

**SECTION 09 00 01
FINISH LEGEND**

1. Sealed Concrete:
 SC-1 Sealed Concrete, exposed

2. Tile:
 CT-1 Floor tile: Crossville Alaska Porcelain Tile, ASK01 Ice UPS, 12 x 24
 CT-2 Wall tile: Crossville Retroactive field tile, B210 Seabreeze UPS, 6 x 6

3. Acoustical Ceilings:
 ACT-5 2x4 Lay-in Acoustical Ceiling Tile

4. Vinyl Composite Tile:
 VCT-1 12" X 12" Vinyl Composite Tile to match existing

5. Vinyl Sheet Flooring:
 SV-1 Tarkett Granit Safe. T Color: Homing Pigeon 0698. Thickness: 2mm

6. Base:
 B-1 4" rubber base, match existing
 B-2 6" cove base to match CT-1

7. Entry Mat:
 EM-1 Milliken, Quadrus Gravity, Boundary GRA27-173

8. Paint:
 P-1 to match Existing classroom (white)
 P-2 to match Existing library (blue)
 P-3 to match Existing stage opening (brown)
 P-4 to match Existing stage wall (black)

 P-X Paint: X = color number above
 SP-X Scrubable Paint: X = color number above
 EP-X Epoxy Paint: X = color number above
 HPC-X High Performance Coating: X = color number above
 PSM-X Prefinished sheet metal: X = color number above
 EC-X Elastomeric Coating: X = color number above

END OF SECTION

SECTION 09 21 16
GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Tile backing board.
- B. Cementitious backing board.
- C. Gypsum wallboard.
- D. Joint treatment and accessories.

1.02 RELATED REQUIREMENTS

- A. Section 06 10 00 - Rough Carpentry: Building framing and sheathing.
- B. Section 07 21 00 - Thermal Insulation: Acoustic insulation.
- C. Section 07 92 00 - Joint Sealants: Acoustic sealants installed as Work of this Section.
- D. Section 09 30 00 - Tiling: Tile backing board.

1.03 REFERENCE STANDARDS

- A. ANSI A108.11 - American National Standard Specifications for Interior Installation of Cementitious Backer Units.
- B. ANSI A118.9 - American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units.
- C. ASTM B211 - Standard Specification for Aluminum and Aluminum-Alloy Rolled or Cold Finished Bar, Rod, and Wire.
- D. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
- E. ASTM C514 - Standard Specification for Nails for the Application of Gypsum Board.
- F. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members.
- G. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
- H. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board.
- I. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
- J. ASTM C1047 - Standard Specification for Accessories For Gypsum Wallboard and Gypsum Veneer Base.
- K. ASTM C1178/C1178M - Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel.
- L. ASTM C1325 - Specification for Non-Asbestos Fiber-Mat Reinforced Cementitious Backer Units.
- M. ASTM C1396/C1396M - Standard Specification for Gypsum Board.
- N. ASTM D226/D226M - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
- O. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
- P. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- Q. ASTM E413 - Classification for Rating Sound Insulation.
- R. GA-214 - Recommended Levels of Gypsum Board Finish.

- S. GA-216 - Application and Finishing of Gypsum Board.
- T. SCAQMD 1113 - South Coast Air Quality Management District Rule No.1113.
- U. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate special details associated with acoustic sound isolation clips.
- C. Product Data: Provide data on gypsum board, glass mat faced gypsum board, accessories, and joint finishing system.
 - 1. Indicate profiles and products for wall and ceiling trim accessories.
- D. Test Reports: For stud framing products that do not comply with ASTM C645 or ASTM C754, provide independent laboratory reports showing maximum stud heights at required spacings and deflections.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing gypsum board installation and finishing, with minimum five years of experience.

1.06 STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against damage from weather, condensation, direct sunlight, construction traffic, and other causes. Stack panels flat to prevent sagging.

1.07 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with ASTM C840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
- B. Do not install interior products until installation areas are enclosed and conditioned.
- C. Moisture test wood stud framing and confirm moisture content is less than specified for framing material in Section 06 10 00 - Rough Carpentry. Do not commence installation until moisture content of framing is within tolerances.
- D. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

- A. Provide completed assemblies complying with ASTM C840 and GA-216.
 - 1. See PART 3 for finishing requirements.
- B. Interior Partitions: Provide completed assemblies with the following characteristics:
 - 1. Acoustic Attenuation: 44 minimum calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90, unless otherwise indicated.

2.02 BOARD MATERIALS

- A. Gypsum Board, General: Provide Type X or Type C as required for fire-resistant ratings indicated on Drawings.
 - 1. Lightweight gypsum wallboard is not allowed.
- B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
 - 1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
 - 2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.

- a. Moisture-resistant board is required whenever board is being installed before the building is enclosed and conditioned.
3. Thickness:
 - a. Vertical Surfaces: 5/8 inch.
 - b. Ceilings: 5/8 inch.
 - c. Multi-Layer Assemblies: 5/8 inch, unless otherwise indicated on drawings.
4. Edges: Tapered.
5. Paper-Faced Products:
 - a. American Gypsum Company; FireBloc Type X and FireBloc Type C Gypsum Wallboard.
 - b. CertainTeed Corporation; ProRoc Brand Gypsum Board or CertainTeed Gypsum Board.
 - c. Georgia-Pacific Gypsum; ToughRock, ToughRock Fireguard, and ToughRock FireGuard C Gypsum Wallboard.
 - d. National Gypsum Company; Gold Bond Brand Gypsum Wallboard.
 - e. USG Corporation; Sheetrock Brand Firecode and Firecode C Gypsum Panels.
 - f. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Moisture Resistant Wallboard:
 1. Application: Walls and ceilings in kitchen areas, toilet rooms where not indicated to receive tile, custodial rooms, laundry rooms, adjacent to drinking fountains, and elsewhere as indicated.
 2. Thickness: 5/8 inch.
 3. Edges: Tapered.
 4. Mold Resistant Paper Faced Products:
 - a. American Gypsum Company; M-Bloc.
 - b. CertainTeed Corporation; ProRoc Brand Moisture & Mold Resistant Gypsum Board with M2 Tech or M2Tech Gypsum Board or AirRenew Gypsum Board with M2Tech.
 - c. Georgia-Pacific Gypsum; ToughRock Mold-Guard and ToughRock Mold-Guard Type X Gypsum Wallboard.
 - d. National Gypsum Company; Gold Bond Brand XP Gypsum Board.
 - e. USG Corporation; Sheetrock Brand Mold Tough Gypsum Panels.
 - f. Substitutions: See Section 01 60 00 - Product Requirements.
 5. Glass Mat Faced Products:
 - a. Georgia-Pacific Gypsum; DensArmor Plus.
 - b. National Gypsum Company; Gold Bond eXP Interior Extreme Gypsum Panel.
 - c. USG Corporation; Sheetrock Brand Glass-Mat Panels Mold Tough Firecode X.
 - d. Substitutions: See Section 01 60 00 - Product Requirements.
 6. Unfaced Products:
 - a. USG Corporation; Fiberock Aqua-Tough Interior Panels.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.
- D. Tile Backing Board For Wet Areas:
 1. Application: Surfaces behind tile in wet areas including shower ceilings and shower walls.
 2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
 3. Thickness: 5/8 inch.
 4. Edges: Tapered.
 5. ANSI Cement-Based Board: Non-gypsum-based; aggregated Portland cement panels with glass fiber mesh embedded in front and back surfaces complying with ANSI A118.9 or ASTM C1325.
 - a. Products:
 - 1) National Gypsum Company; PermaBase Cement Board: www.nationalgypsum.com/#sle.
 - 2) USG Corporation; Durock Brand Cement Board: www.usg.com/#sle.

- 3) Substitutions: See Section 01 60 00 - Product Requirements.
6. Glass Mat Faced Board: Coated glass mat water-resistant gypsum backing panel as defined in ASTM C1178/C1178M.
 - a. Products:
 - 1) CertainTeed Corporation; Diamondback Tile Backer.
 - 2) Georgia-Pacific Gypsum; DensShield Tile Backer.
 - 3) USG Corporation; Durock Glass-Mat Tile Backerboard.
 - 4) Substitutions: See Section 01 60 00 - Product Requirements.
- E. Tile Backing Board For Non-Wet Areas: Water-resistant gypsum backing board as defined in ASTM C1396/C1396M; sizes to minimum joints in place; ends square cut.
 1. Application: Vertical surfaces behind thinset tile.
 2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
 3. Thickness: 5/8 inch.
 4. Edges: Tapered.
 5. ANSI Cement-Based Board: Non-gypsum-based; aggregated portland cement panels with glass fiber mesh embedded in front and back surfaces complying with ANSI A118.9>ANSI A108/A118/A136.1 or ASTM C1325.
 - a. Products:
 - 1) National Gypsum Company; PermaBase Brand Cement Board.
 - 2) USG Corporation; Durock Brand Cement Board.
 - 3) Substitutions: See Section 01 60 00 - Product Requirements.
 6. Glass-Mat-Faced Board: Coated glass mat water-resistant gypsum backing panel as defined in ASTM C1178/C1178M.
 - a. Products:
 - 1) CertainTeed Corporation; Diamondback Tile Backer.
 - 2) Georgia-Pacific Gypsum LLC; DensShield Tile Backer.
 - 3) USG Corporation; Durock Glass-Mat Tile Backerboard.
 - 4) Substitutions: See Section 01 60 00 - Product Requirements.
 7. Unfaced Products:
 - a. USG Corporation; Fiberock Brand Aqua-Tough Interior Panel.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.

2.03 ACCESSORIES

- A. Mineral Fiber Insulation: 1.5 to 3.0 lb/cf glass or mineral fiber insulation for packing voids where indicated.
- B. Spray Applied Acoustic Sealant: Acrylic latex spray suitable for application at static and minimally dynamic linear joints or gaps in smoke and sound rated barriers. Material shall be resilient and non-setting.
 1. Sealants and Primers - General: Provide only products having lower volatile organic compound (VOC) content than required by SCAQMD 1168.
 - a. Architectural Sealants: 250 g/L.
 2. Products:
 - a. Smoke and Acoustic Spray, CP 572 manufactured by Hilti Corporation.
 - b. Smoke "N" Sound Acoustical Spray manufactured by Specified Technologies Inc.
 - c. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Electric Outlet Box Pads: Provide pads to seal backs of outlet boxes penetrating acoustical walls.
 1. Products:
 - a. SpecSeal Series SSP Putty Pads manufactured by STI Specified Technologies, Inc: www.stifireshape.com
 - b. Lowry's Outlet Box Pads manufactured by Lowry's: www.halowry.com.
 - c. Substitutions: See Section 01 60 00 - Product Requirements.
- D. Finishing Accessories: ASTM C1047, galvanized steel or rolled zinc, unless noted otherwise.

1. Cornerbead. Provide 1-1/4-inch minimum width flange at outside corners.
 2. L-Bead: L-shaped; exposed long flange receives joint compound.
 3. U-Bead: J-shaped; exposed short flange does not receive joint compound.
 4. Expansion (control) joint.
 5. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.
 - a. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B211, Alloy 6063-T5.
 - b. Finish: Chemical conversion coat suitable for field painting.
 - c. Types:
 - 1) Reveal Channel Screed: Fry Reglet DCS-625-50 for use at ceilings and at intermediate soffit joints.
 - 2) Reveal Molding: Fry Reglet DRM-625-50 for use at walls.
 - 3) "F" Reveal: Fry Reglet FDM-625-75 for use at perimeters of soffits.
 - 4) Substitutions: See Section 01 60 00 - Product Requirements.
- E. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
1. Tape: 2 inch wide, coated glass fiber tape for joints and corners.
 2. Tape: 2 inch wide, creased paper tape for joints and corners.
 3. Ready-mixed vinyl-based joint compound.
 4. Chemical hardening type compound.
- F. All paints and coating wet applied on the building interior must meet the applicable limits of SCAQMD 1113.
- G. Basecoat/Surfacer: Flat latex basecoat for use on surfaces indicated to receive Level 4 and 5 finish. Basecoat/surfacer does not replace skim coating for Level 5. Basecoat is in addition to primer specified in Section 09 91 23 - Interior Painting.
1. Products:
 - a. "PrepRite High Build Interior Latex Primer/Surfacer", B28W601; Sherwin Williams.
 - b. "SHEETROCK Brand Primer-Surfacer, Tuff-Hide; USG Corporation.
 - c. Substitutions: See Section 01 60 00 - Product Requirements.
- H. Screws for Fastening of Gypsum Panel Products to Cold-Formed Steel Studs Less than 0.033 inch in Thickness and Wood Members: ASTM C1002; self-piercing tapping screws, corrosion resistant.
- I. Nails for Attachment to Wood Members: ASTM C514.
- J. Staples For Attachment of Base Ply of Two-Ply Assembly to Wood Members: Flattened galvanized wire type as specified in ASTM C840.
- K. Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.
- L. Isolation Strip at Exterior Walls: Provide one of the following:
1. Asphalt-Saturated Organic Felt: ASTM D226/D226M, 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 thick, in width to suit steel stud size.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that project conditions are appropriate for work of this section to commence. Start of wall and ceiling system Work will indicate acceptance of surfaces and conditions within each area.
- B. Protection: Provide temporary covering to eliminate splattering of joint compound onto adjacent surfaces.

3.02 BOARD INSTALLATION

- A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Single-Layer Non-Rated: Install gypsum board perpendicular to framing, with ends and edges occurring over firm bearing.
- C. Double-Layer Non-Rated: Use gypsum board for first layer, placed parallel to framing or furring members, with ends and edges occurring over firm bearing. Place second layer perpendicular to framing or furring members. Offset joints of second layer from joints of first layer.
- D. Moisture Protection: Treat cut edges and holes in moisture-resistant gypsum board and exterior gypsum soffit board with sealant.
- E. Cementitious Backing Board: Install over steel framing members and plywood substrate where indicated, in accordance with ANSI A108.11 and manufacturer's instructions.
- F. Glass Mat Faced Backing Board: Install over steel framing members where indicated, in accordance with manufacturer's instructions. Install with 1/4 inch gap where panels abut other construction or penetrations.
- G. Installation on Wood Framing: For non-rated assemblies, install as follows:
 - 1. Single-Layer Applications: Screw attachment.
 - 2. Double-Layer Application: Install base layer using screws. Install face layer using screws.

3.03 INSTALLATION OF TRIM AND ACCESSORIES

- A. Control Joints: Place control joints consistent with lines of building spaces and as indicated. In public areas, confirm locations with Architect for visual effect. Frame both sides of joints independently.
 - 1. Not more than 30 feet apart on walls and ceilings over 50 feet long.
- B. Corner Beads: Install at external corners, using longest practical lengths.
- C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials and as indicated.
 - 1. U-Bead: Use at exposed panel edges.
 - 2. L-Bead: Use at all exposed terminations of gypsum board, at all floor joints and joints to receive sealants.
- D. Aluminum Trim: Install in locations indicated.

3.04 JOINT TREATMENT

- A. Glass Mat Faced Gypsum Board: Use fiberglass joint tape, bedded and finished with chemical hardening type joint compound, unless another type is required to meet fire ratings.
- B. Paper Faced Gypsum Board: Use paper joint tape, bedded with ready-mixed vinyl-based joint compound and finished with ready-mixed vinyl-based joint compound.
- C. Finish gypsum board in accordance with levels defined in ASTM C840 or GA-214, except as indicated below and as follows:
 - 1. Level 5:
 - a. Locations of Use:
 - 1) Walls and ceilings in all public areas such as lobbies and corridors with high incident lighting.
 - 2) At walls indicated to receive dry erase coating.
 - b. Application of basecoat/surfacer will not constitute or substitute for application of a skim coat.
 - c. Primer and its application to surfaces are specified in Section 09 91 23 - Interior Painting.

- d. At areas requiring use of impact-rated gypsum board, bed joint tape with setting type joint compound and fill and finish with heavy weight ready mixed vinyl-based joint compound. Apply a finish coat of basecoat/surfacer after application of skim coat.
- 2. Level 4:
 - a. Locations of Use:
 - 1) Walls and ceilings at all other public areas.
 - 2) Surfaces scheduled to receive wall coverings.
 - 3) Exterior soffits.
 - b. Apply one coat of specified basecoat/surfacer to entire surface at manufacturer's recommended coverage rate of mil thickness.
 - c. Primer and its application to surfaces are specified in Section 09 91 23 - Interior Painting and are in addition to basecoat/surfacer.
- 3. Level 2: In utility areas such as Janitors Closets, Electrical Closets and Storage Rooms, in areas behind cabinetry and on backing board to receive tile finish.
- 4. Level 1: Wall areas above finished ceilings and permanently concealed areas, whether or not accessible in the completed construction, except provide a higher level of finish as required to comply with fire resistance ratings and acoustical ratings.
- D. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
 - 1. Feather coats of joint compound so that camber is maximum 1/32 inch.
- E. Fill and finish joints and corners of tile backing board as recommended by manufacturer.

3.05 TOLERANCES

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

END OF SECTION

SECTION 09 30 00
TILING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Tile for floor applications.
- B. Tile for wall applications.
- C. Ceramic trim.
- D. Non-ceramic trim.

1.02 RELATED REQUIREMENTS

- A. Section 07 92 00 - Joint Sealants: Sealing joints between tile work and adjacent construction and fixtures.
- B. Section 09 00 01 - Finish Legend: Color selections.
- C. Section 09 21 16 - Gypsum Board Assemblies: Tile backer board.

1.03 REFERENCE STANDARDS

- A. ANSI A108/A118/A136.1 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium).
 - 1. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar.
 - 2. ANSI A108.1b - American National Standard Specifications for Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar.
 - 3. ANSI A108.1c - Specifications for Contractors Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Bed with Dry-Set or Latex-Portland Cement.
 - 4. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile-Setting Epoxy Adhesive.
 - 5. ANSI A108.5 - American National Standard Specifications for Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar.
 - 6. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy.
 - 7. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout.
 - 8. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout.
 - 9. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework.
 - 10. ANSI A108.12 - American National Standard for Installation of Ceramic Tile with EGP (Exterior Glue Plywood) Latex-Portland Cement Mortar.
 - 11. ANSI A108.13 - American National Standard for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone.
 - 12. ANSI A118.3 - American National Standard Specifications for Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy and Water Cleanable Tile-Setting Epoxy Adhesive.
 - 13. ANSI A118.4 - American National Standard Specifications for Modified Dry-Set Cement Mortar.
 - 14. ANSI A118.7 - American National Standard Specifications for High Performance Cement Grouts for Tile Installation.
 - 15. ANSI A118.10 - American National Standard Specifications for Load Bearing, Bonded, Waterproof Membranes For Thin-Set Ceramic Tile And Dimension Stone Installation.

16. ANSI A118.15 - American National Standard Specifications for Improved Modified Dry-Set Cement Mortar.
17. ANSI A137.1 - American National Standard Specifications for Ceramic Tile.
- B. ASTM C373 - Standard Test Methods for Determination of Water Absorption and Associated Properties by Vacuum Method for Pressed Ceramic Tiles and Glass Tiles and Boil Method for Extruded Ceramic Tiles and Non-tile Fired Ceramic Whiteware Products.
- C. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168.
- D. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation.

1.04 PREINSTALLATION CONFERENCE

- A. Preinstallation Conference: Convene a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.
 1. For sealants, include printed statement of VOC content.
- C. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.
- D. Selection Samples: Provide manufacturer's full range of available colors for grout selection.
- E. Jobsite Samples: Mount tile and apply grout on one plywood panel, minimum 24 x 24 inches in size for tile patterns illustrating pattern, color variations, and grout joint size variations. Maintain at jobsite for Architect's review.
- F. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- G. Maintenance Data: Include recommended cleaning methods, cleaning materials, and stain removal methods.
- H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 1. See Section 01 60 00 - Product Requirements, for additional provisions.
 2. Provide 2 percent of each size, color, and surface finish of tile specified.

1.06 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 requirements in ANSI A137.1 for labeling tile packages.
- B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.

1.07 FIELD CONDITIONS

- A. Do not install solvent-based products in an unventilated environment.

PART 2 PRODUCTS

2.01 TILE

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.
- B. Manufacturers:
 1. American Olean Corporation: www.americanolean.com.
 2. Dal-Tile Corporation: www.daltile.com.
 3. Crossville: www.crossvilleinc.com.
 4. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Porcelain Tile, Type CT-1 and CT-2: ANSI A137.1, standard grade.
 1. Moisture Absorption: 0 to 0.5 percent as tested in accordance with ASTM C373.
 2. Size: 6 by 6 inch, nominal.

3. Thickness: 3/8 inch.
4. Surface Finish: Unglazed.
5. Color(s): As indicated in Section 09 00 01 - Finish Legend..
6. Trim Units: Matching surface bullnose and cove base shapes in sizes coordinated with field tile.

2.02 TRIM AND ACCESSORIES

- A. Ceramic Trim: Matching bullnose, double bullnose, cove base, and cove ceramic shapes in sizes coordinated with field tile.
 1. Applications:
 - a. Open Edges: Bullnose.
 - b. Inside Corners: Jointed.
 - c. Floor to Wall Joints: Cove base.
 2. Manufacturers: Same as for tile.
- B. Non-Ceramic Trim: Satin natural anodized extruded aluminum, style and dimensions to suit application, for setting using tile mortar or adhesive.
 1. Applications:
 - a. Transition between floor finishes of different heights.
 - b. Thresholds at door openings.
 2. Manufacturers:
 - a. Blanke Corporation: www.blankecorp.com.
 - b. Schluter-Systems: www.schluter.com/#sle.
 - c. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Sealants and Primers: As specified in Section 07 92 00 - Joint Sealants.
 1. Provide products having lower volatile organic compound (VOC) content than indicated in SCAQMD 1168.
 - a. Architectural Sealants: 250 g/L.
 - b. Sealant Primers for Nonporous Substrates: 250 g/L.
 - c. Sealant Primers for Porous Substrates: 775 g/L.
 2. Use primers, backer rods, and sealant accessories recommended by sealant manufacturer.
 3. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints unless otherwise indicated.
- D. Trowelable Underlayments, Self-Leveling Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
 1. Available Products: Ardex Engineered Cements, self-leveling underlayments and pre-tile repair mortar.
- E. Sealer:
 1. Available Products:
 - a. Aqua Mix Sealer's Choice Gold.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.
 2. Locations of Use: Quarry tile and all grout joints that are not epoxy.

2.03 SETTING MATERIALS

- A. Tile Setting Materials - General: Provide only products having lower volatile organic compound (VOC) content than required by SCAQMD 1168.
- B. Manufacturers:
 1. ARDEX Engineered Cements: www.ardexamericas.com.
 2. Custom Building Products: www.custombuildingproducts.com/#sle.
 3. LATICRETE International, Inc: www.laticrete.com/sle.
 4. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Latex-Portland Cement Mortar Bond Coat: ANSI A118.4 or ANSI A118.15.

1. Applications: Use this type of bond coat where indicated and where no other type of bond coat is indicated.
2. Products:
 - a. ARDEX Engineered Cements; ARDEX X 5: www.ardexamericas.com.
 - b. LATICRETE International, Inc; LATICRETE 254 Platinum: www.laticrete.com/#sle.
 - c. Substitutions: See Section 01 60 00 - Product Requirements.
- D. Mortar Bed Materials: Pre-packaged mix of Portland cement, sand, latex additive, and water.
 1. Products:
 - a. LATICRETE International, Inc; LATICRETE 3701 Fortified Mortar Bed: www.laticrete.com/#sle.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.

2.04 GROUTS

- A. Manufacturers:
 1. ARDEX Engineered Cements: www.ardexamericas.com.
 2. Flextile Ltd: www.flextile.net.
 3. LATICRETE International, Inc: www.laticrete.com/#sle.
 4. TEC: www.tecspecialty.com.
 5. Substitutions: See Section 01 60 00 - Product Requirements.
- B. High Performance Polymer Modified Grout: ANSI A118.7 polymer modified cement grout.
 1. Applications: Use this type of grout where indicated and where no other type of grout is indicated.
 2. Use sanded grout for joints 1/8 inch wide and larger; use unsanded grout for joints less than 1/8 inch wide.
 3. Color(s): As selected by Architect from manufacturer's full line.
 4. Products:
 - a. LATICRETE International, Inc; LATICRETE PERMACOLOR Grout: www.laticrete.com/#sle.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Epoxy Grout: ANSI A118.3 chemical resistant and water-cleanable epoxy grout.
 1. Applications: All floor installations.
 2. Color(s): As selected by Architect from manufacturer's full line.
 3. Products:
 - a. ARDEX Engineered Cements; ARDEX WA: www.ardexamericas.com/#sle.
 - b. LATICRETE International, Inc; LATICRETE SPECTRALOCK 2000 IG: www.laticrete.com/#sle.
 - c. Substitutions: See Section 01 60 00 - Product Requirements.

2.05 ACCESSORY MATERIALS

- A. Waterproofing Membrane at Floors: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10.
 1. Fluid or Trowel Applied Type:
 - a. Material: Synthetic rubber.
 - b. Products:
 - 1) LATICRETE International, Inc; LATICRETE HYDRO BAN: www.laticrete.com/#sle.
 - 2) Substitutions: See Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive tile.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.

- C. Verify that masonry substrate joints have been struck flush.
- D. Verify that substrates for setting tile are firm, dry, clean, free of coatings that are incompatible with tile-setting materials including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI for installations indicated.
- E. Verify that concrete substrates for tile floors installed with thin-set mortar comply with surface finish requirements in ANSI A108.1b for installations indicated.
 - 1. Verify that surfaces that received a steel trowel finish have been mechanically scarified.
 - 2. Verify that protrusions, bumps, and ridges have been removed by sanding or grinding.
- F. 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.
- G. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.
- H. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

- A. Protect surrounding work from damage.
- B. Vacuum clean surfaces and damp clean.
- C. Seal substrate surface cracks with trowelable leveling and patching compound specifically recommended by tile-setting material manufacturer. Level existing substrate surfaces to acceptable flatness tolerances.

3.03 INSTALLATION - GENERAL

- A. Install tile, thresholds, and stair treads and grout in accordance with applicable requirements of ANSI A108.1a through ANSI A108.13, manufacturer's instructions, and TCNA (HB) recommendations.
- B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.
- C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor and base joints.
- D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout.
- E. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. 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.
 - 2. Where adjoining tiles on floor, base, walls, or trim are specified or indicated to be same size, align joints.
- F. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:
 - 1. Unglazed Floor Tile: 1/4 inch.
 - 2. Glazed Wall Tile: 1/8 inch.
- G. Form internal angles square and external angles bullnosed.
- H. Install non-ceramic trim in accordance with manufacturer's instructions.
- I. Sound tile after setting. Replace hollow sounding units.
- J. Keep control and expansion joints free of mortar, grout, and adhesive.
 - 1. Where joints occur in concrete substrates, locate joints in tile surfaces directly above them.
 - 2. Space control joints at 12 foot to 16 foot intervals in each direction, unless otherwise indicated.

- 3. Provide joints at perimeter walls and at fixtures or structural elements.
- K. Prior to grouting, allow installation to completely cure; minimum of 48 hours.
- L. Grout tile joints unless otherwise indicated.
- M. At changes in plane and tile-to-tile control joints, use tile sealant instead of grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.

3.04 WATERPROOFING INSTALLATION

- A. Install waterproofing to comply with ANSI A108/A118/A136.1 and manufacturer's written instructions to produce waterproof membrane of uniform thickness and bonded securely to substrate.
- B. Do not install tile or setting materials over waterproofing until waterproofing has cured and been tested to determine that it is watertight.

3.05 INSTALLATION - FLOORS - THIN-SET METHODS

- A. Over interior concrete substrates, install in accordance with TCNA (HB) Method F115, with epoxy grout.
 - 1. Where waterproofing membrane is indicated, install in accordance with TCNA (HB) Method F122 except with epoxy grout.

3.06 INSTALLATION - WALL TILE

- A. Over cementitious backer units on studs, install in accordance with TCNA (HB) Method W244.
- B. Over coated glass mat backer board on studs, install in accordance with TCNA (HB) Method W245.
- C. Over gypsum wallboard on wood or metal studs install in accordance with TCNA (HB) Method W243, thin-set with dry-set or latex-Portland cement bond coat, unless otherwise indicated.

3.07 CLEANING

- A. Clean tile and grout surfaces.

3.08 PROTECTION

- A. Do not permit traffic over finished floor surface for 4 days after installation.

END OF SECTION

SECTION 09 51 00
ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Acoustical units ACT-5.

1.02 REFERENCE STANDARDS

- A. ASTM E1264 - Standard Classification for Acoustical Ceiling Products.
- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- C. CHPS (HPPD) - High Performance Products Database.
- D. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168.
- E. UL (GGG) - GREENGUARD Gold Certified Products.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.
- B. Do not install acoustical units until after interior wet work is dry.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on acoustical units.
- C. Samples: Submit two samples 6 by 6 inch in size illustrating material and finish of acoustical units.
- D. Manufacturer's Installation Instructions: Indicate special procedures.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 01 60 00 - Product Requirements, for additional provisions.
 - 2. Extra Acoustical Units: Quantity equal to 5 percent of total installed.
- F. Research/Evaluation Reports: For each acoustical panel ceiling and components and anchor and fastener type.
- G. Maintenance Data: For finishes to include in maintenance manuals.

1.05 QUALITY ASSURANCE

- A. Surface-Burning Characteristics: Provide acoustical panels with the following surface-burning characteristics complying with ASTM E1264 for Class A materials as determined by testing identical products per ASTM E84:
 - 1. Smoke-Developed Index: 50 or less.
- B. Acoustical Unit Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years documented experience.

1.06 FIELD CONDITIONS

- A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acoustic Tiles/Panels:
 - 1. Armstrong World Industries, Inc: www.armstrong.com/#sle.
 - 2. CertainTeed Corporation: www.certainteed.com/#sle.
 - 3. USG: www.usg.com/#sle.
 - 4. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 ACOUSTICAL UNITS

- A. Acoustical Units - General: ASTM E1264, Class A.
 - 1. VOC Content: Certified as Low Emission by one of the following:
 - a. Product listing in UL (GGG).
 - b. Product listing in CHPS (HPPD).
- B. Acoustical Tile ACT-5: Painted mineral fiber, ASTM E1264 Type III, Form 1, with the following characteristics:
 - 1. Size: 24 by 48 inches.
 - 2. Thickness: 3/4 inches.
 - 3. Composition: Water felted.
 - 4. Light Reflectance: 0.82 - 0.86, determined in accordance with ASTM E1264.
 - 5. NRC: 0.70, determined in accordance with ASTM E1264.
 - 6. Ceiling Attenuation Class (CAC): 30 - 35, determined in accordance with ASTM E1264.
 - 7. Edge: Square.
 - 8. Surface Color: White.
 - 9. Surface Pattern: Pattern E1 or CE.
 - 10. Products:
 - a. Cirrus Square Lay-In Item No. 533 manufactured by Armstrong: www.armstrong.com.
 - b. Cashmere Item No. CM-497 NRCP manufactured by CertainTeed Corporation: www.certainteed.com.
 - c. Eclipse ClimaPlus Item No. 78575 manufactured by USG: www.usg.com.

2.03 ACCESSORIES

- A. Sealants and Primers - General: Provide only products having lower volatile organic compound (VOC) content than required by SCAQMD 1168.
- B. Touch-up Paint: Type and color to match acoustical and grid units.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.

3.02 INSTALLATION - ACOUSTICAL UNITS

- A. Install acoustical units in accordance with manufacturer's instructions.
- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
- C. Fit border trim neatly against abutting surfaces.
- D. Install units after above-ceiling work is complete.
- E. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
- F. Cutting Acoustical Units:
 - 1. Make field cut edges of same profile as factory edges.
- G. Install hold-down clips on panels within 20 ft of an exterior door.

3.03 TOLERANCES

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.
- B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

END OF SECTION

**SECTION 09 65 00
RESILIENT FLOORING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Resilient sheet flooring.
- B. Resilient tile flooring.
- C. Resilient base.
- D. Installation accessories.

1.02 RELATED REQUIREMENTS

- A. Section 03 30 00 - Cast-in-Place Concrete: Restrictions on curing compounds for concrete slabs and floors.
- B. Section 09 00 01 - Finish Legend.

1.03 REFERENCE STANDARDS

- A. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
- B. ASTM F1516 - Standard Practice for Sealing Seams of Resilient Flooring Products by the Heat Weld Method (when Recommended).
- C. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
- D. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
- E. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
- F. ASTM F970 - Standard Test Method for Static Load Limit.
- G. ASTM F1066 - Standard Specification for Vinyl Composition Floor Tile.
- H. ASTM F1861 - Standard Specification for Resilient Wall Base.
- I. ASTM F1913 - Standard Specification for Vinyl Sheet Floor Covering Without Backing.
- J. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.
- K. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings; Resilient Floor Covering Institute.
- L. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
 - 1. Provide product data for adhesives, including printed statement of VOC content and chemical components.
- C. Shop Drawings: Indicate seaming plans and floor patterns.
- D. Selection Samples: Submit manufacturer's complete set of color samples for Architect's initial selection for moldings and transition strips.
- E. Verification Samples: Submit two samples, 8 by 8 inch in size illustrating color and pattern for each resilient flooring product specified.
- F. Concrete Testing Standard: Submit a copy of ASTM F710.

- G. Certification: Prior to installation of flooring, submit written certification by flooring manufacturer and adhesive manufacturer that condition of sub-floor is acceptable.
- H. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.
- I. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 01 60 00 - Product Requirements, for additional provisions.
 - 2. Extra Flooring Material: 50 square feet of each type and color.
 - 3. Extra Wall Base: 10 linear feet of each type and color.
 - 4. Maintenance Products: One year's annual required maintenance products of type recommended by flooring manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Store all materials off of the floor in an acclimatized, weather-tight space.
- B. Maintain temperature in storage area between 55 degrees F and 90 degrees F.
- C. Protect roll materials from damage by storing on end.
- D. Do not double stack pallets.

1.06 FIELD CONDITIONS

- A. Store materials for not less than 72 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 68 degrees F.
- B. Moisture Testing: Maintain temperatures and humidity expected during normal use for testing. If this is not possible, then the test conditions should be 75 +/- 10 deg F and 50 +/- 10 percent relative humidity. Maintain these conditions 48 hours prior to and during testing.
- C. Close spaces to traffic during resilient flooring installation and for time period after installation recommended in writing by flooring manufacturer.

PART 2 PRODUCTS

2.01 SHEET FLOORING

- A. Vinyl Sheet Flooring - SV-1: Homogeneous without backing, with color and pattern throughout full thickness.
 - 1. Manufacturer: As indicated in Finish Legend.
 - a. Substitutions: See Section 01 60 00 - Product Requirements.
 - 2. Minimum Requirements: Comply with ASTM F1913.
 - 3. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648 or NFPA 253.
 - 4. VOC Content: Certified as Low Emission by one of the following:
 - a. GreenGuard Gold Certification; www.greenguard.org.
 - b. SCS Floorscore; www.scs-certified.com.
 - 5. Thickness: 0.080 inch nominal.
 - 6. Sheet Width: 72 inch minimum.
 - 7. Static Load Resistance: 250 psi minimum, when tested as specified in ASTM F970.
 - 8. Seams: Heat welded.
 - 9. Color: As indicated in Finish Legend.
- B. Welding Rod: Solid bead in material compatible with flooring, produced by flooring manufacturer for heat welding seams, and in color matching field color.

2.02 TILE FLOORING

- A. Vinyl Composition Tile - VCT-1: Homogeneous, with color extending throughout thickness.
 - 1. Manufacturers: As indicated in Finish Legend.
 - a. Substitutions: See Section 01 60 00 - Product Requirements.
 - 2. Minimum Requirements: Comply with ASTM F1066, of Class corresponding to type specified.

3. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648 or NFPA 253.
4. Size: 12 by 12 inch.
5. VOC Content: Certified as Low Emission by one of the following:
 - a. GreenGuard Gold Certification; www.greenguard.org.
 - b. SCS Floorscore; www.scs-certified.com.
6. Thickness: 0.125 inch.
7. Color: As indicated in Finish Legend.

2.03 RESILIENT BASE

- A. Resilient Base B-1: ASTM F1861, Type TS rubber, vulcanized thermoset; top set Style B, Cove.
 1. Manufacturers:
 - a. Burke Flooring: www.burkeflooring.com.
 - b. Flexco, Inc: www.flexcofloors.com.
 - c. Johnsonite, a Tarkett Company: www.johnsonite.com.
 - d. Roppe Corp: www.roppe.com.
 - e. Substitutions: See Section 01 60 00 - Product Requirements.
 2. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648 or NFPA 253.
 3. Height: 4 inch.
 4. Thickness: 0.125 inch.
 5. Finish: Satin.
 6. Length: Roll.
 7. Color: As indicated in Finish Legend.

2.04 ACCESSORIES

- A. Subfloor Filler: Portland cement based; type recommended by adhesive material manufacturer.
- B. Primers, Adhesives, and Seam Sealer: Waterproof; types recommended by flooring manufacturer. Provide products having lower volatile organic compound (VOC) content than indicated in SCAQMD 1168.
 1. VCT, Vinyl, and Linoleum Adhesives: Use adhesives that have a VOC content of not more than 50 g/L.
- C. Moldings, Transition and Edge Strips: Rubber.
 1. Provide transitions and edge strips at all exposed edges of resilient flooring, carpet, and entry mat and at transitions from one material to another.
 - a. Coordinate with Work of Section 09 30 00 - Tiling for transitions adjacent to tile.
 2. Color as selected by Architect from manufacturer's full range of available colors.
- D. Floor Polish: Provide protective liquid floor wax/polish products as recommended by manufacturer.
 1. Application of protective wax/polish by owner.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.
- C. Cementitious Sub-floor Surfaces: Verify that substrates are dry enough and ready for resilient flooring installation by testing for moisture and pH.
 1. Test in accordance with ASTM F710.

2. Obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.
- D. Verify that required floor-mounted utilities are in correct location.
- E. Install resilient flooring material and accessories after other finishing operations, including painting, have been completed.

3.02 PREPARATION

- A. Remove existing resilient flooring and flooring adhesives; follow the recommendations of RFCI (RWP).
- B. Prepare substrates according to manufacturer's written instructions to ensure adhesion of floor coverings.
- C. Concrete Substrates: Prepare according to ASTM F710.
 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
 - a. At areas where existing flooring was removed as Work of asbestos abatement, field test adhesion of floor coverings and, if necessary, take remedial action as required for proper adhesion.
 3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
 4. Moisture Testing: Perform the following tests: Proceed with installation only after substrates pass testing.
 - a. Anhydrous calcium chloride test, ASTM F1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours. Limit maximum moisture-vapor-emission rate to 5 lb. of water/1000 sq. ft. in 24 hours for linoleum.
 - b. Perform additional tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
- D. Relative Humidity Testing: Perform testing of relative humidity in concrete slabs for file tests in accordance with ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
 1. The relative humidity measured from the center of the concrete slab should not exceed 75 percent.
- E. Remove sub-floor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with sub-floor filler to achieve smooth, flat, hard surface.
- F. Prohibit traffic until filler is fully cured.
- G. Do not install floor coverings until they are same temperature as space where they are to be installed.
 1. Move floor coverings and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- H. Sweep and vacuum clean substrates to be covered by floor coverings immediately before installation.

3.03 INSTALLATION - GENERAL

- A. Starting installation constitutes acceptance of sub-floor conditions.
- B. Install in accordance with manufacturer's written instructions.
- C. Unroll floor coverings and allow them to stabilize before cutting and fitting.
- D. Lay out floor coverings as follows:
 1. Maintain uniformity of floor covering direction.
 2. Minimize number of seams; place seams in inconspicuous and low-traffic areas, at least 6 inches away from parallel joints in floor covering substrates.

3. Match edges of floor coverings for color shading at seams.
4. Avoid cross seams.
- E. Extend floor coverings into toe spaces, door reveals, closets, and similar openings.
- F. Adhere floor coverings to substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.
- G. Spread only enough adhesive to permit installation of materials before initial set.
- H. Fit joints and butt seams tightly.
- I. Set flooring in place, press with heavy roller to attain full adhesion.
- J. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.
- K. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
 1. Resilient Strips: Attach to substrate using adhesive.
- L. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.
- M. At movable partitions, install flooring under partitions without interrupting floor pattern.

3.04 INSTALLATION - SHEET FLOORING

- A. Lay flooring with joints and seams parallel to longer room dimensions, to produce minimum number of seams. Lay out seams to avoid widths less than 1/3 of roll width; match patterns at seams.
- B. Roll resilient flooring using 100 lb. roller as required by flooring manufacturer.
- C. Cut sheet at seams in accordance with manufacturer's instructions.
- D. Seal seams by heat welding.
- E. Seamless Installation: Heat-Welded Seams: Comply with ASTM F1516. Rout joints and use welding bead to permanently fuse sections into a seamless floor covering. Prepare, weld, and finish seams to produce surfaces flush with adjoining floor covering surfaces.

3.05 INSTALLATION - TILE FLOORING

- A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless otherwise indicated in manufacturer's installation instructions.
- B. Lay out tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half of a tile at perimeter
- C. Lay tiles square with room axis, unless otherwise indicated. Match tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Cut tiles neatly around all fixtures.
 1. Discard broken, cracked, chipped, or deformed tiles.
- D. Scribe, cut, and fit tiles to butt neatly and tightly to vertical surfaces and permanent fixtures, including built-in furniture, cabinets, pipes, outlets, edgings, door frames, thresholds, and nosings.
- E. Lay flooring with joints and seams parallel to building lines to produce symmetrical pattern.
- F. Install square tile to quarter turn pattern. Allow minimum 1/2 full size tile width at room or area perimeter.

3.06 INSTALLATION - RESILIENT BASE

- A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.
- B. Miter internal corners. At external corners, 'V' cut back of base strip to 2/3 of its thickness and fold.

- C. Install base on solid backing. Bond tightly to wall and floor surfaces.
- D. Scribe and fit to door frames and other interruptions.

3.07 INSTALLATION - ACCESSORIES

- A. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece.
 - 1. Install reducer strips at edges of resilient flooring, carpet, and entry mat that would otherwise be exposed.
 - 2. Install transition strips at joints between one material to another.

3.08 CLEANING

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.
- B. Clean in accordance with manufacturer's written instructions.
- C. Cleaning: Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Perform initial maintenance on installed products in accordance with manufacturer's instructions, prior to owner's acceptance. Remove construction site debris from project site and legally dispose of debris.
 - 1. Remove visible adhesive and other surface blemishes using cleaning methods recommended by flooring manufacturer.
 - 2. Sweep vacuum floor after installation.
 - 3. Do not perform initial maintenance for a minimum of 5 days after installation has been completed to allow the adhesive the proper time to set.
 - 4. Damp mop flooring to remove black marks and soil.

3.09 PROTECTION

- A. Prohibit traffic on resilient flooring for 48 hours after installation.
- B. Protect floor coverings from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- C. Cover floor coverings until Substantial Completion.

END OF SECTION

SECTION 09 68 13
TILE CARPETING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Entry mat.
- B. Removal of existing carpet tile.

1.02 RELATED REQUIREMENTS

- A. Section 01 74 19 - Construction Waste Management and Disposal: Reclamation/Recycling of new carpet tile scrap.
- B. Section 03 30 00 - Cast-in-Place Concrete: Restrictions on curing compounds for concrete slabs and floors.
- C. Section 09 00 01 - Finish Legend: Color selections.
- D. Section 09 65 00 - Resilient Flooring: Rubber transition strips.

1.03 REFERENCE STANDARDS

- A. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
- B. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
- C. CRI 104 - Standard for Installation of Commercial Carpet.
- D. CRI (GLP) - Green Label Plus Testing Program - Certified Products; www.carpet-rug.org.
- E. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.
 - 1. For installation adhesive, include printed statement of VOC content.
- C. Manufacturer's Installation Instructions: Indicate special procedures.
- D. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 01 60 00 - Product Requirements, for additional provisions.
 - 2. Extra Entry Mat: Quantity equal to 5 percent of total installed.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing specified carpet tile with minimum five years documented experience.
- B. Installer Qualifications: Company specializing in installing carpet tile with minimum five years documented experience.

1.06 FIELD CONDITIONS

- A. Store materials in area of installation for minimum period of 24 hours prior to installation.
- B. Moisture Testing: Maintain temperatures and humidity expected during normal use for testing. If this is not possible, then the test conditions should be 75+/-10 deg F and 50+/-10 percent relative humidity. Maintain these conditions 48 hours prior to and during testing.

1.07 WARRANTY

- A. Special Warranty for Entry Mat: Manufacturer's standard form in which manufacturer agrees to repair or replace components of entry mat installation that fail in materials or workmanship within specified warranty period.

1. Warranty does not include deterioration or failure of entry mat due to unusual traffic, failure of substrate, vandalism, or abuse.
2. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, loss of tuft bind strength, excess static discharge and delamination.
3. Warranty Period: 3 years from Date of Substantial Completion.

PART 2 PRODUCTS

2.01 ENTRY MAT

- A. Entry Mat EM-1: Tufted textured loop modular carpet.
 1. Product:
 - a. Quandrus Gravity manufactured by Milliken.
 2. VOC Content: Provide CRI (GLP) certified product; in lieu of labeling, independent test report showing compliance is acceptable.
 3. Type: Modular.
 4. Tile Size: 19 by 19 inches.
 5. Fiber: Type 6,6 Nylon.
 6. Pile Weight: 949 g/m2
 7. Tufted Pile Height: 4.62 mm.
 8. Primary Backing: PVC-Free Comfort Plus ES Cushion by Milliken.
 9. Color: As indicated in Section 09 00 01 - Finish Legend.

2.02 ACCESSORIES

- A. Sub-Floor Filler: Portland cement based; type recommended by flooring material manufacturer.
- B. Edge Strips: Rubber as specified in Section 09 65 00 - Resilient Flooring.
- C. Adhesives:
 1. VOC-Content for Adhesives, Including Flooring Adhesives: SCAQMD 1168.
 2. Compatible with materials being adhered; maximum VOC content of 50 g/L; CRI (GLP) certified; in lieu of labeled product, independent test report showing compliance is acceptable.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that sub-floor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive carpet tile.
- B. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to sub-floor surfaces.
- C. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet performance. Examine carpet for type, color, pattern, and potential defects.
- D. Concrete Subfloors: Verify that concrete slabs comply with ASTM F710 and the following:
 1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond.
 - a. At areas where existing flooring was removed as Work of asbestos abatement, field test adhesion of floor coverings and, if necessary, take remedial action as required for proper adhesion.
 2. Subfloor finishes comply with requirements specified in Division 03 Section "Cast-in-Place Concrete" for slabs receiving carpet.
 3. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.
 4. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
 5. Moisture Testing:

- a. Engage an independent testing agency to perform anhydrous calcium chloride test, ASTM F1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
 - b. Flooring installer shall perform additional tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
- E. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

- A. Remove existing carpet tile.
- B. Prepare floor substrates as recommended by flooring and adhesive manufacturers.
- C. Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with sub-floor filler.
- D. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Prohibit traffic until filler is cured.
- E. Vacuum clean substrate.

3.03 INSTALLATION

- A. References to carpet apply equally to entry mat.
- B. Starting installation constitutes acceptance of sub-floor conditions.
- C. Install carpet tile in accordance with manufacturer's instructions and CRI 104 (Commercial).
- D. Blend carpet from different cartons to ensure minimal variation in color match.
- E. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.
- F. Locate change of color or pattern between rooms under door centerline.
- G. Trim carpet tile neatly at walls and around interruptions.
- H. Coordinate installation of edge strips with Work of Section 09 65 00, concealing all exposed edges.

3.04 ENTRY MAT INSTALLATION

- A. In addition to requirements indicated above, install in strict accordance with manufacturer's recommendations, using manufacturer's recommended adhesive suitable for project conditions.
- B. Follow manufacturer's recommended seaming techniques.
- C. Roll with appropriate roller for complete contact of adhesive to entry mat backing, rolling at least twice, once in each direction.
- D. Coordinate installation of edge strips with Work of Section 09 65 00, concealing all exposed edges.
- E. Keep all traffic off entry mat for 24 hours after installation. Wait 72 hours prior to initial cleaning.

3.05 CLEANING

- A. Remove excess adhesive without damage, from floor, base, and wall surfaces.
- B. Clean and vacuum carpet surfaces.

END OF SECTION

**SECTION 09 91 13
EXTERIOR PAINTING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paint systems indicated as "P" (Paint) on the following substrates:
 - 1. Fiber cement.
 - 2. Wood.
- C. Scope: Finish exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
 - 1. Mechanical and Electrical:
 - a. On the roof and outdoors, paint equipment that is exposed to weather or to view, including factory-finished materials.
- D. Do Not Paint or Finish the Following Items:
 - 1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
 - 5. Concealed pipes, ducts, and conduits.

1.02 RELATED REQUIREMENTS

- A. Section 05 50 00 - Metal Fabrications: Shop-primed items.
- B. Section 09 00 01 - Finish Legend: Color selections.
- C. Section 09 91 23 - Interior Painting.
- D. Section 09 96 00 - High-Performance Coatings: Painting of metals with high-performance coatings indicated as "HPC" on Drawings.

1.03 DEFINITIONS

- A. Conform to ASTM D16 for interpretation of terms used in this section.
- B. Paint Gloss and Sheen: Paint gloss shall be defined as the sheen rating of applied paint, in accordance with the following MPI values:

Gloss Level	Description	Units @ 60 Degrees	Units @ 85 Degrees
G1	Matte or Flat Finish	0 to 5	10 maximum
G2	Velvet Finish	0 to 10	10 to 35
G3	Eggshell Finish	10 to 25	10 to 35
G4	Satin Finish	20 to 35	35 minimum
G5	Semi-Gloss Finish	35 to 70	
G6	Gloss Finish	70 to 85	
G7	High-Gloss Finish	85	

1.04 REFERENCE STANDARDS

- A. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications.
- B. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials.
- C. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual.
- D. SCAQMD 1113 - South Coast Air Quality Management District Rule No.1113.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide complete list of products to be used, with the following information for each:
 - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "acrylic enamel").
 - 2. Manufacturer's installation instructions.
- C. Product List: For each product indicated, include the following:
 - 1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
 - 2. Include printed statement of VOC content and chemical components.
- D. Samples for Verification: For each color and material to be applied, provide three 8-inch by 10-inch color drawdowns with texture to simulate actual conditions, and representing color and sheen.
- E. Certification: By manufacturer that paints and finishes comply with VOC limits specified.
- F. Manufacturer's Instructions: Indicate special surface preparation procedures and substrate conditions requiring special attention.
- G. Maintenance Data: Submit data including finish schedule showing where each product/color/finish was used, product technical data sheets, care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.
 - 1. At project completion, provide an itemized list complete with manufacturer, paint type and color coding for all colors used for Owner's later use in maintenance.
 - 2. Include color drawdowns and sample chips for each color and sheen.
- H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 01 60 00 - Product Requirements, for additional provisions.
 - 2. Extra Paint and Finish Materials: 1 gallon of each color; from the same product run, store where directed.
 - 3. Label each container with color and sheen in addition to the manufacturer's label.

1.06 PREINSTALLATION CONFERENCE

- A. Preinstallation Conference: Convene a preinstallation meeting one week before starting work of this section; require attendance by all relevant installers. Agenda items will include field conditions, substrate conditions, coordination of shop applied primers with finish coatings, application methods, and field quality control testing and inspection, schedule of painting applications and notifications to Owner of start of painting operations.
 - 1. Bring copies of reviewed color draw-downs for all required colors.

1.07 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum five years documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum five years documented experience.
- C. MPI Standards:
 - 1. Preparation and Workmanship: Comply with requirements in MPI (APSM) - "Master Painters Institute Architectural Painting Specification Manual" and paint manufacturer's recommendations for products and paint systems indicated.
- D. Surface Preparation: Obtain written confirmation of the specific surface preparation procedures and primers used for all fabricated steel items from the fabricator(s) to ascertain appropriate and manufacturer compatible finish coat materials to be used before painting any such work.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.09 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply exterior paint and finishes during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- D. Minimum Application Temperatures for Latex Paints: 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.
- E. Provide lighting level of 80 ft candles measured mid-height at substrate surface.
- F. Lead Paint: Lead paint is present in buildings and structures to be painted. A report on the presence of lead paint is included in Document 00 31 00 - Available Project Information. Examine report to become aware of locations where lead paint is present.
 - 1. Do not disturb lead paint or items suspected of containing hazardous materials except under procedures specified.
 - 2. Perform preparation for painting of substrates known to include lead paint in accordance with Section 02 26 26 - Lead Coated Surfaces.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.
- B. Products: Provide one of the products listed in Part 2.
- C. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in Part 2:
 - 1. Coronado Paint (Coronado)
 - 2. Kelly-Moore Paints (Kelly).
 - 3. Miller Paint Co. (Miller).
 - 4. Benjamin Moore & Co. (Moore).
 - 5. PPG Industries, Inc. (PPG).
 - 6. Rodda Paint / Cloverdale Paint Co. (Rodda).
 - 7. Sherwin-Williams Co. (S-W).
- D. Substitutions: Not permitted.

2.02 PAINTS AND FINISHES - GENERAL

- A. Paints and Finishes: Ready mixed, unless required to be a field-catalyzed paint.
 - 1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 - 2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
 - 3. Supply each paint material in quantity required to complete entire project's work from a single production run.

4. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
- B. Volatile Organic Compound (VOC) Content:
 1. All paints and coating wet applied on site must meet the applicable limits of the SCAQMD 1113. VOC shall not exceed the limits indicated below:
 - a. Flat Paints: 50 g/L.
 - b. Nonflat Paints: 50 g/L.
 - c. Primers, Sealers and Undercoaters: 100 g/L
 - d. Rust Preventative Coatings/Industrial Maintenance Coatings: 100 g/L.
- C. Flammability: Comply with applicable code for surface burning characteristics.
- D. Colors: As indicated in Section 09 00 01 - Finish Legend.
 1. Extend colors to surface edges; colors may change at any edge as directed by Architect.

2.03 PAINT SYSTEMS - EXTERIOR

- A. Fiber Cement Panels: Provide the following finish systems over exterior, fiber cement panels:
 1. Flat Acrylic Finish: 2 finish coats over a primer.
 - a. Primer Over Existing Painted Surfaces:
 - 1) Coronado: Elastite 100% Acrylic Masonry Sealer 48-11.
 - 2) Kelly: 295 Kel-Bond Universal Acrylic Primer.
 - 3) Miller: 6060 Miller Prime All Purpose Acrylic Primer.
 - 4) Moore: Super Spec 100% Acrylic Masonry Primer (068).
 - 5) PPG: 17-921 Seal Grip Int./Ext. Universal Primer.
 - 6) Rodda: First Coat 501601.
 - 7) S-W: Multi-Purpose Latex Primer B51-450 Series.
 - b. Primer: Exterior, alkali-resistant, acrylic-latex primer, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.0 mils.
 - 1) Coronado: Supreme Waterborne Acrylic Bonding Primer 8-11.
 - 2) Kelly: 247 Acry-Shield 100% Acrylic Masonry Primer.
 - 3) Miller: 6040 Kril Primer.
 - 4) Moore: Super Spec 100% Acrylic Masonry Primer (068).
 - 5) PPG: Perma-Crete Alkali-Resistant Primer 4-603.
 - 6) Rodda: First Coat Primer 501601.
 - 7) S-W: Loxon Concrete & Masonry Primer A24.
 - c. First and Second Coats: Flat, exterior, acrylic-emulsion paint applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.4 mils.
 - 1) Coronado: Supreme Acrylic Latex Flat House Paint 8 Line.
 - 2) Kelly: 1200 Color-Shield 100% Acrylic Exterior Flat Paint.
 - 3) Miller: 5900 Flat Kril.
 - 4) Moore: Ultra Spec EXT Flat Finish N447.
 - 5) PPG: 6-610XI Series Speedhide Exterior Flat Latex.
 - 6) Rodda: pHlex-Tite 512310.
 - 7) S-W: A-100 Exterior Latex Flat A6W16.
- B. Smooth Wood: Provide the following finish systems over smooth wood siding and other smooth, exterior wood surfaces:
 1. Semigloss, Acrylic-Enamel Finish: 2 finish coats over a primer.
 - a. Primer Over Existing Painted Surfaces:
 - 1) Coronado: Elastite 100% Acrylic Masonry Sealer 48-11.
 - 2) Kelly: 295 Kel-Bond Universal Acrylic Primer.
 - 3) Miller: 6060 Miller Prime All Purpose Acrylic Primer.
 - 4) Moore: Super Spec Latex Exterior Primer #169.
 - 5) PPG: 17-921 Seal Grip Int./Ext. Universal Primer.

- 6) Rodda: First Coat 501601.
 - 7) S-W: Multi-Purpose Latex Primer B51-450 Series.
 - b. Primer: Exterior, alkyd or latex, wood primer, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.5 mils.
 - 1) Coronado: Supreme Waterborne Acrylic Bonding Primer 8-11.
 - 2) Kelly: 255 Acry-Shield 100% Acrylic Exterior Wood Primer.
 - 3) Miller: 7052 Acrilite Primer.
 - 4) Moore: Super Spec Latex Exterior Primer 169.
 - 5) PPG: 17-921 Seal-Grip 100% Acrylic Primer.
 - 6) Rodda: First Coat Primer 501601.
 - 7) S-W: A-100 Alkyd PrimerY24.
 - c. First and Second Coats: Semigloss, waterborne, exterior, acrylic enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.4 mils.
 - 1) Coronado: Supreme Acrylic Latex Semi-Gloss House Paint 12 Line.
 - 2) Kelly: 1215 Color Shield Exterior Acrylic Semi-Gloss Enamel.
 - 3) Miller: 7500 Semi-Gloss Acrilite.
 - 4) Moore: Ultra Spec EXT 448.
 - 5) PPG: 6-900XI Speedhide Exterior Semi-Gloss Latex.
 - 6) Rodda: Ecologic Semi-Gloss 70623.
 - 7) S-W: A-100 Exterior Satin Latex A82.
- C. Wood Trim: Provide the following finish systems over exterior wood trim:
 - 1. Semigloss, Acrylic-Enamel Finish: 2 finish coats over a primer.
 - a. Primer Over Existing Painted Surfaces:
 - 1) Coronado: Elastite 100% Acrylic Masonry Sealer 48-11.
 - 2) Kelly: 295 Kel-Bond Universal Acrylic Primer.
 - 3) Miller: 6060 Miller Prime All Purpose Acrylic Primer.
 - 4) Moore: Super Spec Latex Exterior Primer #169.
 - 5) PPG: 17-921 Seal Grip Int./Ext. Universal Primer.
 - 6) Rodda: First Coat 501601.
 - 7) S-W: Multi-Purpose Latex Primer B51-450 Series.
 - b. Primer: Exterior, acrylic-latex primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.4 mils.
 - 1) Coronado: Supreme Waterborne Acrylic Bonding Primer 8-11.
 - 2) Kelly: 255 Acry-Shield 100% Acrylic Exterior Wood Primer.
 - 3) Miller: 7052 Acrilite Primer.
 - 4) Moore: Super Spec Latex Exterior Primer 169.
 - 5) PPG: 17-921 Seal-Grip 100% Acrylic Primer.
 - 6) Rodda: First Coat Primer 501601.
 - 7) S-W: PrepRite ProBlock Interior Exterior Latex Primer Sealer B51.
 - c. First and Second Coats: Semigloss, waterborne, exterior, acrylic-latex enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.4 mils.
 - 1) Coronado: Supreme Acrylic Latex Semi-Gloss House Paint 12 Line.
 - 2) Kelly: 1215 Color Shield Exterior Acrylic Semi-Gloss Enamel.
 - 3) Miller: 7500 Semi-Gloss Acrilite.
 - 4) Moore: Ultra Spec EXT 449.
 - 5) PPG: 6-900XI Series Speedhide Exterior Semi-Gloss Latex.
 - 6) Rodda: Ecologic Semi-Gloss 70623.
 - 7) S-W: A-100 Exterior Satin Latex A82.

2.04 ACCESSORY MATERIALS

- A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin application of paints and finishes until substrates have been properly prepared.
- B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.
 - 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.
- D. Test shop-applied primer for compatibility with subsequent cover materials.
- E. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 - 1. Fiber Cement Siding: 12 percent.
 - 2. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

- A. Comply with manufacturer's written instruction and recommendations in MPI (APSM) "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
- B. Previously Painted Surfaces: Comply with manufacturer's written instructions and recommendations in "Master Painters Institute Maintenance Repainting Manual" applicable to substrates indicated for existing painted surfaces.
 - 1. Follow general surface preparations guidelines. Remove loose or failing paint and spot prime bare areas or entire surface with appropriate primer. Sand or provide bonding primer for hard, glossy surfaces as necessary for bond.
- C. Clean surfaces thoroughly and correct defects prior to application.
- D. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- E. Remove or repair existing paints or finishes that exhibit surface defects.
- F. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces for finishing.
 - 1. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating or nomenclature plates.
- G. Seal surfaces that might cause bleed through or staining of topcoat.
- H. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- I. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.
- J. High pressure water clean all exterior surfaces prior to repainting using pressures indicated below to ensure complete removal of all loose paint, stains, dirt and other foreign matter, with such work to be carried out only by qualified tradesmen experienced in high pressure water cleaning. The use of spray equipment such as water hose cleaning will not be considered satisfactory. Allow sufficient drying time and test all surfaces using an electronic moisture meter before commencing work.

Substrate	Pressure Range
Soft stone (sandstone, limestone, softwood)	100 - 600 psi @ 6 inches
Wood siding, stone, clay brick	600 - 1,500 psi @ 6 inches
Firm masonry, stone, brick, concrete	1,500 - 4,000 psi @ 6 to 12 inches

- K. Fiber Cement Siding: Remove dirt, dust and other foreign matter with a stiff fiber brush. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
- L. Exterior Wood Surfaces to Receive Opaque Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior caulking compound after prime coat has been applied. Back prime concealed surfaces before installation.

3.03 APPLICATION

- A. Apply paints according to manufacturer's written instructions.
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. If spray equipment is utilized, a spray/backroll application is considered one coat of paint.
 - 3. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 4. Continue paint finish behind all wall-mounted items.
- B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- C. Paint access doors, prime coated hardware, exposed piping and electrical panels to match adjacent surfaces in color, texture and sheen, unless otherwise noted or where pre-finished.
 - 1. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
- D. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- E. Exterior Wood to Receive Opaque Finish: If final painting must be delayed more than 2 weeks after installation of woodwork, apply primer within 2 weeks and final coating within 4 weeks.
- F. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".
- G. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.
- H. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- I. Apply each coat to uniform appearance.
- J. Regardless of number of coats specified, apply additional coats until complete hide is achieved.
- K. Sand wood and metal surfaces lightly between coats to achieve required finish.
- L. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- M. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for general requirements for field inspection.
- B. Painted surfaces shall be considered to lack uniformity and soundness if any of the following defects are apparent to Architect.

1. Brush/roller marks, streaks, laps, runs, sags, drips, heavy stippling, hiding or shadowing by inefficient application methods, skipped or missed areas, or foreign materials in paint coatings.
 2. Evidence of poor coverage at rivet heads, plate edges, lap joints, crevices, pockets, corners, reentrant angles or similar conditions.
 3. Damage due to touching before paint is sufficiently dry or any other contributory cause.
 4. Damage due to application on moist surfaces or caused by inadequate protection from the weather.
 5. Damage and/or contamination of paint due to blown contaminants (dust, spray paint, etc.).
- C. Painted surfaces shall be considered unacceptable if any of the following are evident:
1. Visible defects are evident on vertical or horizontal surfaces when viewed at normal viewing angles from a distance of not less than 39 inches.
 2. Visible defects are evident on ceilings, soffits and other overhead surfaces when viewed at normal viewing angles.
 3. When the final coat on any surface exhibits a lack of uniformity of color, sheen texture and hiding across full surface area.
 4. Dry mil thicknesses do not meet manufacturer's recommended thickness or specified thickness.
- D. Owner may provide field inspection and testing.
1. Painted surfaces will be tested for dry mil thickness for each coat.
 2. Shop primers and painted surfaces will be tested for adhesion.
 3. Surfaces will be tested at frequency discussed in the preinstallation conference and as deemed appropriate by Owner.
- E. Touch-up and restore painted surfaces damaged by testing.
1. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.05 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.06 PROTECTION

- A. Protect finishes until completion of project.
- B. Touch-up damaged finishes after Substantial Completion.

3.07 SCHEDULE - PAINT SYSTEMS

- A. Fiber Cement Panels - Flat Acrylic Finish.
- B. Smooth Wood - Semigloss, Acrylic-Enamel Finish.
- C. Wood Trim - Semigloss, Acrylic-Enamel Finish.
- D. Refer to Section 09 96 00 - High-Performance Coating for ferrous metals not listed to be painted as Work of this Section.

- E. Refer to Section 09 96 00 - High-Performance Coating for zinc-coated metals not listed to be painted as Work of this Section.

END OF SECTION

SECTION 09 91 23
INTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paint systems indicated as "P" (Paint) and "EP" (Epoxy) on the following substrates:
 - 1. Concrete or plaster.
 - 2. Acoustical panel ceilings.
 - 3. Gypsum board.
 - 4. Wood.
- C. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
 - 1. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
 - 2. Painting of game line and marker paint lines is Work of other Sections.
 - 3. Mechanical and Electrical:
 - a. In finished areas, paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.
 - 1) Protect sprinkler heads.
 - b. In finished areas, paint shop-primed items.
 - c. Paint interior surfaces of air ducts and convector and baseboard heating cabinets that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.
 - d. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.
- D. Do Not Paint or Finish the Following Items:
 - 1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
 - 5. Acoustical materials, unless specifically indicated.
 - 6. Concealed pipes, ducts, and conduits.

1.02 RELATED REQUIREMENTS

- A. Section 05 50 00 - Metal Fabrications: Shop-primed items.
- B. Section 09 00 01 - Finish Legend: Color selections.
- C. Section 09 91 13 - Exterior Painting.
- D. Section 09 96 00 - High-Performance Coatings: Painting of metals with high-performance coatings indicated as "HPC" on Drawings.

1.03 DEFINITIONS

- A. Conform to ASTM D16 for interpretation of terms used in this section.
- B. Paint Gloss and Sheen: Paint gloss shall be defined as the sheen rating of applied paint, in accordance with the following MPI values:

Gloss Level	Description	Units @ 60 Degrees	Units @ 85 Degrees
G1	Matte or Flat Finish	0 to 5	10 maximum

G2	Velvet Finish	0 to 10	10 to 35
G3	Eggshell Finish	10 to 25	10 to 35
G4	Satin Finish	20 to 35	35 minimum
G5	Semi-Gloss Finish	35 to 70	
G6	Gloss Finish	70 to 85	
G7	High-Gloss Finish	85	

1.04 REFERENCE STANDARDS

- A. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications.
- B. ASTM D4258 - Standard Practice for Surface Cleaning Concrete for Coating.
- C. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials.
- D. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual.
- E. MPI - Master Painters Institute Repainting Manual.
- F. SCAQMD 1113 - South Coast Air Quality Management District Rule No.1113.
- G. SSPC-SP 13 - Surface Preparation of Concrete; (Reaffirmed 2015).

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide complete list of products to be used, with the following information for each:
 - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "acrylic enamel").
 - 2. Manufacturer's installation instructions.
- C. Product List: For each product indicated, include the following:
 - 1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
 - 2. Include printed statement of VOC content and chemical components.
- D. Samples for Verification: For each color and material to be applied, provide three 8-inch by 10-inch color drawdowns with texture to simulate actual conditions, and representing color and sheen.
- E. Certification: By manufacturer that paints and finishes comply with VOC limits specified.
- F. Manufacturer's Instructions: Indicate special surface preparation procedures and substrate conditions requiring special attention.
- G. Maintenance Data: Submit data including finish schedule showing where each product/color/finish was used, product technical data sheets, care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.
 - 1. At project completion, provide an itemized list complete with manufacturer, paint type and color coding for all colors used for Owner's later use in maintenance.
 - 2. Include color drawdowns and sample chips for each color and sheen.
- H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 01 60 00 - Product Requirements, for additional provisions.
 - 2. Extra Paint and Finish Materials: 1 gallon of each color; from the same product run, store where directed.
 - 3. Label each container with color and sheen in addition to the manufacturer's label.

1.06 PREINSTALLATION CONFERENCE

- A. Preinstallation Conference: Convene a preinstallation meeting one week before starting work of this section; require attendance by all relevant installers. Agenda items will include field conditions, substrate conditions, coordination of shop applied primers with finish coatings,

application methods, and field quality control testing and inspection, schedule of painting applications and notifications to Owner of start of painting operations.

1. Bring copies of reviewed color draw-downs for all required colors.

1.07 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum five years documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum five years documented experience.
- C. MPI Standards:
 1. Preparation and Workmanship: Comply with requirements in MPI (APSM) - "Master Painters Institute Architectural Painting Specification Manual" and paint manufacturer's recommendations for products and paint systems indicated.
- D. Surface Preparation: Obtain written confirmation of the specific surface preparation procedures and primers used for all fabricated steel items from the fabricator(s) to ascertain appropriate and manufacturer compatible finish coat materials to be used before painting any such work.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.09 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply materials when relative humidity exceeds 85 percent; at temperatures less than 5 degrees F above the dew point; or to damp or wet surfaces.
- D. Minimum Application Temperatures for Paints: 50 degrees F for interiors unless required otherwise by manufacturer's instructions.
- E. Provide lighting level of 80 ft candles measured mid-height at substrate surface.
- F. Lead Paint: Lead paint is present in buildings and structures to be painted. A report on the presence of lead paint is included in Document 00 31 00 - Available Project Information. Examine report to become aware of locations where lead paint is present.
 1. Do not disturb lead paint or items suspected of containing hazardous materials except under procedures specified.
 2. Perform preparation for painting of substrates known to include lead paint in accordance with Section 02 26 26 - Lead Coated Surfaces.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.
- B. Products: Provide one of the products listed in Part 2.
- C. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in Part 2:
 1. Kelly-Moore Paints (Kelly).

2. Miller Paint Co. (Miller).
3. Benjamin Moore & Co. (Moore).
4. PPG Industries, Inc. (PPG).
5. Rodda Paint / Cloverdale Paint Co. (Rodda).
6. Sherwin-Williams Co. (S-W).

D. Substitutions: Not permitted.

2.02 PAINTS AND FINISHES - GENERAL

- A. Paints and Finishes: Ready mixed, unless intended to be a field-catalyzed paint.
1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
 3. Supply each paint material in quantity required to complete entire project's work from a single production run.
 4. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
- B. Volatile Organic Compound (VOC) Content:
1. All paints and coating wet applied on site must meet the applicable limits of the SCAQMD 1113. VOC shall not exceed the limits indicated below:
 - a. Dry Fog Coatings: 150 g/L.
 - b. Flat Paints: 50 g/L.
 - c. Nonflat Paints: 50 g/L.
 - d. Primers, Sealers and Undercoaters: 100 g/L
 - e. Rust Preventative Coatings/Industrial Maintenance Coatings: 100 g/L.
 - f. Clear Wood Finishes, Sanding Sealers: 275 g/L.
- C. Flammability: Comply with applicable code for surface burning characteristics.
- D. Colors: As indicated in Section 09 90 01 - Finish Legend.
1. Extend colors to surface edges; colors may change at any edge as directed by Architect.
 2. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under.

2.03 PAINT SYSTEMS - INTERIOR

- A. Concrete or Plaster: Provide the following paint systems over interior concrete surfaces:
1. Semigloss, Acrylic-Enamel Finish: 2 finish coats over a primer.
 - a. Primer Over Existing Painted Surfaces:
 - 1) Kelly: 295 Kel-Bond Universal Acrylic Primer.
 - 2) Miller: 6060 Miller Prime All Purpose Acrylic Primer.
 - 3) Moore: Ultra Spec 500 Interior Primer Sealer 534.
 - 4) PPG: 17-921 Seal Grip Int./Ext. Universal Primer.
 - 5) Rodda: First Coat 501601.
 - 6) S-W: Multi-Purpose Latex Primer B51-450 Series.
 - b. Primer: Alkali-resistant, acrylic-latex, interior primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.0 mil.
 - 1) Kelly: 95-100 Pre-Cote Wallboard & Masonry Primer/Sealer.
 - 2) Miller: 6040 Kriil Primer.
 - 3) Moore: Fresh Super Spec Masonry High Build Primer 068.
 - 4) PPG: Perma-Crete Alkali-Resistant Primer 4-603.
 - 5) Rodda: First Coat 501601.
 - 6) S-W: Contractors Interior Latex Primer B28WF0162.

- c. First and Second Coats: Semigloss, acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.6 mils.
 - 1) Kelly: 1050 KM Professional Acrylic Semi-Gloss Enamel.
 - 2) Miller: 4580 Premium Semi-Gloss.
 - 3) Moore: Ultra Spec 500 Interior Semi-Gloss Enamel 539 (0 VOC post tint).
 - 4) PPG: 6-500 Speedhide Acrylic Latex Semi-Gloss Enamel.
 - 5) Rodda: Master Painter Ultra Low VOC Semi-Gloss 543601.
 - 6) S-W: ProMar 200 Zero VOC Semi-Gloss, B31-2600 Series.
- 2. Semi-Gloss, Water-Based Epoxy (EP): 2 finish coats over a primer.
 - a. Primer Over Existing Painted Surfaces:
 - 1) Miller: 6060 Miller Prime All Purpose Acrylic Primer.
 - 2) Moore: Ultra Spec 500 Interior Primer Sealer 534.
 - 3) PPG: 17-921 Seal Grip Int./Ext. Universal Primer.
 - 4) Rodda: First Coat 501601.
 - 5) S-W: Multi-Purpose Latex Primer B51-450 Series.
 - b. Primer: Alkali-resistant, acrylic-latex, interior primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.0 mil.
 - 1) Miller: 6040 Kril Primer.
 - 2) Moore: Fresh Start 100% Acrylic Primer N023.
 - 3) PPG: Perma-Crete Alkali-Resistant Primer 4-603.
 - 4) Rodda: First Coat 501601.
 - 5) S-W: Contractors Interior Latex Primer B28WF0162.
 - c. First and Second Coats: Odorless, semigloss, interior water-based epoxy enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 3 mils.
 - 1) Miller: 4200 Water Base Epoxy.
 - 2) Moore: Corotech Pre-Catalyzed Waterborne Epoxy V341.
 - 3) PPG: Pitt-Glaze WB1 Interior Semi-Gloss Pre-Catalyzed Water-Borne Acrylic Epoxy, 16-510, 16-540.
 - 4) Rodda: Rustoleum Sierra Performance S60/S62 WB Epoxy Coating.
 - 5) S-W: Pro Industrial Water Based Catalyzed Epoxy B73 Series.
- B. Acoustical Panel Ceiling Panels: Provide the following finish systems over interior acoustical panel ceiling panels:
 - 1. Flat, Acrylic Finish: 2 coats or as required for full opacity.
 - a. First and Second Coats: Flat acrylic, non-bridging, applied at spreading rate recommended by the manufacturer to achieve full opacity.
 - 1) Kelly: 550 AcryPlex Interior Flat.
 - 2) Kilz: Complete Coat Interior Ceiling Paint.
 - 3) Miller: 3780 Premium Flat.
 - 4) Moore: Ultra Spec 500 Interior Latex Flat 536 (0 VOC post tint).
 - 5) PPG: 50-35 Interior Ceiling Paint Flat.
 - 6) Rodda: Master Painter Ultra Low VOC Flat 513601.
 - 7) S-W: ProAcoustic Acoustical Tile and Ceiling Coating.
- C. Gypsum Board: Provide the following finish systems over interior gypsum board surfaces:
 - 1. Semigloss, Acrylic-Enamel Finish: 2 finish coats over a primer.
 - a. Primer Over Existing Painted Surfaces:
 - 1) Kelly: 295 Kel-Bond Universal Acrylic Primer.
 - 2) Miller: 6060 Miller Prime All Purpose Acrylic Primer.
 - 3) Moore: Ultra Spec 500 Interior Primer Sealer 534.
 - 4) PPG: 17-921 Seal Grip Int./Ext. Universal Primer.
 - 5) Rodda: First Coat Primer 501601.

- 6) S-W: Multi-Purpose Latex Primer B51-450 Series.
 - b. Primer: Latex-based, interior primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
 - 1) Kelly: 95-100 Pre-Cote Wallboard & Masonry Primer/Sealer.
 - 2) Miller: 130010 Performance Plus Primer Sealer.
 - 3) Moore: Ultra Spec 500 Interior Primer Sealer 534.
 - 4) PPG: 6-2 Speedhide Interior Latex Primer Sealer.
 - 5) Rodda: Master Painter UL VOC Primer 503601.
 - 6) S-W: Contractors Interior Latex Primer B28WF0162.
 - c. First and Second Coats: Semigloss, acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.6 mils.
 - 1) Kelly: 1050 KM Professional Acrylic Semi-Gloss Enamel.
 - 2) Miller: 4580 Premium Semi-Gloss.
 - 3) Moore: Ultra Spec 500 Interior Semi-Gloss Enamel 539 (0 VOC post tint).
 - 4) PPG: 6-500 Speedhide Acrylic Latex Semi-Gloss Enamel.
 - 5) Rodda: Master Painter Ultra Low VOC Semi-Gloss 543601.
 - 6) S-W: ProMar 200 Zero VOC Semi-Gloss, B20-2600 Series.
2. Semigloss, Water-Based Epoxy (EP): 2 finish coats over a primer.
- a. Primer Over Existing Painted Surfaces:
 - 1) Kelly: 295 Kel-Bond Universal Acrylic Primer.
 - 2) Miller: 6060 Miller Prime All Purpose Acrylic Primer.
 - 3) Moore: Ultra Spec 500 Interior Primer Sealer 534.
 - 4) PPG: 17-921 Seal Grip Int./Ext. Universal Primer.
 - 5) Rodda: First Coat Primer 501601.
 - 6) S-W: Multi-Purpose Latex Primer B51-450 Series.
 - b. Primer: Latex-based, interior primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.4 mils.
 - 1) Kelly: Sierra Performance S30 Griptec Sandable Primer.
 - 2) Miller: 130010 Performance Plus Primer Sealer.
 - 3) Moore: Ultra Spec 500 Interior Primer Sealer 534.
 - 4) PPG: Speedhide Interior Latex Primer Sealer 6-2.
 - 5) Rodda: Master Painter UL VOC Primer 503601.
 - 6) S-W: Contractors Interior Latex Primer B28WF0162.
 - c. First and Second Coats: Odorless, semigloss, interior water-based epoxy enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 3 mils.
 - 1) Kelly: Sierra Performance S-16 Epoxy Acrylic Semi-Gloss.
 - 2) Miller: 4200 Water Base Epoxy.
 - 3) Moore: V341 Corotech Waterborne PreCatalyzed Epoxy Semi-Gloss.
 - 4) PPG: Pitt-Glaze WB1 Interior Semi-Gloss Pre-Catalyzed Water-Borne Acrylic Epoxy.
 - 5) Rodda: Rustoleum Sierra Performance S60/S62 WB Epoxy Coating.
 - 6) S-W: Pro Industrial Waterborne Catalyzed Epoxy, B73 Series.
- D. Woodwork and Hardboard: Provide the following paint finish systems over new, interior wood surfaces:
- 1. Semigloss, Acrylic-Enamel Finish: 2 finish coats over a primer or wood undercoater.
 - a. Primer Over Existing Painted Surfaces:
 - 1) Kelly: 295 Kel-Bond Universal Acrylic Primer.
 - 2) Miller: 6060 Miller Prime All Purpose Acrylic Primer.
 - 3) Moore: Ultra Spec 500 Interior Primer Sealer 534.
 - 4) PPG: 17-921 Seal Grip Int./Ext. Universal Primer.
 - 5) Rodda: First Coat Primer 501601.

- 6) S-W: Multi-Purpose Latex Primer B51-450 Series.
- b. Undercoat: Acrylic-latex-based, interior wood undercoater, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
 - 1) Kelly: 295 Kel-Bond Universal Acrylic Primer.
 - 2) Miller: 2840 Acrylic Enamel Undercoat.
 - 3) Moore: Ultra Spec 500 Interior Primer Sealer 534.
 - 4) PPG: 17-951 Seal Grip Interior Primer/Finish.
 - 5) Rodda: Unique II 100% Acrylic Enamel Undercoater 502001.
 - 6) S-W: Multi-Purpose Int/Ext Latex Primer Sealer B51 Series.
- c. First and Second Coats: Semigloss, acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.6 mils.
 - 1) Kelly: 1685 Dura-Poxy +100% Acrylic Semi-Gloss Enamel.
 - 2) Miller: 7200 Semi-Gloss Acrinamel.
 - 3) Moore: Ultra Spec 500 Interior Semi-Gloss 539 (0 VOC post tint).
 - 4) PPG: 6-500 Speedhide Acrylic Latex Semi-Gloss Enamel.
 - 5) Rodda: Master Painter Ultra Low VOC Semi-Gloss 543601.
 - 6) S-W: Pro Industrial Acrylic Semi-Gloss, B66 Series.

2.04 ACCESSORY MATERIALS

- A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin application of paints and finishes until substrates have been properly prepared.
- B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.
 - 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.
- D. Test shop-applied primer for compatibility with subsequent cover materials.
- E. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 - 1. Gypsum Wallboard: 12 percent.
 - 2. Plaster and Stucco: 12 percent.
 - 3. Masonry, Concrete, and Concrete Masonry Units: 12 percent.
 - 4. Interior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in MPI (APSM) applicable to substrates indicated.
- B. Previously Painted Surfaces: Comply with manufacturer's written instructions and recommendations in "MPI Maintenance Repainting Manual" applicable to substrates indicated for existing painted surfaces.
 - 1. Follow general surface preparations guidelines. Remove loose or failing paint and spot prime bare areas or entire surface with appropriate primer. Sand or provide bonding primer for hard, glossy surfaces as necessary for bond.
- C. Clean surfaces thoroughly and correct defects prior to application.

- D. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- E. Remove or repair existing paints or finishes that exhibit surface defects.
- F. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
 - 1. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating or nomenclature plates.
- G. Seal surfaces that might cause bleed through or staining of topcoat.
- H. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- I. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.
- J. Concrete:
 - 1. Remove release agents, curing compounds, efflorescence, and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
 - 2. Clean concrete according to ASTM D4258. Allow to dry.
 - 3. Prepare surface as recommended by top coat manufacturer and according to SSPC-SP 13.
- K. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair. Do not begin paint application until finishing compound is dry and sanded smooth.
- L. Plaster: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces. Verify that plaster is fully cured.
- M. Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation. Prime edges, ends, faces, undersides and backsides of wood.

3.03 APPLICATION

- A. Apply paints according to manufacturer's written instructions.
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. If spray equipment is utilized, a spray/backroll application is considered one coat of paint.
 - 3. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 4. Continue paint finish behind all wall-mounted items.
- B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- C. Paint access doors, prime coated hardware, exposed piping and electrical panels to match adjacent surfaces in color, texture and sheen, unless otherwise noted or where pre-finished.
 - 1. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
- D. When the color of a door frame changes from side to side, the change shall be made at the edge of the stop, where the transition is not visible when the door is in a closed position.
- E. Back-prime and paint plywood service panels such as electrical, telephone and cable vision panels, as applicable, including edges, to match painted wall it is mounted on or white where mounted on unpainted wall.

- F. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- G. Paint acoustical tile ceiling panels with the panels laid flat on floor or other protected surface. Do not paint panels after installed in grid. Do not lift tiles until paint has completely dried.
 - 1. Paint acoustical tile ceiling panels with rollers. Do not spray.
- H. Paint the inside of all ductwork behind louvers, grilles and diffusers for a minimum of 18 inches or beyond sightline, whichever is greater, using flat black (non-reflecting) paint.
- I. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".
- J. Prime surfaces to receive cabinetry and similar items.
 - 1. Provide primer and all finish coats behind wainscots, wall coverings, markerboards, tackboards, and tack surfaces.
- K. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.
- L. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- M. Apply each coat to uniform appearance in thicknesses specified by manufacturer.
- N. Regardless of number of coats specified, apply as many coats as necessary for complete hide.
- O. Sand wood and metal surfaces lightly between coats to achieve required finish.
- P. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- Q. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for general requirements for field inspection.
- B. Painted surfaces shall be considered to lack uniformity and soundness if any of the following defects are apparent to Architect.
 - 1. Brush/roller marks, streaks, laps, runs, sags, drips, heavy stippling, hiding or shadowing by inefficient application methods, skipped or missed areas, or foreign materials in paint coatings.
 - 2. Evidence of poor coverage at rivet heads, plate edges, lap joints, crevices, pockets, corners, reentrant angles or similar conditions.
 - 3. Damage due to touching before paint is sufficiently dry or any other contributory cause.
 - 4. Damage due to application on moist surfaces or caused by inadequate protection from the weather.
 - 5. Damage and/or contamination of paint due to blown contaminants (dust, spray paint, etc.).
- C. Painted surfaces shall be considered unacceptable if any of the following are evident under natural lighting source for exterior surfaces:
 - 1. Visible defects are evident on vertical or horizontal surfaces when viewed at normal viewing angles from a distance of not less than 39 inches.
 - 2. Visible defects are evident on ceilings, soffits and other overhead surfaces when viewed at normal viewing angles.
 - 3. When the final coat on any surface exhibits a lack of uniformity of color, sheen texture and hiding across full surface area.
 - 4. Dry mil thicknesses do not meet manufacturer's recommended thickness or specified thickness.
- D. Owner may provide field inspection and testing.
 - 1. Painted surfaces will be tested for dry mil thickness for each coat.
 - 2. Shop primers and painted surfaces will be tested for adhesion.

3. Surfaces will be tested at frequency discussed in the preinstallation conference and as deemed appropriate by Owner.
- E. Touch-up and restore painted surfaces damaged by testing.
 1. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.05 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.06 PROTECTION

- A. Protect finishes until completion of project.
- B. Touch-up damaged finishes after Substantial Completion.

3.07 SCHEDULE - PAINT SYSTEMS

- A. Concrete or Plaster - Semigloss, Acrylic-Enamel Finish.
- B. Acoustical Panel Ceiling Panels - Flat, Acrylic Finish.
- C. Gypsum Board - Semigloss, Acrylic-Enamel Finish.
 1. Provide primer without finish coats at areas indicated to receive fixed equipment, cabinetry and similar fixed items.
 2. Provide primer and all finish coats behind markerboards, tackboards, and tack surfaces.
- D. Gypsum Board: Semigloss, Water-Based Epoxy:
 1. Walls and ceilings in kitchens, restrooms, food service areas, custodial/janitor closets.
- E. Woodwork and Hardboard - Semigloss, Acrylic-Enamel Finish:
 1. Wood doors indicated to receive opaque finish.
- F. Refer to Section 09 96 00 - High-Performance Coating for metals not listed to be painted as Work of this Section.
- G. Steel Doors and Frames: As specified in Section 09 96 00 - High-Performance Coatings.

END OF SECTION

SECTION 09 96 00
HIGH-PERFORMANCE COATINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. High performance coatings (HPC) for the following conditions:
 - 1. Exterior Substrates:
 - a. Steel.
 - b. Galvanized steel.
 - 2. Interior Substrates:
 - a. Steel.
 - b. Galvanized steel.
- B. Surface preparation.

1.02 RELATED REQUIREMENTS

- A. Section 05 12 00 - Structural Steel Framing: Shop priming of metal substrates with primers specified in this Section.
- B. Section 05 50 00 - Metal Fabrications: Shop priming of metal substrates with primers specified in this Section.
- C. Section 08 11 13 - Hollow Metal Doors and Frames: Shop priming of metal substrates with primers compatible with primers specified in this Section.
- D. Section 09 00 01 - Finish Legend.
- E. Section 09 91 23 - Interior Painting: Requirements for mechanical and electrical equipment surfaces.

1.03 REFERENCE STANDARDS

- A. ASTM D3359 - Standard Test Method for Measuring Adhesion by Tape Test.
- B. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual.
- C. SCAQMD 1113 - South Coast Air Quality Management District Rule No.1113.
- D. SSPC-PA 2 - Procedure For Determining Conformance To Dry Coating Thickness Requirements.
- E. SSPC-SP 3 - Power Tool Cleaning.
- F. SSPC-SP 6 - Commercial Blast Cleaning.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide complete list of all products to be used, with the following information for each:
 - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
 - 2. Include printed statement of VOC content and chemical components for interior coatings.
- C. Samples for Verification: For each type of coating system and in each color and gloss of finish coat indicated.
 - 1. Submit Samples on shop primed and galvanized steel, 8 inches square.
- D. Product List: For each product indicated. Cross-reference products to coating system and locations of application areas. Use same designations indicated on Drawings and in schedules.
- E. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention, and surface preparation requirements.
- F. Maintenance Data: Include cleaning procedures and repair and patching techniques.

1. At project completion, provide an itemized list complete with manufacturer, coating type and color coding for all colors used for Owner's later use in maintenance.
- G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 1. Extra Coating Materials: 1 gallon of each type and color. All extra stock containers are to be new and unopened.
 2. Label each container with manufacturer's name, product number, color number, and room names and numbers where used.

1.05 PREINSTALLATION CONFERENCE

- A. Preinstallation Conference: Convene a preinstallation meeting one week before starting work of this section; require attendance by all relevant installers. Agenda items will include field conditions, substrate conditions, coordination of shop applied primers with finish coatings, application methods, and field quality control testing and inspection.
 1. Bring copies of reviewed color draw-downs for all required colors.

1.06 QUALITY ASSURANCE

- A. Master Painters Institute (MPI) Standards:
 1. Preparation and Workmanship: Comply with requirements in MPI (APSM) - "Master Painters Institute Architectural Painting Specification Manual" for products and coating systems indicated.
- B. Surface Preparation: Obtain written confirmation of the specific surface preparation procedures and primers used for all fabricated steel items from the fabricator(s) to ascertain appropriate and manufacturer compatible finish coat materials to be used before painting any such work.
- C. Comply with requirements of SSPC-PA 2 for measurement of coating thickness.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of coating, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Coating Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.08 FIELD CONDITIONS

- A. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- B. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the coating product manufacturer.
- C. Do not install materials when temperature is below 55 degrees F or above 90 degrees F.
- D. Maintain this temperature range, 24 hours before, during, and 72 hours after installation of coating.
- E. Provide lighting level of 80 ft candles measured mid-height at substrate surface.
- F. Restrict traffic from area where coating is being applied or is curing.
- G. Lead Paint: Lead paint is present in buildings and structures to be painted. A report on the presence of lead paint is on file for review and use. Examine report to become aware of locations where lead paint is present.
 1. Do not disturb lead paint or items suspected of containing hazardous materials except under procedures specified.
 2. Perform preparation for painting of substrates known to include lead paint in accordance with Section 02 83 13 - Lead Handling Procedures.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Products: Provide one of the products listed in Part 2.
- B. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in Part 2:
 - 1. Carboline Company (Carboline)
 - 2. Corotech (Corotech)
 - 3. Kelly-Moore Paints (Kelly).
 - 4. Miller Paint Co. (Miller).
 - 5. Benjamin Moore & Co. (Moore).
 - 6. PPG Industries, Inc. (PPG).
 - 7. Precision Coatings, Inc. (PCI)
 - 8. Rodda Paint / Cloverdale Paint Co. (Rodda).
 - 9. Sherwin-Williams Co. (S-W).
 - 10. Tnemec Company, Inc. (Tnemec).
- C. Substitutions: Not permitted.

2.02 MATERIALS

- A. Coatings - General: Provide complete multi-coat systems formulated and recommended by manufacturer for the applications indicated, in the thicknesses indicated.
 - 1. For shop primed items, omit specified primer if shop primer is compatible with finish coats and in good condition as determined by finish coating manufacturer.
- B. Material Compatibility: Provide materials for use within each coating system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
- C. Volatile Organic Compound (VOC) Content:
 - 1. All paints and coating wet applied on site must meet the applicable limits of the SCAQMD 1113. VOC shall not exceed the limits indicated below:
 - a. Rust Preventative Coatings/Industrial Maintenance Coatings: 100 g/L.
- D. Colors: As indicated on Finish Legend.

2.03 ACCESSORY MATERIALS

- A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of coated surfaces.

2.04 EXTERIOR HIGH-PERFORMANCE COATING SCHEDULE

- A. Ferrous Metal: Provide the following finish systems over exterior ferrous metal. Primer is not required on appropriately shop-primed items.
 - 1. Semi-Gloss, Two-Component, Pigmented Aliphatic Acrylic Polyurethane: One finish coat, over intermediate coat and metal primer with total dry film thickness not less than 6.5 mils, unless noted otherwise.
 - a. Prime: Manufacturer's recommended metal primer.
 - 1) Carboline: Carbozinc 859.
 - 2) Corotech: Zinc Rich Primer V170.
 - 3) Kelly: K-M 15 Chemical Mastic High Build Epoxy.
 - 4) Miller: PPG 95-242/249 Pitt-Guard Rapid Coat D-T-R Primer or 97-699 Durethane MCZ.
 - 5) Moore: Zinc Rich Primer V170.
 - 6) PPG: 95-242/249 Pitt-Guard Rapid Coat D-T-R Primer or 97-699 Durethane MCZ.
 - 7) Rodda: Precision Coatings DTM 1300v100 HB Epoxy Primer.
 - 8) S-W: Zinc Clad III HS (B59-100).
 - 9) Tnemec: Series 394 PerimePrime at 2.5 to 3.5 mils.

- b. Intermediate Coat:
 - 1) Carboline: Carboguard 890 High Build Epoxy.
 - 2) Corotech: Polyamide Epoxy V400.
 - 3) Kelly: K-M 15 Chemical Mastic High Build Epoxy.
 - 4) Miller: PPG 97-130 Series Aquapon High Build Semi-Gloss Epoxy.
 - 5) Moore: Polyamide Epoxy V400.
 - 6) PPG: 97-130 Series Aquapon High Build Semi-Gloss Epoxy.
 - 7) Rodda: Precision Coatings DTM 1300v100 HB Epoxy Primer.
 - 8) S-W: Macropoxy 646 FC Epoxy (B58-600).
 - 9) Tnemec: Series 27 Typoxy WB at 3 to 5 mils.
 - c. Finish Coat:
 - 1) Carboline: Carbothane 133 VOC at 3 to 4 mils.
 - 2) Corotech: Aliphatic Acrylic Urethane SG V510.
 - 3) Kelly: K-M 375 High Build Gloss Polyurethane Enamel.
 - 4) Miller: PPG 95-812 Series Pitthane Ultra Gloss Enamel.
 - 5) Moore: Aliphatic Acrylic Urethane SG V510.
 - 6) PPG: 95-812 Series Pitthane Ultra Gloss Enamel.
 - 7) Rodda: Precision Coatings PC3v100 Acrylic Polyurethane Semi-Gloss.
 - 8) S-W: Hi-Solids Polyurethane S/G (B65-350).
 - 9) Tnemec: Series 750 Endura-Shield at 2 to 3 mils.
 - d. Topcoats: Manufacturer's recommended clear topcoat, if any, as required to assure colorfastness of final coating system.
- B. Zinc-Coated Metal: Provide the following finish systems over exterior zinc-coated (galvanized) metal surfaces:
- 1. Semi-Gloss, Two-Component, Pigmented Aliphatic Acrylic Polyurethane: One finish coat, over intermediate coat and metal primer with total dry film thickness not less than 6.5 mils, unless noted otherwise.
 - a. Prime: Manufacturer's recommended metal primer.
 - 1) Carboline: Galoseal WB at 0.5 to 1.0 mils DFT.
 - 2) Corotech: Polyamide Epoxy Coating V400 at 2.5 to 3.0 mils.
 - 3) Kelly: K-M 15 Chemical Mastic High Build Epoxy.
 - 4) Miller: PPG 97-145 Series Pitt-Guard D-T-R Polyamide Epoxy
 - 5) Moore: Polyamide Epoxy Coating V400 at 2.5 to 3.0 mils.
 - 6) PPG: 97-145 Series Pitt-Guard D-T-R Polyamide Epoxy.
 - 7) Rodda: Precision Coatings DTM 1300v100 HB Epoxy Primer.
 - 8) S-W: Macropoxy 646 FC Epoxy (B58-600).
 - 9) Tnemec: Series 27 Typoxy WB at 2 to 2.5 mils.
 - b. Intermediate Coat:
 - 1) Carboline: None required.
 - 2) Corotech: Aliphatic Urethane Semi-Gloss V510.
 - 3) Kelly: K-M 15 Chemical Mastic High Build Epoxy.
 - 4) Miller: PPG 95-8800 Series Pitthane High Build Semi-Gloss Urethane.
 - 5) Moore: Aliphatic Urethane Semi-Gloss V510.
 - 6) PPG: 95-8800 Series Pitthane High Build Semi-Gloss Urethane.
 - 7) Rodda: None required.
 - 8) S-W: None required.
 - 9) Tnemec: None required.
 - c. Finish Coat:
 - 1) Carboline: Carbothane 133 VOC at 3 to 4 mils.
 - 2) Corotech: Aliphatic Urethane Semi-Gloss V510.
 - 3) Kelly: K-M 375 High Build Gloss Polyurethane Enamel.
 - 4) Miller: PPG 95-8800 Pitthane High Build Semi-Gloss Urethane.
 - 5) Moore: Aliphatic Urethane Semi-Gloss V510.

- 6) PPG: 95-8800 Pitthane High Build Semi-Gloss Urethane.
- 7) Rodda: Precision Coatings PC3v100 Acrylic Polyurethane Semi-Gloss.
- 8) S-W: Hi-Solids Polyurethane S/G (B65-350).
- 9) Tnemec: Series 750 Endura-Shield at 2 to 2.5 mils.
- d. Topcoats: Manufacturer's recommended clear topcoat, if any, as required to assure colorfastness of final coating system.
 - 1) S-W: DiamondClad Clear B65T105 1 to 2 mils.
- C. Metallic Acrylic Polyurethane: One or two finish coats, as required for full coverage, over metal primer with total dry film thickness not less than 6 mils, unless noted otherwise:
 - 1. Primer:
 - a. PCI: Precision DTM 1300v100 Series at 2 to 6 mils.
 - b. Tnemec: Series 27 FC Typoxy at 2 to 2.5 mils.
 - 2. Finish Coat(s):
 - a. PCI: PC3v100 at 1 to 3 mils.
 - b. Tnemec: Series 1077 Enduralume at 2 to 2.5 mils.

2.05 INTERIOR HIGH-PERFORMANCE COATING SCHEDULE

- A. Ferrous Metal: Provide the following finish systems over interior ferrous metal. Primer is not required on appropriately shop-primed items.
 - 1. Semi-Gloss, Two-Component, VOC Compliant or Waterborne Pigmented Aliphatic Acrylic Polyurethane: One or two finish coats, of two-component, aliphatic acrylic polyurethane coating, over metal primer with total dry film thickness not less than 6.0 mils, unless noted otherwise.
 - a. 1st Coat:
 - 1) Carboline: Carbocrylic 3358 at 2.0 - 3.0 mils DFT.
 - 2) Corotech: Acrylic Metal Primer V100.
 - 3) Miller: PPG Aquapon WB Waterborne Epoxy Primer 98-46.
 - 4) Moore: P04 Acrylic Metal Primer.
 - 5) PPG: PPG Aquapon WB Waterborne Epoxy Primer 98-46.
 - 6) Rodda: Precision Coatings DTM 1300v100 HB Epoxy Primer.
 - 7) S-W: Waterbased Tile Clad Epoxy Primer at 2 - 4 mils DFT.
 - 8) Tnemec: Series 27 Typoxy WB at 2 mils DFT.
 - b. 2nd Coat:
 - 1) Carboline: Carbothane 134 WB.
 - 2) Corotech: Waterborne Urethane V540 <50 g/L.
 - 3) Miller: PPG Amersshield VOC.
 - 4) Moore: Waterborne Aliphatic Acrylic Urethane V540.
 - 5) PPG: Amersshield VOC.
 - 6) Rodda: Precision Coatings PC3v100 Acrylic Polyurethane Semi-Gloss.
 - 7) S-W: Waterbased Acrolon 100 Polyurethane at 2 - 4 mils DFT.
 - 8) Tnemec: Series 750 Endura Shield.
 - c. 3rd Coat:
 - 1) Carboline: Carbothane 134 WB.
 - 2) Corotech: Waterborne Urethane V540 <50 g/L.
 - 3) Miller: PPG Amersshield VOC.
 - 4) Moore: Waterborne Aliphatic Acrylic Urethane V540.
 - 5) PPG: Amersshield VOC.
 - 6) Rodda: Precision Coatings PC3v100 Acrylic Polyurethane Semi-Gloss.
 - 7) S-W: Waterbased Acrolon 100 Polyurethane at 2 - 4 mils DFT.
 - 8) Tnemec: Not required.
 - 2. Metallic Acrylic Polyurethane: One or two finish coats, as required for full coverage, over metal primer with total dry film thickness not less than 6 mils, unless noted otherwise:
 - a. Primer:
 - 1) PCI: Precision DTM 1300v100 Series at 2 to 6 mils.

- 2) Tnemec: Series 27 FC Typoxy at 2 to 2.5 mils.
- b. Finish Coat(s):
 - 1) PCI: PC3v100 at 1 to 3 mils.
 - 2) Tnemec: Series 1077 Enduralume at 2 to 2.5 mils.
- B. Zinc-Coated Metal: Provide the following finish systems over zinc-coated metal:
 - 1. Semi-Gloss, Two-Component, VOC Compliant or Waterborne Pigmented Aliphatic Acrylic Polyurethane: Two finish coats, of two-component, aliphatic acrylic polyurethane coating, over metal primer with total dry film thickness not less than 6.0 mils, unless noted otherwise.
 - a. 1st Coat:
 - 1) Carboline: Galoseal WB at 0.5 to 1.0 mils DFT.
 - 2) Corotech: Polyamide Epoxy Coating V400 at 2.5 to 3.0 mils.
 - 3) Miller: PPG Aquapon WB Waterborne Epoxy Primer 98-46.
 - 4) Moore: P04 Acrylic Metal Primer.
 - 5) PPG: PPG Aquapon WB Waterborne Epoxy Primer 98-46.
 - 6) Rodda: Precision Coatings DTM 1300v100 HB Epoxy Primer.
 - 7) S-W: Waterbased Tile Clad Epoxy Primer at 2 - 4 mils DFT.
 - 8) Tnemec: Series 27 Typoxy WB at 2 mils DFT.
 - b. 2nd Coat:
 - 1) Carboline: Carbothane 134 WB.
 - 2) Corotech: Waterborne Urethane V540 <50 g/L.
 - 3) Miller: PPG Amersshield VOC.
 - 4) Moore: Waterborne Aliphatic Acrylic Urethane V540.
 - 5) PPG: Amersshield VOC.
 - 6) Rodda: Precision Coatings PC3v100 Acrylic Polyurethane Semi-Gloss.
 - 7) S-W: Waterbased Acrolon 100 Polyurethane at 2 - 4 mils DFT.
 - 8) Tnemec: Series 750 Endura Shield.
 - c. 3rd Coat:
 - 1) Carboline: Carbothane 134 WB.
 - 2) Corotech: Waterborne Urethane V540 <50g/L.
 - 3) Miller: PPG Amersshield VOC.
 - 4) Moore: Waterborne Aliphatic Acrylic Urethane V540.
 - 5) PPG: Amersshield VOC.
 - 6) Rodda: Precision Coatings PC3v100 Acrylic Polyurethane Semi-Gloss.
 - 7) S-W: Waterbased Acrolon 100 Polyurethane at 2 - 4 mils DFT.
 - 8) Tnemec: Not required.
 - 2. Metallic Acrylic Polyurethane: One or two finish coats, as required for full coverage, over metal primer with total dry film thickness not less than 6 mils, unless noted otherwise:
 - a. Primer:
 - 1) PCI: Precision DTM 1300v100 Series at 2 to 6 mils.
 - 2) Tnemec: Series 27 FC Typoxy at 2 to 2.5 mils.
 - b. Finish Coat(s):
 - 1) PCI: PC3v100 at 1 to 3 mils.
 - 2) Tnemec: Series 1077 Enduralume at 2 to 2.5 mils.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Do not begin application of coatings until substrates have been properly prepared.
- C. Verify that substrate surfaces are ready to receive work as instructed by the coating manufacturer. Obtain and follow manufacturer's instructions for examination and testing of substrates.

- D. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- E. Test shop-applied primer for compatibility with subsequent cover materials.
- F. Proceed with coating application only after unacceptable conditions have been corrected.
 - 1. Commencing coating application constitutes Contractor's acceptance of substrates and conditions.

3.02 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in MPI (APSM) applicable to substrates indicated.
- B. Remove plates, machined surfaces, and similar items already in place that are not to be coated. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and coating.
 - 1. After completing coating operations, reinstall items that were removed; use workers skilled in the trades involved.
- C. Clean substrates of substances that could impair bond of coatings, including dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers as required to produce coating systems indicated.
 - 2. At interior steel abrade the top layer of primer, unless otherwise required by coating manufacturer.
 - 3. At exterior steel, provide surface preparation equivalent to SSPC-SP 6 "Commercial Blast Cleaning."
- D. Steel Substrates: Remove rust and loose mill scale.
 - 1. Prepare interior surfaces as recommended by coating system manufacturer and according to SSPC-SP 3 "Power Tool Cleaning."
 - 2. Blast steel surfaces clean as recommended by coating system manufacturer and according to SSPC-SP 6 "Commercial Blast Cleaning," unless otherwise recommended by manufacturer.
 - 3. Level of surface preparation specified is a minimum. If the coating manufacturer requires a higher degree of preparation, comply with the coating manufacturer's recommendations.
- E. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied coatings.
- F. Remove finish hardware, fixture covers, and accessories and store.
- G. Protect adjacent surfaces and materials not receiving coating from spatter and overspray; mask if necessary to provide adequate protection. Repair damage.

3.03 PRIMING

- A. Apply primer to unprimed surfaces, unless specifically not required by coating manufacturer. Apply in accordance with coating manufacturer's instructions.

3.04 COATING APPLICATION

- A. Apply coatings in accordance with manufacturer's written instructions, to thicknesses specified. Use applicators and techniques suited to coating and substrate indicated.
 - 1. Apply Metallic Acrylic Polyurethane with spray equipment.
- B. Apply in uniform thickness coats, without runs, drips, pinholes, brush marks, or variations in color, texture, or finish. Finish edges, crevices, corners, and other changes in dimension with full coating thickness.
- C. If undercoats or other conditions show through final coat, apply additional coats until cured film has a uniform coating finish, color and appearance.

- D. When the color of a door frame changes from side to side, the change shall be made at the edge of the stop, where the transition is not visible when the door is in a closed position.

3.05 FIELD QUALITY CONTROL

- A. Painted surfaces shall be considered to lack uniformity and soundness if any of the following defects are apparent to Architect.
 - 1. Brush/roller marks, streaks, laps, runs, sags, drips, heavy stippling, hiding or shadowing by inefficient application methods, skipped or missed areas, or foreign materials in paint coatings.
 - 2. Evidence of poor coverage at rivet heads, plate edges, lap joints, crevices, pockets, corners, reentrant angles or similar conditions.
 - 3. Damage due to touching before paint is sufficiently dry or any other contributory cause.
 - 4. Damage due to application on moist surfaces or caused by inadequate protection from the weather.
 - 5. Damage and/or contamination of paint due to blown contaminants (dust, spray paint, etc.).
- B. Painted surfaces shall be considered unacceptable if any of the following are evident under natural lighting source for exterior surfaces:
 - 1. Visible defects are evident on vertical or horizontal surfaces when viewed at normal viewing angles from a distance of not less than 39 inches.
 - 2. Visible defects are evident on ceilings, soffits and other overhead surfaces when viewed at normal viewing angles.
 - 3. When the final coat on any surface exhibits a lack of uniformity of color, sheen texture and hiding across full surface area.
 - 4. Dry mil thicknesses do not meet manufacturer's recommended thickness or specified thickness.
 - 5. Lack of adhesion. Test surfaces indicating lack of adhesion in accordance with ASTM D3359 or as recommended by coating manufacturer.
- C. Owner may provide field inspection and testing.
 - 1. Painted surfaces will be tested for dry mil thickness for each coat.
 - 2. Shop primers and painted surfaces will be tested for adhesion.
 - 3. Surfaces will be tested at frequency discussed in the preinstallation conference and as deemed appropriate by Owner.
- D. Touch-up and restore painted surfaces damaged by testing.
 - 1. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.06 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.
- B. Clean surfaces immediately of overspray, splatter, and excess material.
- C. Protect work of other trades against damage from coating operation. Correct damage by cleaning, repairing, replacing, and recoating, as approved by Architect, and leave in an undamaged condition.
- D. After coating has cured, clean and replace finish hardware, fixtures, and fittings previously removed.
- E. At completion of construction activities of other trades, touch up and restore damaged or defaced coated surfaces.

3.07 PROTECTION

- A. Protect finished work from damage.

3.08 EXTERIOR SCHEDULE

- A. Steel: Semigloss, Two-Component, Pigmented Aliphatic Acrylic Polyurethane:
 - 1. Pipe downspouts.
 - 2. Hollow metal doors and frames.

3.09 INTERIOR SCHEDULE

- A. Steel: Semigloss, Two-Component, Pigmented Aliphatic Acrylic Polyurethane:
 - 1. Hollow metal frames.

END OF SECTION