the following metal locker hardware items equal to 10 percent of amount installed for each type and finish installed, but no fewer than 5 units:
    - a. Locks.
    - b. Identification plates.
    - c. Hooks.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
1. Basis-of-Design Product: The design for each metal locker specified is based on the product named. Subject to compliance with requirements, provide either the named product or a comparable product by one of the other manufacturers specified.

### 2.2 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008, Commercial Steel (CS) Type B, suitable for exposed applications.
- B. Expanded Metal: ASTM F 1267, Type II (flattened), Class I, 3/4-inch (19-mm) steel mesh, with at least 70 percent open area.
- C. Stainless-Steel Sheet: ASTM A 666, Type 304.
- D. Extruded Aluminum: ASTM B 221 (ASTM B 221M), alloy and temper recommended by aluminum producer and manufacturer for type of use and finish indicated.
- E. Plastic Laminate: NEMA LD 3, Grade HGP.

- F. Fasteners: Zinc- or nickel-plated steel, slotless-type exposed bolt heads, and self-locking nuts or lock washers for nuts on moving parts.
- G. Anchors: Select material, type, size, and finish required for secure anchorage to each substrate.
  - 1. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance.
  - 2. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

## 2.3 KNOCKED-DOWN METAL LOCKERS

- A. Basis-of-Design Product: Hadrian; Emperor or a comparable product of one of the following:
- B. Products:
  - 1. Art Metal Products, Div. of Fort Knox Storage Co.
  - 2. DeBourgh Mfg. Co.; Worley Lockers.
  - 3. General Storage Systems, Div. of North American Steel.
  - 4. Hadrian Inc.
  - 5. List Industries Inc.
  - 6. Lyon Workspace Products.
  - 7. Penco Products, Inc., Subsidiary of Vesper Corporation.
  - 8. Republic Storage Systems Company.
  - 9. Shanahan's Ltd.
  - 10. Tennsco Corp.
- C. Locker Arrangement: Single tier.
- D. Body: Assembled by riveting or bolting body components together. Fabricate from unperforated, cold-rolled steel sheet with thicknesses as follows:
  - 1. Tops, Bottoms, and Intermediate Dividers: 0.0209 inch (0.55 mm), with single bend at sides.
  - 2. Backs and Sides: 0.0209 inch (0.55 mm) thick, with full-height, double-flanged connections.
  - 3. Shelves: 0.0209 inch (0.55 mm) thick, with double bend at front and single bend at sides and back.
- E. Frames: Channel formed; fabricated from 0.0528-inch- (1.35-mm-) thick, cold-rolled steel sheet; lapped and factory welded at corners; with top and bottom main frames factory welded into vertical main frames. Form continuous, integral door strike full height on vertical main frames.
  - 1. Cross Frames between Tiers: Channel formed and fabricated from same material as main frames; welded to vertical frame members.
  - 2. Frame Vents: Fabricate vertical or horizontal face frames with vents.
- F. Doors: One-piece; fabricated from 0.0528-inch- (1.35-mm-) thick, cold-rolled steel sheet; formed into channel shape with double bend at vertical edges, and with right-angle single bend at horizontal edges.
  - 1. Doors less than 12 inches (305 mm) wide may be fabricated from 0.0428-inch- (1.1-mm-) thick, cold-rolled steel sheet.
  - 2. Box lockers less than 15 inches (381 mm) wide may be fabricated from 0.0428-inch- (1.1-mm-) thick, cold-rolled steel sheet.
  - 3. Reinforcement: Manufacturer's standard reinforcing angles, channels, or stiffeners for doors more than 15 inches (381 mm) wide; welded to inner face of doors.

4. Stiffeners: Manufacturer's standard full-height stiffener fabricated from 0.0428-inch- (1.1-mm-) thick, cold-rolled steel sheet; welded to inner face of doors.
  5. Sound-Dampening Panels: Manufacturer's standard, designed to stiffen doors and reduce sound levels when doors are closed, of die-formed metal with full perimeter flange and sound-dampening material; welded to inner face of doors.
  6. Door Style: Vented panel as follows:
    - a. Perforated Vents: Manufacturer's standard shape and configuration.
- G. Hinges: Self-closing; welded to door and attached to door frame with not less than 2 factory-installed rivets per hinge that are completely concealed and tamper resistant when door is closed; fabricated to swing 180 degrees.
1. Continuous Hinges: Manufacturer's standard, steel continuous hinge.
- H. Recessed Door Handle and Latch: Stainless-steel cup with integral door pull, recessed so locking device does not protrude beyond face of door; pry resistant.
1. Multipoint Latching: Finger-lift latch control designed for use with built-in combination locks, built-in key locks, or padlocks; positive automatic and prelocking.
    - a. Latch Hooks: Equip doors 48 inches (1219 mm) and higher with 3 latch hooks and doors less than 48 inches (1219 mm) high with 2 latch hooks; fabricated from minimum 0.0966-inch- (2.5-mm-) thick steel; welded or riveted to full-height door strikes; with resilient silencer on each latch hook.
    - b. Latching Mechanism: Manufacturer's standard rattle-free latching mechanism and moving components isolated with vinyl or nylon to prevent metal-to-metal contact, and incorporating a prelocking device that allows locker door to be locked while door is open and then closed without unlocking or damaging lock or latching mechanism.
- I. Built-in Combination Locks: Key-controlled, three-number dialing combination locks; capable of at least five combination changes made automatically with a control key.
1. Bolt Operation: Manually locking deadbolt
- J. Equipment: Equip each metal locker with identification plate and the following, unless otherwise indicated:
1. Shelf: (1) shelf.
  2. (2) Single prong wall hooks.
  3. Coat Rods: For each compartment of single-tier metal lockers.
- K. Accessories:
1. Continuous Base: Fabricated from cold-rolled steel sheet, manufacturer's standard thickness, but not less than 0.0528 inch (1.35 mm) thick.
    - a. Height: 6 inches (152 mm).
  2. Continuous Sloping Tops: Fabricated from cold-rolled steel sheet, manufacturer's standard thickness, but not less than 0.0329 inch (0.85 mm) thick.
    - a. Closures: Vertical-end type.
    - b. Sloped top corner fillers, mitered.
  3. Recess Trim: Fabricated from 0.0428-inch- (1.1-mm-) thick, cold-rolled steel sheet.

4. Filler Panels: Fabricated from cold-rolled steel sheet, manufacturer's standard thickness, but not less than 0.0329 inch (0.85 mm) thick.
5. Boxed End Panels: Fabricated from 0.0528-inch- (1.35-mm-) thick, cold-rolled steel sheet.
6. Finished End Panels: Fabricated from 0.0209-inch- (0.55-mm-) thick, cold-rolled steel sheet.
7. Center Dividers: Fabricated from 0.0209-inch- (0.55-mm-) thick, cold-rolled steel sheet.

L. Finish: Powder coat.

1. Color(s): As selected by Architect from manufacturer's full range.

M. Locker Height: 72 Inches.

## 2.4 LOCKER BENCHES

A. General: Provide locker benches fabricated by same manufacturer as metal lockers.

B. Bench Tops: Manufacturer's standard 1-piece units, of the following material, minimum 9-1/2 inches (240 mm) wide by 1-1/4 inches (32 mm) thick, with rounded corners and edges:

1. Laminated maple with one coat of clear sealer on all surfaces, and one coat of clear lacquer on top and sides.

C. Freestanding Pedestals: Manufacturer's standard supports, with predrilled fastener holes for attaching bench top; complete with fasteners, and as follows:

1. Aluminum: 1/8-inch-thick by 3-inch- (3-mm-thick by 76-mm-) wide channel or 1/4-inch-thick by 3-inch- (6-mm-thick by 76-mm-) wide bar stock, shaped into trapezoidal or inverted-T form; with nonskid pads at bottom.
  - a. Finish: Black anodic finish.

## 2.5 FABRICATION

A. General: Fabricate metal lockers square, rigid, and without warp; with metal faces flat and free of dents or distortion. Make exposed metal edges free of sharp edges and burrs, and safe to touch.

1. Form body panels, doors, shelves, and accessories from one-piece steel sheet, unless otherwise indicated.
2. Provide fasteners, filler plates, supports, clips, and closures as required for a complete installation.

B. Unit Principle: Fabricate each metal locker with an individual door and frame; individual top, bottom, and back; and common intermediate uprights separating compartments.

C. Knocked-Down Construction: Fabricate metal lockers for nominal assembly at Project site using nuts, bolts, screws, or rivets. Factory weld frame members together to form a rigid, one-piece assembly.

D. Hooks: Manufacturer's standard ball-pointed type, aluminum or steel; zinc plated.

E. Coat Rods: Fabricated from 1-inch- (25-mm-) diameter steel; nickel plated.

F. Identification Plates: Manufacturer's standard etched, embossed, or stamped aluminum plates; with numbers and letters at least 3/8 inch (9 mm) high.

- G. Continuous Base: Formed into channel or Z profile for stiffness, and fabricated in lengths as long as practicable to enclose base and base ends of metal lockers; finished to match lockers.
- H. Continuous Sloping Tops: Fabricated in lengths as long as practicable, without visible fasteners at splice locations; finished to match lockers.
  - 1. Sloped top corner fillers, mitered.
- I. Recess Trim: Fabricated with minimum 2-1/2-inch (64-mm) face width and in lengths as long as practicable; finished to match lockers.
- J. Filler Panels: Fabricated in an unequal leg angle shape; finished to match lockers. Provide slip joint filler angle formed to receive filler panel.
- K. Boxed End Panels: Fabricated with 1-inch- (25-mm-) wide edge dimension, and designed for concealing fasteners and holes at exposed ends of nonrecessed metal lockers; finished to match lockers.
  - 1. Provide one-piece panels for double-row (back-to-back) locker ends.
- L. Finished End Panels: Designed for concealing unused penetrations and fasteners, except for perimeter fasteners, at exposed ends of nonrecessed metal lockers; finished to match lockers.
  - 1. Provide one-piece panels for double-row (back-to-back) locker ends.
- M. Center Dividers: Full-depth, vertical partitions between bottom and shelf; finished to match lockers.

## 2.6 STEEL SHEET FINISHES

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Factory finish steel surfaces and accessories except stainless-steel and chrome-plated surfaces.
- C. Surface Preparation: Clean surfaces of dirt, oil, grease, mill scale, rust, and other contaminants that could impair paint bond. Use manufacturer's standard methods.
- D. Powder-Coat Finish: Immediately after cleaning and pretreating, electrostatically apply manufacturer's standard baked-polymer thermosetting powder finish. Comply with resin manufacturer's written instructions for application, baking, and minimum dry film thickness.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine walls, floors, and support bases, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
  - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. General: Install level, plumb, and true; shim as required, using concealed shims.
  - 1. Anchor locker runs at ends and at intervals recommended by manufacturer, but not more than 36 inches (910 mm) o.c. Install anchors through backup reinforcing plates, channels, or blocking as required to prevent metal distortion, using concealed fasteners.
  - 2. Anchor single rows of metal lockers to walls near top and bottom of lockers.
  - 3. Anchor back-to-back metal lockers to floor.
- B. Knocked-Down Metal Lockers: Assemble knocked-down metal lockers with standard fasteners, with no exposed fasteners on door faces or face frames.
- C. Equipment and Accessories: Fit exposed connections of trim, fillers, and closures accurately together to form tight, hairline joints, with concealed fasteners and splice plates.
  - 1. Attach hooks with at least two fasteners.
  - 2. Attach door locks on doors using security-type fasteners.
  - 3. Identification Plates: Identify metal lockers with identification indicated on Drawings.
    - a. Attach plates to each locker door, near top, centered, with at least two aluminum rivets.
    - b. Attach plates to upper shelf of each open-front metal locker, centered, with a least two aluminum rivets.
  - 4. Attach recess trim to recessed metal lockers with concealed clips.
  - 5. Attach filler panels with concealed fasteners. Locate fillers panels where indicated on Drawings.
  - 6. Attach sloping top units to metal lockers, with closures at exposed ends.
  - 7. Attach boxed end panels with concealed fasteners to conceal exposed ends of nonrecessed metal lockers.
  - 8. Attach finished end panels with fasteners only at perimeter to conceal exposed ends of nonrecessed metal lockers.
- D. Freestanding Locker Benches: Place benches in locations indicated on Drawings.

### 3.3 ADJUSTING, CLEANING, AND PROTECTION

- A. Clean, lubricate, and adjust hardware. Adjust doors and latches to operate easily without binding. Verify that integral locking devices operate properly.
- B. Protect metal lockers from damage, abuse, dust, dirt, stain, or paint. Do not permit metal locker use during construction.
- C. Touch up marred finishes, or replace metal lockers that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by metal locker manufacturer.

END OF SECTION 10505