
SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES**PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. Performance criteria for gypsum board assemblies.
- B. Shaft wall system.
- C. Fire rated area separation walls.
- D. Acoustic insulation.
- E. Gypsum sheathing.
- F. Gypsum wallboard.
- G. Glass mat faced gypsum board.
- H. Moisture and mold resistant wallboard.
- I. Joint treatment and accessories.
- J. Impact-Resistant wallboard.

1.2 RELATED REQUIREMENTS**1.3 REFERENCE STANDARDS**

- A. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
- B. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
- C. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board.
- D. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
- E. ASTM C1280 - Standard Specification for Application of Gypsum Sheathing.
- F. ASTM C1396/C1396M - Standard Specification for Gypsum Board.
- G. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
- H. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- I. ASTM E413 - Classification for Rating Sound Insulation.
- J. GA-216 - Application and Finishing of Gypsum Board; Gypsum Association.
- K. GA-226 - Application of Gypsum Board to Form Curved Surfaces; Gypsum Association.

1.4 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate special details associated with fireproofing and acoustic seals.
- C. Product Data: Provide data on gypsum board, glass mat faced gypsum board, accessories, and joint finishing system.

- D. LEED Report: Accurately document the use of recycled materials and local/regional materials, as required by Section 01 35 14, Section 01 35 15, Section 01 35 16 and appropriate forms.
- E. LEED Submittals: Provide documentation of VOC content in g/L for adhesives and acoustical sealants applied within the building waterproofing envelope; comply with VOC limits of Section 01 61 16.
- F. Submit drawings indicating proposed location of control joints for Architect's review; locations to be approved by Architect and may be adjusted for aesthetic reasons.

1.5 QUALITY ASSURANCE

- A. Maintain one copy of all installation standards at project site.
- B. Perform in accordance with ASTM C 840. Comply with requirements of GA-600 for fire-rated assemblies.
 - 1. Maintain one copy of standards at project site.

PART 2 PRODUCTS

2.1 GYPSUM BOARD ASSEMBLIES

- A. Provide completed assemblies complying with ASTM C840 and GA-216.
- B. Shaft Walls at HVAC Shafts: Provide completed assemblies with the following characteristics:
 - 1. Air Pressure Within Shaft: Sustained loads of 5 lbf/sq ft with maximum mid-span deflection of L/240.
 - 2. Acoustic Attenuation: STC of 35-39 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.
- C. Fire Rated Assemblies: Provide completed assemblies identical to those tested in assembly indicated.
- D. Recycled Content: Provide regular type gypsum panel products with minimum 80 percent recycled content, including recycled content face paper; provide Type X with minimum 10 percent recycled content.
- E. Regional Materials: Provide gypsum board manufactured and of primary raw materials extracted or recovered within 500 miles of Project Site.

2.2 BOARD MATERIALS

- A. Manufacturers - Gypsum-Based Board:
 - 1. CertainTeed Corporation: www.certainteed.com.
 - 2. Georgia-Pacific Gypsum LLC: www.gp.com/gypsum.
 - 3. Lafarge North America: www.lafarge.com.
 - 4. National Gypsum Company: www.nationalgypsum.com.
 - 5. USG Corporation: www.usg.com.
- B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
 - 1. Regular Type:
 - a. Application: Use for vertical surfaces, unless otherwise indicated.
 - b. Edges: Tapered.
 - 2. Fire Resistant Type: Complying with Type X requirements; UL or WH rated.

- a. At Assemblies Indicated with Fire-Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X.
- b. Edges: Tapered.
3. Ceiling Board: Special sag-resistant type.
 - a. Application: Ceilings, except areas with showers or otherwise indicated.
 - b. Thickness: 1/2 inch.
 - c. Edges: Tapered.
- C. Impact-Resistant Gypsum Board: ASTM C36; gypsum wall board with additives to enhance impact resistance of the core and indentation resistance to the surface, and surfaced with abrasion resistant paper on front and long edges with heavy liner paper bonded to back side.
 1. Location: Where Drawings indicate impact-resistant gypsum wallboard.
 2. Type: Type X where required for fire-resistance-rated assemblies.
 3. Thickness: 5/8-inch.
 4. Edges: Tapered.
 5. Performance Properties:
 - a. Surface Abrasion: 0.284-inch, when tested according to ASTM D 4977 with 25 lb added weight, 50 abrasion cycles.
 - b. Surface Indentation: Less than 0.200-inch, when tested according to ASTM D 5420 with 72 inch-lb drop energy.
 - c. Soft Body Impact: When tested according to ASTM E 695:
 - 1) Surface Failure: 150 ft-lb.
 - 2) Structural Failure: 210 ft-lb.
 - d. Hard Body Impact: When tested according to swinging ram apparatus, 85 ft-lb.
 6. Acceptable Product: Hi-Impact XP Gypsum Board with fiberglass mesh; National Gypsum
 7. Contractor Option: Fiberock AR; United States Gypsum Company.
- D. Moisture and Mold Resistant Wallboard: Wallboard installed at building perimeter, and any wallboard furred to concrete or masonry construction.
 1. Characteristics:
 - a. ASTM C 1396 (Section 5) regular type except where Type X fire-resistant type is indicated or required by to meet UL assembly types.
 - b. Edges: Tapered.
 - c. Resists the growth of mold when tested, as manufactured, according to ASTM D 3273.
 2. Available Products:
 - a. SHEETROCK® Brand Mold Tough® Gypsum Panels by USG.
 - b. Gold Bond® BRAND XP® Wallboard by National Gypsum.
 - c. Mold Defense Products by LaFarge.

2.3 FIBERGLASS REINFORCED BOARD MATERIALS

- A. Glass Mat Gypsum Board: Gypsum panels with moisture-resistant core and coated inorganic fiberglass mat back surface designed to resist growth of mold and mildew, per ASTM D 3273.
 1. Glass Mat Board: Comply with performance requirements of ASTM C 1396/C 1396M for water-resistant gypsum backing board and ASTM C 1177/C 1177M for sheathing; tapered long edges.
 2. Application: High-humidity or wet locations; walls or ceilings; high-humidity or wet locations include kitchen areas and adjacent service areas, areas with showers, janitor

basins, gang toilets, mechanical penthouses and mechanical spaces with steam, hot water or condensation generating equipment.

- a. Available Products:
 - 1) DensArmor Plus Interior Guard by G-P Gypsum.
 - 2) EXP Extreme by National Gypsum.
 3. Application: Sheathing.
 - a. Basis-of-Design: Dens-Glass Gold Exterior Guard by G-P Gypsum; Type X.
 - b. Other Available Product: CertainTeed GlasRoc Brand Sheathing; Type X.
 4. Application: Shaftwall.
 - a. Basis-of-Design: Dens-Glass Ultra Shaft Guard by G-P Gypsum.
 - b. Contractor Option: The contractor may provide the following instead of Basis-of-Design Product.
 - 1) Fire-Shield Shaftliner XP panels by National Gypsum.
 - 2) Sheetrock Brand Gypsum Liner Panels Mold Tough by USG.
- B. Sheathing Joint and Penetration Treatment:
1. Silicone Emulsion Sealant: ASTM C 834, compatible with sheathing tape and sheathing, recommended by tape and sheathing manufacturers for use with glass-fiber sheathing tape and for covering exposed fasteners.

2.4 ACCESSORIES

- A. Acoustic Insulation: ASTM C665; preformed glass fiber, friction fit type, unfaced.
- B. Acoustic Sealant: Non-hardening, non-skinning, for use in conjunction with gypsum board.
 1. Comply with low-emitting requirements specified in Section 01 61 16.
- C. Finishing Accessories: ASTM C1047, galvanized steel or plastic paper-faced, unless otherwise indicated.
 1. Types: As detailed or required for finished appearance.
 2. Available products include the following:
 - a. Grabber Construction Products: No-Coat Prefinished Corners.
 - b. US Gypsum Company; Beadex Paper-Faced Metal Drywall Bead and Trim.
- D. Beads, Joint Accessories, and Other Trim: ASTM C1047, galvanized steel or rolled zinc, unless noted otherwise.
 1. Architectural Reveal Beads:
 - a. Reveal Depth: 1/2 inch.
 - b. Reveal Width: 3/4 inch.
 - c. Shapes: As shown on drawings.
- E. Joint Materials: ASTM C475 and as recommended by gypsum board manufacturer for project conditions.
 1. Joint Tape: Paper for interior applications; 10-by-10 glass mesh for exterior locations and glass mat gypsum wallboard; 2 inch wide.
 2. Ready-mixed vinyl-based joint compound.
- F. High Build Drywall Surfacers: Vinyl acrylic latex-based coating for spray application, designed to take the place of skim coating and separate paint primer in achieving Level 5 finish.
- G. Screws: ASTM C 1002; self-piercing tapping type; cadmium-plated for exterior locations.
- H. Adhesives Applied within the Building Waterproofing Envelope: Comply with low-emitting requirements specified in Section 01 61 16.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that project conditions are appropriate for work of this section to commence.

3.2 SHAFT WALL INSTALLATION

- A. Shaft Wall Framing: Install in accordance with manufacturer's installation instructions.
 - 1. Install studs at spacing required to meet performance requirements.
- B. Shaft Wall Liner: Cut panels to accurate dimension and install sequentially between special friction studs.

3.3 ACOUSTIC ACCESSORIES INSTALLATION

- A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
- B. Acoustic Sealant: Install in accordance with manufacturer's instructions.

3.4 BOARD AND GLASS MAT FACED BOARD INSTALLATION

- A. Comply with ASTM C 840 and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Single-Layer Non-Rated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.
 - 1. Exception: Tapered edges to receive joint treatment at right angles to framing.
- 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. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.
- E. Exterior Sheathing: Comply with ASTM C1280. Install sheathing vertically, with edges butted tight and ends occurring over firm bearing.
 - 1. Cut boards at penetrations, edges, and other obstructions of work; fit tightly against abutting construction, unless otherwise indicated.
 - a. Install boards with a 3/8-inch setback where non-load-bearing construction abuts structural elements.
 - b. Install boards with a 1/4-inch setback where they abut masonry or similar materials that might retain moisture, to prevent wicking.
 - 2. Coordinate sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed exterior wall assembly.
 - 3. Apply fasteners so screw heads bear tightly against face of sheathing boards but do not cut into facing.
 - 4. Do not bridge building expansion joints with sheathing; cut and space edges to match spacing of structural support elements.
 - 5. Screw-attach boards at perimeter and within field of board to each steel stud; space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of boards.

6. Seal sheathing joints according to sheathing manufacturer's written recommendations.
 - a. Apply glass-fiber sheathing tape to glass-mat gypsum sheathing board joints, and apply and trowel silicone emulsion sealant to embed sealant in entire face of tape.
 - b. Apply sealant to exposed fasteners with a trowel so fasteners are completely covered.
 - c. Seal other penetrations and openings.
- F. Exterior Soffit Board: Install perpendicular to framing, with staggered end joints over framing members or other solid backing.
 1. Install with 1/4-inch open space where panels abut other construction or structural penetrations.
 2. Fasten with corrosion-resistant screws.
 3. Apply glass-fiber tape to glass mat faced gypsum board joints, and apply and trowel silicone emulsion sealant to embed sealant in entire face of tape.
 4. Apply sealant to exposed fasteners with a trowel so fasteners are completely covered.
 5. Seal other penetrations and openings.
 6. Prepare for specified finish according to manufacturer's instructions.
- G. Glass Mat Faced Gypsum Board: Install in strict accordance with manufacturer's instructions.
- H. Installation on Metal Framing: Use screws for attachment of all gypsum board except face layer of non-rated double-layer assemblies, which may be installed by means of adhesive lamination.
- I. Curved Surfaces: Apply gypsum board to curved substrates in accordance with GA-226.

3.5 INSTALLATION OF TRIM AND ACCESSORIES

- A. Control Joints: Place control joints consistent with lines of building spaces and as follows:
 1. Not more than 30 feet apart on walls and ceilings over 50 feet long.
 2. At exterior soffits, not more than 30 feet apart in both directions.
- 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.

3.6 JOINT TREATMENT

- A. 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.
- B. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
 1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
 2. Level 5: Walls and ceilings to receive semi-gloss or gloss paint finish and other areas specifically indicated.
 3. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish.
 4. Level 1: Wall areas above finished ceilings, whether or not accessible in the completed construction.
 5. Level 0: Temporary partitions and surfaces indicated to be finished in later stage of project.
- C. 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.

- D. Where Level 5 finish is indicated, spray apply high build drywall surfacer over entire surface after joints have been properly treated; achieve a flat and tool mark-free finish.

3.7 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 22 16 - NON-STRUCTURAL METAL FRAMING**PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. Metal partition, ceiling, and soffit framing.
- B. Framing accessories.

1.2 REFERENCE STANDARDS

- A. AISI SG02-1 - North American Specification for the Design of Cold-Formed Steel Structural Members; American Iron and Steel Institute. (replaced SG-971)
- B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- C. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members.
- D. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
- E. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
- F. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
- G. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings.

1.3 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings:
 - 1. Indicate prefabricated work, component details, stud layout, framed openings, anchorage to structure, acoustic details, type and location of fasteners, accessories, and items of other related work.
 - 2. Describe method for securing studs to tracks, splicing, and for blocking and reinforcement of framing connections.
- C. Product Data: Provide data describing framing member materials and finish, product criteria, load charts, limitations, and head to structure connectors, showing compliance with requirements.
- D. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.
- E. LEED Report: Accurately document the use of recycled materials and local/regional materials, as required by Section 01 35 14, Section 01 35 15, Section 01 35 16 and appropriate forms.
- F. LEED Submittals: Provide documentation of VOC content in g/L for acoustical sealant applied within the building waterproofing envelope; comply with VOC limits of Section 01 61 16.

1.4 PROJECT CONDITIONS

- A. Coordinate the placement of components to be installed within stud framing system.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Metal Framing, Connectors, and Accessories:
 - 1. Clarkwestern Dietrich Building Systems LLC: www.clarkdeitrich.com.
 - 2. Marino: www.marinoware.com.
- B. Slip-Type Head Joints:
 - 1. Steel Network Inc. (The); VertiClip SLD or VertiTrack VTD Series.
 - 2. Superior Metal Trim; Superior Flex Track System (SFT).
 - 3. Dietrich Metal Framing; Fast Top Clip.
- C. Firestop Tracks:
 - 1. Fire Trak Corp.; Fire Trak attached to studs with Fire Trak Slip Clip.
 - 2. Metal-Lite, Inc.; The System.
 - 3. Clark Western; Brady's Sliptrack within UL assembly.
 - 4. Dietrich Metal Framing; SLP-TRK within UL assembly.
- D. Metal Back-up Plates:
 - 1. Metal Lite, Inc., Anaheim, CA.
- E. Grid Suspension System for Gypsum Board Ceilings and Bulkheads:
 - 1. Armstrong World Industries, Inc.; Drywall Grid Systems.
 - 2. Chicago Metallic Corporation; Drywall Furring System.
 - 3. USG Corporation; Drywall Suspension System.
- F. Regional Materials: Provide steel framing and grid manufactured and of primary raw materials extracted or recovered within 500 miles of Project Site.

2.2 FRAMING MATERIALS

- A. Recycled Content: Provide steel metal framing and grid with minimum 30 percent recycled content, including at least 25 percent post-consumer recycled content.
- B. Non-Loadbearing Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 5 psf.
 - 1. Studs: C shaped with flat or formed webs with knurled faces.
 - a. Typical: Minimum 0.0283 inch, 22 gage (27 mil) except when reference standard states a more stringent requirement.
 - b. At door and glazed opening jambs, and framing supporting ceramic tile: Minimum 0.0312 inch, 20 gage (30 mil) except when reference standard states a more stringent requirement.
 - c. Note: The Architect will accept "Effective Thickness" listed UltraSTEEL Framing, with independent test data.
 - 2. Runners: U shaped, sized to match studs.
 - 3. Ceiling Channels: C shaped.
 - 4. Furring: Hat-shaped sections, minimum depth of 7/8 inch.
- C. Loadbearing Studs: As specified in Section 05 40 00.
- D. Ceiling Hangers: Type and size as specified in ASTM C754 for spacing required.

- E. Partition Head to Structure Connections: Provide mechanical anchorage devices that accommodate deflection using slotted holes, screws and anti-friction bushings, preventing rotation of studs while maintaining structural performance of partition.
 - 1. Structural Performance: Maintain lateral load resistance and vertical movement capacity required by applicable code, when evaluated in accordance with AISI North American Specification for the Design of Cold-Formed Steel Structural Members.
 - 2. Material: ASTM A653/A653M steel sheet, SS Grade 50, with G60/Z180 hot dipped galvanized coating.
 - 3. Provide components UL-listed for use in UL-listed fire-rated head of partition joint systems indicated on drawings.
 - 4. Provide top track preassembled with connection devices spaced to fit stud spacing indicated on drawings; minimum track length of 12 feet.
- F. Tracks and Runners: Same material and thickness as studs, bent leg retainer notched to receive studs .
- G. Furring and Bracing Members: Of same material as studs; thickness to suit purpose; complying with applicable requirements of ASTM C754.
- H. Fasteners: ASTM C1002 self-piercing tapping screws.
- I. Sheet Metal Backing: 0.036 inch thick, galvanized.
- J. Anchorage Devices: Power actuated.
- K. Acoustic Insulation: ASTM C665; preformed glass fiber, friction fit type, unfaced.
- L. Acoustic Sealant: Non-hardening, non-skinning, for use in conjunction with gypsum board.
 - 1. Comply with low-emitting requirements specified in Section 01 61 16.
- M. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic.

2.3 FABRICATION

- A. Fabricate assemblies of framed sections to sizes and profiles required.
- B. Fit, reinforce, and brace framing members to suit design requirements.

PART 3 EXECUTION

3.1 INSTALLATION OF STUD FRAMING

- A. Comply with requirements of ASTM C754.
- B. Extend partition framing to structure where indicated and to ceiling in other locations.
- C. Partitions Terminating at Ceiling: Attach ceiling runner securely to ceiling track in accordance with manufacturer's instructions.
- D. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.
- E. Align and secure top and bottom runners at 24 inches on center.
- F. Place one bead of acoustic sealant between runners and substrate, studs and adjacent construction.
- G. Fit runners under and above openings; secure intermediate studs to same spacing as wall studs.

- H. Install studs vertically at spacing indicated on drawings.
- I. Align stud web openings horizontally.
- J. Secure studs to tracks using crimping method. Do not weld.
- K. Stud splicing is not permissible.
- L. Fabricate corners using a minimum of three studs.
- M. Double stud at wall openings, door and window jambs, not more than 2 inches from each side of openings.
- N. Coordinate erection of studs with requirements of door frames; install supports and attachments.
- O. Coordinate installation of bucks, anchors, and blocking with electrical, mechanical, and other work to be placed within or behind stud framing.
- P. Provide metal backup plates as required to accommodate the wall hung casework, millwork, railings or other items mounted to metal stud and wallboard walls and partitions; provide plates up to 8 feet in length as one-piece units.

3.2 CEILING AND SOFFIT FRAMING

- A. Install furring after work above ceiling or soffit is complete. Coordinate the location of hangers with other work.
- B. Install furring independent of walls, columns, and above-ceiling work.
- C. Securely anchor hangers to structural members or embed in structural slab. Space hangers as required to limit deflection to criteria indicated. Use rigid hangers at exterior soffits.
- D. Space main carrying channels at maximum 72 inch on center, and not more than 6 inches from wall surfaces. Lap splice securely.
- E. Securely fix carrying channels to hangers to prevent turning or twisting and to transmit full load to hangers.
- F. Place furring channels perpendicular to carrying channels, not more than 2 inches from perimeter walls, and rigidly secure. Lap splices securely.
- G. Reinforce openings in suspension system that interrupt main carrying channels or furring channels with lateral channel bracing. Extend bracing minimum 24 inches past each opening.
- H. Laterally brace suspension system.
- I. Contractor Option - Grid Suspension System for Gypsum Board Ceilings and Bulkheads: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.

3.3 TOLERANCES

- A. Maximum Variation From True Position: 1/8 inch in 10 feet.
- B. Maximum Variation From Plumb: 1/8 inch in 10 feet.

END OF SECTION

SECTION 09 30 00 - TILING**PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. Tile for floor applications.
- B. Tile for wall applications.
- C. Cementitious backer board as tile substrate.
- D. Waterproofing and crack isolation membrane.
- E. Slate sills.

1.2 REFERENCE STANDARDS

- A. ANSI A108 Series/A118 Series/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 A108.11 - American National Standard for Interior Installation of Cementitious Backer Units.
 - 11. ANSI A118.9 - American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units.
 - 12. ANSI A137.1 - American National Standard Specifications for Ceramic Tile.
- B. TCNA (HB) - Handbook for Ceramic Tile Installation.

1.3 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.

- C. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, ceramic accessories, and setting details.
- D. Samples: Mount tile and apply grout on two plywood panels, minimum 18 x 18 inches in size illustrating pattern, color variations, and grout joint size variations.
- E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- F. Maintenance Data: Include recommended cleaning methods, cleaning materials, stain removal methods, and polishes and waxes.
- G. LEED Report: Accurately document the use of recycled materials, as required by Section 01 35 14, Section 01 35 15, Section 01 35 16 and appropriate forms.
- H. LEED Submittals: Provide documentation of VOC content in g/L for primers, grout sealers, adhesives and sealants applied within the building waterproofing envelope; comply with VOC limits of Section 01 61 16.

1.4 QUALITY ASSURANCE

- A. Maintain one copy of The Tile Council of North America Handbook and ANSI A108 Series/A118 Series on site.

1.5 PRE-INSTALLATION MEETING

- A. Convene one week before starting work of this section.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.
- B. All tile for all phases to be purchased from same dye lot and stored by Contractor as needed for each phase.

1.7 FIELD CONDITIONS

- A. Do not install adhesives in an unventilated environment.
- B. Maintain ambient and substrate temperature of 50 degrees F during installation of mortar materials.

1.8 EXTRA MATERIALS

- A. Furnish quantity of one full box of each tile type and color selected.
- B. Turn over any cut tile exceeding 50 percent of a full tile, as extra materials.

PART 2 PRODUCTS

2.1 TILE

- A. Manufacturers: All products of each type by the same manufacturer.
 - 1. American Olean: www.americanolean.com.
 - 2. Dal-Tile Corporation: www.daltile.com.
 - 3. Summitville Tiles, Inc: www.summitville.com.
 - 4. Crossville, Inc..
- B. Ceramic Wall Tile : ANSI A137.1, and as follows:
 - 1. Moisture Absorption: 0 to 0.5 percent.

2. Size and Shape: 4 1/4 x 4 1/4 x 5/16 inch and 8 x 8 inch; pattern and size as indicated on the drawings.
 3. Edges: Cushioned.
 4. Surface Finish: Medium Gloss.
 5. Colors: As selected from manufacturer's full product line including all price groups. A maximum 50 percent of wall tile will be selected from the highest price group.
- C. Quarry Tile: ANSI A137.1, and as follows:
1. Moisture Absorption: 0.5 to 3.0 percent.
 2. Size and Shape: 8 x 8.
 3. Thickness: 1/2 inch.
 4. Edges: Square typically and beveled at transition to thinner adjacent materials.
 5. Surface Finish: Unglazed.
 6. Basis-of-Design: Quarry Tile by Daltile.
 7. Colors: As selected by Architect from manufacturers full range.
 8. Trim Units: Matching cove base shapes in sizes coordinated with field tile.
- D. Paver Tile : ANSI A137.1, and as follows:
1. Location: Stair treads.
 2. Moisture Absorption: 0 to 0.5 percent.
 3. Breaking Strength: 250 pounds or better.
 4. Scratch Hardness: 8 MOHS or better.
 5. Size and Shape: Nominal 8 inches x 8 inches and 12 inches x 12 inches where indicated on the drawings.
 6. Thickness: 5/16 inch
 7. Face: Matte stone appearance.
 8. Edges: Cushioned.
 9. Surface Finish: Cross-Slate.
 10. Trim Units: Matching cove base shapes in sizes coordinated with field tile.
 11. Basis-of-Design: Cross-Colors by Crossville, Inc.
 12. Color: As selected from manufacturer's full product line including all price groups. A maximum 50 percent of floor tile will be selected from the highest price group.
 13. Stair Tread Nosing: Provide paver tile manufacturer's standard 4 inch x 8 inch bullnose stair tread with slip resistant nosing.
 - a. Slip resistant nosing to be provided in a color that is contrasting to the stair tread, color to be selected by Architect from manufacturers full range.
- E. Porcelain Floor Tile: ANSI A137.1, conforming to the following:
1. Moisture Absorption: 0 to 0.5 percent.
 2. Breaking Strength: ASTM C648; greater than 300 pounds.
 3. Coefficient of Friction: ASTM C1028.
 - a. Wet: 0.60 or greater.
 - b. Dry: 0.80 or greater.
 4. Size: 8 x 8 inch typical in bathrooms.
 5. Thickness: 5/16 inch.
 6. Shape: Square.
 7. Edge: Cushioned.
 8. Surface Finish: Unglazed.
 9. Basis-of-Design: Cross-Colors by Crossville, Inc. or Porcelto by Dal-Tile.

10. Color: As selected from manufacturer's full product line including all price groups. A maximum 50 percent of floor tile will be selected from the highest price group.

F. Base:

1. Areas with mosaic floor tile without ceramic tile wall to receive 6 inch x 8 inch base shape of floor tile line; top bull-nosed, bottom coved.
2. Areas with Ceramic Wall Tile: Provide standard base trim shape of selected wall tile; cushion edge glazed wall tile, bottom coved.

G. Standard Trim Shapes:

1. Provide as required.
2. Provide all caps, stops, returns, trimmers and other shapes indicated or required to produce a completely finished installation.
3. Except as may be shown otherwise on the Drawings, provide color and finish matching the adjacent tile.

2.2 MORTAR MATERIALS

A. Manufacturers:

1. Bonsal American, Inc: www.sakrete.com
2. Bostik Inc: www.bostik-us.com.
3. Custom Building Products: www.custombuildingproducts.com.
4. MAPEI Corporation.
5. TEC Specialty Products, Inc.

B. Mortar Bed Materials: Portland cement, sand, latex additive and water.

C. Mortar Bond Coat Materials:

1. Latex-Portland Cement type: ANSI A118.4.

2.3 GROUT MATERIALS

A. Manufacturers:

1. ARDEX Engineered Cements: www.ardexamericas.com.
2. Bonsal American, Inc: www.sakrete.com
3. Bostik Inc: www.bostik-us.com.
4. Custom Building Products: www.custombuildingproducts.com.
5. MAPEI Corporation.
6. TEC Specialty Products, Inc.

B. Grout: Polymer modified cement grout, sanded or unsanded, as specified in ANSI A118.7.

2.4 ACCESSORY MATERIALS

A. Waterproofing and Crack Isolation Membrane: Fluid-applied acrylic-based membrane with reinforcing mesh, complying with ANSI A118.10.

1. Basis-of-Design: Mapei Corporation; Mapelastic HPG with Fiberglass Mesh.
2. Equivalent product of listed setting and grouting material manufacturers.
3. Location: All tile floors; full coverage.

B. Reinforcing Mesh: 2 x 2 inch size weave of 16/16 wire size; welded fabric, galvanized.

C. Cementitious Backer Board: ANSI A118.9; High density, cementitious, glass fiber reinforced, 5/8 inch thick; 2 inch wide coated glass fiber tape for joints and corners.

1. Product: Durock Brand Cement Board manufactured by United States Gypsum Company.

2. Location: Wet walls and high-humidity areas.
- D. Tile Backer Panel:
1. Mold-resistance: Passes ASTM D 3273.
 2. Compliance with Standards: Meets ASTM C 1278 and meets or exceeds the physical requirements of ASTM C 630 and ASTM c 1178.
 3. Use: Approved by manufacturer for use as tile backer panel.
 4. No paper face.
 5. Basis-of-Design: Fiberock Brand Aqua-Tough Interior Panel manufactured by United States Gypsum Company.
 6. Contractor Option: DensShield Tile Backer manufactured by Georgia-Pacific.
 7. Location: Walls not requiring cementitious backer board as specified.
 8. Comply with low-emitting requirements in Section 01 61 16.
- E. Metal Edge Strips:
1. Open Edge of Tile with Adjacent Finish of Similar Height:
 - a. General: Angle or L-shape, height to match tile and setting-bed thickness, metallic or combination of metal and PVC or neoprene base, designed specifically for flooring applications, stainless steel; ASTM A 666, 300 Series exposed-edge material.
 - b. Basis-of-Design: 1.1 Schluter-SCHIENE Edge-protecting Profile; stainless steel.
 2. Open Edge of Tile with Adjacent Finish of Different Height:
 - a. General: ADA-compliant profile, height to match tile and setting-bed thickness, metallic or combination of metal and PVC or neoprene base, designed specifically for flooring applications, stainless steel; ASTM A 666, 300 Series exposed-edge material.
 - b. Basis-of-Design:
 - 1) 1.2 Schluter-RENO-U Reducer Profile, where tile surface is higher than adjacent finish; stainless steel.
- F. Adhesives, sealants, primers, grout sealers applied with the building interior: Comply with low-emitting requirements in Section 01 61 16.

PART 3 EXECUTION

3.1 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 sub-floor surfaces are dust-free and free of substances that could impair bonding of setting materials to sub-floor surfaces.
- D. Verify that concrete sub-floor surfaces are ready for tile installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within limits recommended by tile manufacturer and setting materials manufacturer.
- E. Verify that required floor-mounted utilities are in correct location.

3.2 PREPARATION

- A. Protect surrounding work from damage.

- B. Vacuum clean surfaces and damp clean.
- C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.
- D. Install cementitious backer board in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of dry-set mortar to a feather edge.

3.3 INSTALLATION - GENERAL

- A. Install tile and thresholds and grout in accordance with applicable requirements of ANSI A108.1 through A108.13, manufacturer's instructions, and The Tile Council of North America Handbook recommendations.
- B. Lay tile to pattern indicated on drawings. Do not interrupt tile pattern through openings.
- C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.
- D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar, or excess grout.
- E. Form internal angles square and external angles bullnosed.
- F. Sound tile after setting. Replace hollow sounding units.
- G. Keep expansion joints free of adhesive or grout. Apply sealant to joints.
- H. Allow tile to set for a minimum of 48 hours prior to grouting.
- I. Grout tile joints. Use standard grout unless otherwise indicated.
- J. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.
- K. Apply two coats of grout sealer product recommended by grout and tile manufacturer after final cleaning.

3.4 INSTALLATION - FLOORS - THIN-SET METHODS

- A. Provide specified waterproofing and crack isolation membrane for all tile floor areas; install in accordance with TCA Method F122, with latex-portland cement grout.

3.5 INSTALLATION - FLOORS - MORTAR BED METHODS

- A. Freezer/Cooler Quarry Tile - Thick Set with Reinforcement and Waterproofing: Install by conventional bed TCA Handbook Method F121; epoxy grout.
- B. Mortar Bed Thickness: 5/8 inch, unless otherwise indicated.

3.6 INSTALLATION - SHOWER WALLS

- A. At tiled shower receptors install in accordance with The Tile Council of North America Handbook Method B415, mortar bed floor, and W244, thin-set over cementitious backer unit walls. Latex-Portland cement mortar bond coat with latex-Portland cement grout. Waterproof membrane turned up walls a minimum of 6 inches above finished floor.

3.7 INSTALLATION - WALL TILE

- A. Over cementitious backer units on studs, install in accordance with The Tile Council of North America Handbook Method W244, using membrane at toilet rooms.
- B. Over interior concrete and masonry install in accordance with The Tile Council of North America Handbook Method W202, thin-set with dry-set or latex-Portland cement bond coat.

C. Shower Walls:

1. Over interior concrete and masonry install in accordance with TCA Handbook Method W211, bonded mortar bed with latex-Portland cement bond coat; with latex-Portland cement grout.
2. Include waterproofing membrane over mortar bed of W211.

3.8 CLEANING

- A. Clean tile and grout surfaces.

3.9 PROTECTION

- A. Do not permit traffic over finished floor surface for 4 days after installation.
- B. Cover products installed on horizontal surfaces with undyed, untreated building paper until Substantial Completion.
- C. Do not move heavy and sharp objects directly over surfaces. Place hardboard or plywood panels over flooring and under objects while they are being moved. Slide or roll objects over panels without moving panels.

END OF SECTION

SECTION 09 51 00 - ACOUSTICAL CEILINGS**PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. Suspended metal grid ceiling system.
- B. Acoustical units.

1.2 RELATED REQUIREMENTS**1.3 REFERENCE STANDARDS**

- A. ASTM C635 - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
- B. ASTM E1264 - Standard Classification for Acoustical Ceiling Products.
- C. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc..

1.4 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Coordination Drawings: Reflected ceiling plans drawn to scale and coordinating penetrations and ceiling-mounted items; show the following:
 - 1. Ceiling suspension system members.
 - 2. Method of attaching suspension system hangers to building structure.
 - 3. Ceiling-mounted items including light fixtures; air outlets and inlets; speakers; sprinklers; and special moldings at walls, column penetrations, and other junctures of acoustical ceilings with adjoining construction.
 - 4. Minimum Drawing Scale: 1/8 inch = 1 ft.
- C. Product Data: Provide data on suspension system components.
- D. Samples: Submit two full size samples illustrating material and finish of acoustical units.
- E. LEED Report: Accurately document the use of recycled materials and local/regional materials, as required by Section 01 35 14, Section 01 35 15, Section 01 35 16 and appropriate forms.
- F. LEED Submittals: Provide documentation of VOC content in g/L for acoustical sealants applied within the building waterproofing envelope, NRC rating requirements for acoustical ceiling tile; comply with VOC limits of Section 01 61 16.

1.5 QUALITY ASSURANCE

- A. Fire-Resistive Assemblies: Complete assembly listed and classified by UL for the fire resistance indicated.

1.6 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.

1.7 PROJECT CONDITIONS

- 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. Install acoustical units after interior wet work is dry.

1.8 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.
 - 1. Acoustical Ceiling Units: Full-size units equal to 12 cases.
 - 2. Suspension System Components: Quantity of each exposed component equal to 2.0 percent of amount installed.

PART 2 PRODUCTS

2.1 ACOUSTICAL UNITS

- A. Manufacturers:
 - 1. Armstrong World Industries, Inc: www.armstrong.com.
 - 2. CertainTeed Corporation: www.certainteed.com.
 - 3. USG: www.usg.com.
- B. Acoustical Units - General: ASTM E1264, Class A.
 - 1. Acoustical Ceiling Tiles in Core Learning Spaces: Minimum 0.70 NRC rating.
 - 2. Units for Installation in Fire-Rated Suspension System: Listed and classified for the fire-resistive assembly the suspension system is a part of.

2.2 SUSPENSION SYSTEM(S)

- A. Manufacturers:
 - 1. Armstrong World Industries, Inc: www.armstrong.com.
 - 2. CertainTeed Corporation: www.certainteed.com.
 - 3. Chicago Metallic Corporation: www.chicagometallic.com.
 - 4. USG: www.usg.com.
- B. Suspension Systems - General: ASTM C 635; die cut and interlocking components, with stabilizer bars, clips, splices, and perimeter moldings as required.

2.3 EXTRUDED PERIMETER TRIM

- A. Manufacturers:
 - 1. Armstrong World Industries, Inc; Product Axiom: www.armstrong.com.
 - 2. Chicago Metallic Corporation; Product Infinity: www.chicagometallic.com.
 - 3. USG; Product Compasso: www.usg.com.
- B. Location:
 - 1. Edge trim system for transitions between drywall and suspended ceilings.
 - 2. Boundry trim system for isolated hung areas of suspended ceilings.
- C. Components:
 - 1. Extruded aluminum alloy 6063 trim channel.
 - 2. Attachment to grid system is provided by tee-bar connection clips which lock into bosses on the trim channel and are screw-attached to the web of the intersecting suspension system members.
 - 3. Sections of trim are joined together using the splice plate.
 - 4. Color: As selected to match other painted metal.

2.4 ACCESSORIES

- A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.
- B. Perimeter Moldings: Same material and finish as grid.
- C. Acoustical Sealant For Perimeter Moldings: Specified in Section 07 90 05 and low-emitting requirements as specified in Section 01 61 16.
- D. Touch-up Paint: Type and color to match acoustical and grid units.

PART 3 EXECUTION

3.1 INSTALLATION - SUSPENSION SYSTEM

- A. Install suspension system in accordance with ASTM C 636, ASTM E 580, and manufacturer's instructions and as supplemented in this section.
- B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.
- C. Lay out system to a balanced grid design with edge units no less than 50 percent of acoustical unit size.
- D. Install after major above-ceiling work is complete. Coordinate the location of hangers with other work.
- E. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- F. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
- G. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
- H. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.
- I. Do not eccentrically load system or induce rotation of runners.
- J. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
 - 1. Install in bed of acoustical sealant.
 - 2. Use longest practical lengths.
 - 3. Overlap and rivet corners.
- K. Form expansion joints as detailed. Form to accommodate plus or minus 1 inch movement. Maintain visual closure.

3.2 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. Lay directional patterned units with pattern parallel to longest room axis.
- D. Fit border trim neatly against abutting surfaces.

- E. Install units after above-ceiling work is complete.
- F. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
- G. Cutting Acoustical Units:
 - 1. Cut to fit irregular grid and perimeter edge trim.
 - 2. Make field cut edges of same profile as factory edges.
 - 3. Double cut and field paint exposed reveal edges.
- H. Where round obstructions occur, provide preformed closures to match perimeter molding.
- I. Install hold-down clips on panels within 20 ft of an exterior door.

3.3 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.

3.4 SCHEDULE

- A. Acoustical Panels Type APC1 and APC2: ASTM E1264, Type IV, Form 2; conforming to the following:
 - 1. Thickness: 3/4 inch.
 - 2. Composition: Mineral.
 - 3. Light Reflectance: 0.90 or better; ASTM E1477.
 - 4. NRC Range: 0.75 or better; ASTM C423.
 - 5. CAC Range: 35 or better; ASTM E1414.
 - 6. Edge: Square.
 - 7. Surface Color: White.
 - 8. Surface Finish: Fine texture.
 - 9. Shall withstand combined effects of temperatures to 104 degrees F and relative humidity to 90 percent without visible sag.
 - 10. Ten-year warranty for sag resistance.
 - 11. Basis-of-Design Product:
 - a. Armstrong World Industries, Inc., Ultima Lay-In Tegular, Item #1910, or #1930, with HumiGard coating at toilet rooms.
 - b. Or equal product by:
 - 1) CertainTeed Corporation.
 - 2) USG Interiors, Inc.
 - 12. Sizes:
 - a. APC1: 24 inches x 48 inches.
 - b. APC2: 24 inches x 24 inches.
 - 13. Heavy-duty 15/16-inch exposed face; Prelude XL by Armstrong.
- B. Acoustical Panel Type APC3: Sound Dampening tile faced with APC1 or APC 2 acoustic tile.
 - 1. Thickness: Overall panel thickness shall be determined by the facing tile specified. Additional thickness of the Sound Deadener (damping) and mass layer bonded to the facing tile shall be 9/16 inches (14 mm).
 - 2. Size: Match tile to be faced.
 - 3. Edge Detail: Refer to APC1 and APC2.
 - 4. Ceiling facing Tile: Use APC1 and APC2.

5. Core: Class A fire rated mass layer weighing 1.80 lb/sf (8.8 kg/sm) and a 1/16 inch (2 mm) sound deadening asphaltic mastic layer bonded to the facing tile and supplied by the manufacturer.
 6. Acoustical Performance: Per ASTM E413: Ceiling Attenuation Class (CAC) of 49, minimum (plain) or 51 with fiberglass batt added above the tile. Per ASTM C423, Type E400 mounting: Noise Reduction Coefficient (NRC) minimum 0.60 when tested with mineral fiber facing tile. Product was tested with Armstrong Cortega Acoustical Ceiling Tile in an independent lab.
 7. Basis-of-Design Product:
 - a. Kinetics Noise Control; Kinetics QuietTile.
 8. Fire-Rated Light Fixture Cover:
 - a. Locations: At all light fixtures in APC3.
 - b. Basis-of-Design Product: TENMAT, Model FF130.
 - c. Size: Match fixture and acoutic panel tile size.
 - d. UL Rated to maintain a fire rating of 1 hour.
- C. High Humidity (at shower locations)Acoustical Panel Type APC5: ASTM E1264, Type XX; conforming to the following:
1. Thickness: 5/8 inch.
 2. Composition: ceramic and mineral fiber composite.
 3. Light Reflectance: 0.82 or better; ASTM E1477.
 4. NRC Range: 0.55 or better; ASTM C423.
 5. CAC range: 40 or better; ASTM E1414.
 6. Edge: Square.
 7. Surface Color: White.
 8. Surface Finish: Medium Texture.
 9. Shall withstand combined effects of temperatures to 120 degrees F and relative humidity to 100 percent without visible sag.
 10. Thirty-year system warranty for sag resistance for panel and grid.
 11. 11.Basis-of-Design Product:
 - a. Armstrong World Industries, Inc., Ceramaguard, Item #608
 - b. Or equal product by:
 - 1) CertainTeed Corporation.
 - 2) USG Interiors, Inc.
 12. Size: 24 inches x 48 inches
 13. All aluminum light-duty 15/16-inch grid – Prelude Plus XL Aluminum.

END OF SECTION

SECTION 09 52 50 - INTERACTIVE ACOUSTICAL PANEL SYSTEM**PART 1 GENERAL****1.1 SUMMARY**

- A. This Section includes sound-diffusing acoustical panels for the music rooms.
- B. Related Sections include the following:
 - 1. Division 9 Section "Acoustical Panel Ceilings" for acoustical ceiling panels supported by exposed suspension system and tested for noise reduction.
 - 2. Division 9 Section "Acoustical Wall Panels" for shop-fabricated panels for other locations.

1.2 SYSTEM DESCRIPTION

- A. Provide a system of sound-absorbing and sound-diffusing panels for reducing sound energy levels and improving the hearing environment.
- B. Absorber panels: Fabric-wrapped panels - Refer to section 09 84 00.
- C. Ceiling Diffuser Panels: Ceiling-mounted, impact resistant cylindrical section with two faceted sides, white finish.
- D. Mounting Hardware:
 - 1. Ceiling Mounting: Mount with four corner hooks suspended by wire ceiling. Provide with lay-in hardware for ceiling grid mounting or direct ceiling mounting.
- E. Acoustical Performance Requirements;
 - 1. Airborne Noise Reduction: Provide acoustical absorber and diffuser panels in layout designed by computer simulation based on Fitzroy formulas to provide the following sound reduction:
 - a. General and Instrumental Music: 0.54 +/- 0.5dB.
 - 2. Reverberation Time: Provide acoustical absorber and diffuser panels in layout designed by computer simulation based on Fitzroy formulas to provide the following reverberation times:
 - a. General and Instrumental Music: 2.91 +/- 0.2 seconds.

1.3 SUBMITTALS

- A. Product Data: For panel specified.
- B. Shop Drawings: Indicate fabrication and installation of acoustical wall panels including plans, elevations, sections, details of components, and attachments to other construction. Include elevations showing acoustic room components sizes, arrangements, and details of each condition of installation. Show fabrication and installation details.
 - 1. Indicate variations from basis of design unit sizes and layout shown on drawings, based upon performance of proposed products.
- C. Samples for Initial Selection: Submit 12-inch-square units of each type of acoustical panel required and in each color, texture, and pattern for facing materials. Include representative samples of installation devices and accessories.
- D. Samples for Verification: Full-size units of each selected color and pattern of acoustical panel required.
- E. Manufacturer Certificates: Signed by manufacturers certifying that products comply with requirements.

- F. Maintenance Data: For interactive acoustical panel system to include in maintenance manuals.
- G. Warranty: Special warranty specified in this Section.

1.4 QUALITY ASSURANCE

- A. Source Limitations for Acoustical Wall Panels: Obtain each color, grade, finish, type, and variety of acoustical wall panels from one source with resources to provide products of consistent quality in appearance and physical properties.
- B. Fire-Test-Response Characteristics: Provide acoustical wall panels with the following surface-burning characteristics as determined by testing identical products per ASTM E 84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify acoustical wall panels with appropriate markings of applicable testing and inspecting agency.
 - 1. Flame-Spread Index: 25 or less.
 - 2. Smoke-Developed Index: 450 or less.
- C. Manufacturer Qualifications: Approved manufacturer listed in this section, with minimum 5 years experience in manufacture of acoustic room components.
 - 1. Manufacturers must submit the following:
 - a. Acoustical analysis and proposed layout for this project as described in Submittals Article above.
 - b. Samples of each component of product specified, when requested by Architect.
 - c. Project references: Minimum of 5 installations not less than 5 years old, with owner contact information.
 - d. Sample warranty.
 - 2. Approved manufacturers must meet separate requirements of Submittals Article.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect interactive acoustical wall panels from excessive moisture in shipment, storage, and handling. Deliver in unopened bundles and store in a dry place with adequate air circulation.
- B. Do not deliver material to building until wet-work has been completed and cured to a condition of equilibrium.

1.6 PROJECT CONDITIONS

- A. Environmental Conditions: Do not begin installation until spaces for acoustical wall panels have been enclosed and maintained at approximately the same humidity and temperature conditions as planned for occupancy. Maintain temperature and humidity as recommended by panel manufacturer.
- B. Field Measurements: Check actual wall surfaces by accurate field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work. Where field measurements cannot be made without delaying the Work, establish opening dimensions and proceed with fabricating acoustical wall and ceiling panels without field measurements. Coordinate wall and ceiling construction to ensure that actual opening dimensions correspond to established dimensions.

1.7 COORDINATION

- A. Store, handle, protect and install absorptive materials, including fabrics materials, in accordance with the Construction IAQ Management Plan required by Division 1 Specifications.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of interactive acoustical panel system components that fail in materials or workmanship within specified warranty period.
- B. Warranty Period: 3 years from date of Substantial Completion.

1.9 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Diffuser Panels: Full-size units equal to 1 percent of amount installed for each size and type indicated, but no fewer than 4 units of each size and type.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Product: The design for interactive acoustical panel system is based on Kinetics Noise Control; Geometric Diffusers. Subject to compliance with requirements, and giving preference to products having recycled content, provide the named product or a comparable product by one of the following:
 - 1. Conwed; Respond Wall and Ceiling Diffusers.
 - 2. Wenger Corporation; Interactive Acoustical Panel System.
 - 3. Wall Technology, Inc.; Customline Diffusers.

2.2 INTERACTIVE ACOUSTICAL PANEL SYSTEM (Type APC4)

- A. Diffuser Panels:
 - 1. Ceiling diffuser manufacturer's standard construction of thermo-molded plastic, 0.125-inch material thickness.
 - 2. Provide panels with wall or ceiling mounting hardware as required.
- B. Mounting Hardware: Manufacturer's standard; furnish mounting clips and wall channel brackets for wall panels. Standard ceiling panels to be supplied with hooks for wire suspension, supports, supports for lay-in grid applications or for direct ceiling mounting.
- C. Finishes:
 - 1. Ceiling-Mounted Panels: Manufacturer's standard white, "orange peel" texture.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances, and other conditions affecting performance of acoustical wall panels.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Construction Tolerances: As follows:
 - 1. Variation from Plumb and Level: Plus or minimum 1/8 inch.
 - 2. Variation of Joints from Hairline: Not more than 1/8 inch.

3.3 CLEANING

- A. Clean panel facing upon completion of installation to remove dust and other foreign materials from the facing, using a dry brush, a vacuum, or both.
- B. Remove surplus materials, rubbish, and debris resulting from acoustical wall panel installation, upon completion of the Work, and leave areas of installation in a neat and clean condition.

3.4 PROTECTION

- A. Provide final protection and maintain conditions in a manner acceptable to manufacturer and Installer that ensures that acoustical wall panels are without damage or deterioration at the time of Substantial Completion. Replace panels that cannot be cleaned and repaired, in a manner acceptable to the Architect, prior to the time of Substantial Completion.

END OF SECTION

SECTION 09 54 50 - FRP CEILING SYSTEM**PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. Glass-fiber panel ceiling system; FRP on Drawings.
- B. Products furnished, but not installed under this Section, include anchors, clips, and other ceiling attachment devices to be cast in concrete at ceilings.

1.2 RELATED REQUIREMENTS

- A. Section 07 90 05 - Joint Sealers.

1.3 REFERENCE STANDARDS

- A. ASTM A 641/A 641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
- B. ASTM C 635 - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
- C. ASTM C 636 - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
- D. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- E. ASTM E 1264 - Standard Classification for Acoustical Ceiling Products.

1.4 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on each type of product indicated.
- C. Coordinate Drawings: Reflected ceiling plans drawn to scale and coordinating penetrations and ceiling-mounted items. Show the following:
 - 1. Ceiling suspension members.
 - 2. Method of attaching hangers to building structure.
 - a. Furnish layouts for cast-in-place anchors, clips, and other ceiling attachment devices whose installation is specified in other Sections.
 - 3. Ceiling-mounted items including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.
 - 4. Minimum Drawing Scale: 1/8 inch = 1 foot.
- D. Samples for Initial Selection: For each type of glass-fiber ceiling panel and suspension system indicated.
- E. Product Certificate: Signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- F. Maintenance Data: For finishes to include in maintenance manuals.
- G. Warranty: Special warranty specified in this Section

1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type through one source from a single manufacturer.
- B. Fire-Test-Response Characteristics: Provide glass-fiber panel ceilings that comply with the following requirements:

1. Surface-Burning Characteristics: Provide glass-fiber panels with the following surface-burning characteristics complying with ASTM E 1264 for Class A materials as determined by testing identical products per ASTM E 84:
 - a. Smoke-Developed Index: 450 or less.

C. Regulatory Requirements: Exposed surfaces meet or exceed USDA and FSIS requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

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

1.7 PROJECT CONDITIONS

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

1.8 COORDINATION

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

PART 2 PRODUCTS

2.1 GLASS-FIBER PANELS, GENERAL

- A. Glass-fiber Ceiling System Colors: As selected by Architect from manufacturer's standard range of colors.

2.2 GLASS-FIBER CEILING PANELS

- A. Products:
 1. Kemplite Company, Inc.; Glasbord FX with Surfseal.
 2. Chicago Metallic; DynaGlass.
- B. Lay-In Ceiling Panels:
 1. Size: 24 by 48 inches.
 2. Pattern: Embossed.
 3. Nominal Thickness: 0.12 inch.

2.3 GLASS-FIBER SUSPENSION SYSTEMS, GENERAL

- A. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated.
- B. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
 1. Zinc-Coated Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.

2. Size: Select wire diameter so its stress at three times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.106-inch- diameter wire.

2.4 GLASS-FIBER SUSPENSION SYSTEM FOR GLASS-FIBER PANEL CEILING

A. Products:

1. Kemlite Company, Inc.; Sanigrad II Fiberglass Ceiling Grid System.
2. Chicago Metallic; DynaGlass FRP Suspension Ceiling System.

B. Suspension System: Main and cross runners formed from glass-fiber that is moisture resistant (does not support mold or mildew and will not rust or corrode).

1. Wall Angles: 12-foot long length fastened directly to wall with nylon drive rivets.
2. Hold-Down Clips: Provide manufacturer's standard hold-down clips spaced 24 inches o.c. on all cross tees.
3. Face Design: Flat, flush.
4. Accessories: Provide connector clips, wall anchors, and other accessories as required for complete installation.

2.5 SEALANT

- A. Sealant: Refer to Section 07 90 00 and Section 01 61 16.

PART 3 EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

- A. Measure each ceiling area and establish layout of glass-fiber panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply with layout shown on reflected ceiling plans. Protection of In-Place Conditions:

3.3 INSTALLATION

- A. General: Install glass-fiber panel ceilings to comply with ASTM C 636, per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
- B. Suspend ceiling hangers from building's structural members and as follows:
 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
 2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and

- hangers to support ceiling loads within performance limits established by referenced standards and publications.
4. Secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
 5. Space hangers not more than 48 inches o.c. along each member supported directly from hangers, unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
- C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or postinstalled anchors.
- D. Install edge moldings and trim of type indicated at perimeter of glass-fiber ceiling area and where necessary to conceal edges of glass-fiber panels.
1. Apply glass-fiber sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
 2. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet . Miter corners accurately and connect securely.
 3. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- E. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- F. Install glass-fiber panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.
1. Arrange directionally patterned glass-fiber panels as follows:
 - a. Install panels with pattern running in one direction parallel to long axis of space.
 2. Install panels with edges fully hidden from view by flanges of suspension system runners and moldings.

3.4 CLEANING

- A. Clean exposed surfaces of glass-fiber panel ceilings, including trim, edge moldings, and suspension system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION

SECTION 09 64 66 - WOOD ATHLETIC FLOORING**PART 1 GENERAL****1.1 SUMMARY**

- A. Section includes site finished wood strip flooring; subflooring; sheet vapor retarder and cushion pads; surface finishing and game markings; and ventilating base.
- B. Provide complete wood flooring systems for the gymnasium.

1.2 REFERENCES

- A. Maple Flooring Manufacturers Association (MFMA) - MFMA Guide Specifications.
- B. Southern Pine Inspection Bureau (SPIB).
- C. Underwriters Laboratories Inc.:
 - 1. UL - Fire Resistance Directory.
- D. Western Wood Products Association (WWPA).

1.3 PERFORMANCE REQUIREMENTS

- A. DIN-certified - meets or exceeds all six DIN 18032-2 criteria for ball bounce, shock absorption, deflection, area of deflection, rolling load and surface friction.

1.4 SUBMITTALS

- A. Shop Drawings:
 - 1. Indicate floor termination details.
 - 2. Indicate provisions for expansion and contraction, base and game insert or socket devices.
 - 3. Indicate location, size, design, and color of game markings.
- B. Product Data: Submit data for flooring and accessories, and floor finish materials.
 - 1. Include documentation of compliance with specified DIN performance requirements.
- C. Samples: Submit two samples illustrating floor finish, color, and sheen.
- D. Installer must submit references documenting approval of flooring manufacturer and showing a minimum five years of continuous applicable experience under the current company name.
- E. Submit maintenance procedures, recommended maintenance materials, suggested schedule for cleaning, stripping, and re-finishing, stain removal methods, and polishes and waxes; include three copies of AMFMA Care and Preservation of Your Wood Floors.
- F. LEED Submittal: Certificates for Credit MR 7: Chain-of-custody certificates certifying that products specified to be made from certified wood comply with forest certification requirements. Include vendor invoice indicating Chain of Custody number and wood products listed per requirements in Section 01 60 00 Product Requirements.
- G. LEED Submittal for Credit EQ 4.1: Manufacturer's product data for field-applied adhesives, primers, paints and coatings in compliance with Section 01 61 16.
- H. LEED Submittals: Product data for Credit IEQ 4.3: For resilient base, and associated accessories, documentation including printed statement of compliance with the Resilient Floor Covering Institute's (RFCI) FloorScore Program.
- I. LEED Submittal for Credit EQ 4.4: Manufacturer's product data for plywood subfloor in compliance with Section 01 61 16.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with MFMA - Maple Flooring Manufacturers Association.
- B. Execute "MFMA Recommendations for Correct Preparation, Finishing and Testing of Concrete Subfloor Surfaces to Receive Wood Flooring."
- C. Products: Stamp MFMA mill number and grade on underside of each piece of wood flooring at factory.
- D. Qualifications:
 - 1. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum five years experience.
 - 2. Installer: Company specializing in performing Work of this Section with minimum five years experience and approved by the flooring manufacturer.
- E. Pre-installation Conference:
 - 1. Convene minimum one week prior to commencing Work of this Section.
 - 2. Review installation procedures including procedures for acclimation of flooring materials.
- F. Forest Certification: Provide wood products made from forests certified by an FSC-accredited certification body. All non-FSC wood in assemblies with FSC-certified wood shall meet the FSC Controlled Wood (CW) criteria.
- G. Resilient Base and accessories: Comply with RFCI FloorScore Program.

1.6 COORDINATION

- A. Contractor to coordinate actual slab depression necessary for selected floor system, prior to pouring of slab-on-grade concrete work.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Do not install wood flooring until overhead mechanical work and lighting are installed.
- B. Do not install wood flooring until wet construction work is complete and ambient air at installation space has moisture content stabilized between 35 and 50 percent and temperature is stabilized between 65 and 80 degrees F.
- C. Do not install floor system until concrete has been cured 60 days.
- D. Do not install wood flooring until wood materials have been acclimated to ambient temperature and humidity conditions for minimum of 72 hours; stack wood for acclimation procedures to facilitate cross-ventilation of wood materials.
- E. Provide heat, light, and ventilation prior to installation.
- F. Maintain room temperature and humidity for period of two days prior to delivery of materials to installation space, during installation, and continuously after installation.

1.8 WARRANTY

- A. Field Finish Flooring Systems: Warrant the Work of this Section for two years against defective or nonconforming materials and workmanship.

PART 2 PRODUCTS

2.1 AVAILABLE MANUFACTURERS

- A. Robbins Sport Floors: Air Channel Star (Basis-of-Design).

- B. Connor Sports Flooring.
- C. Action Floor Systems LLC.
- D. Horner.
- E. Aacer Flooring, LLC.

2.2 COMPONENTS

- A. Wood Strip Flooring: White Hard Maple.
 - 1. Grade: Second and better.
 - 2. Cut: Mixed grain (flat grain and edge grain).
 - 3. Moisture Content: 7 to 9 percent.
 - 4. Actual Thickness: 33/32 inch.
 - 5. Actual Width: 2-1/4 inches.
 - 6. Edge: Tongue and Groove.
 - 7. End: End matched.
 - 8. Length:
 - a. As permissible by Grade.
- B. Flooring Nails: Type recommended by flooring manufacturer.
- C. Construction Adhesive: Type recommended by flooring manufacturer for installation of subflooring.
- D. Subflooring:
 - 1. Sleeper: 7/8 inch thick Fir or Southern Pine plywood sleeper factory drilled and assembled with 7/16 inch thick resilient EPDM Bio-Pad,TM for shock absorption and vibration control.
 - 2. Subfloor: One layer of 15/32 inch thick Fir or Southern Pine plywood, APA Rated Sheathing; Exposure 1.
 - 3. No added urea formaldehyde resins.
- E. Sleeper Anchors: Hardened steel pins of length required by manufacturer.

2.3 ACCESSORIES

- A. Vapor Retarder: Black polyethylene sheet, 6 mil thick; 2 inch wide tape for joint sealing.
- B. Cushion Blocks: Minimum 7/16-inch thick resilient pads, EPDM material.
- C. Back Prime Paint: Acrylic enamel undercoater product specified in Division 9 Section "Interior Painting;" subfloor only.
- D. Ventilating Base:
 - 1. Molded rubber, 4 inches high with 3-inch toe, ventilating type, with adhesives and accessories.
 - 2. Color as selected.
 - 3. Pre-molded outside corners; neatly mitered inside corners.
 - 4. Basis-of-Design: Vent-Cove by Johnsonite.
- E. Polyurethane Floor Finish: Oil-modified type recommended by flooring manufacturer.
- F. Gameline and Logo Paint: Recommended by the finishing materials manufacturer; compatible with finish.
- G. Adhesives, primers, paints and coatings applied within the building waterproofing envelope: Comply with low-emitting requirements in Section 01 61 16.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify concrete subfloor surface is smooth and flat to plus or minus 1/8 inch in 10 feet for field finished flooring systems.
- B. Verify required floor mounted utilities are in proper location.
- C. Verify wood flooring has been acclimated to ambient temperatures, and acclimation and ambient temperatures are in accordance with flooring manufacturer's instructions.

3.2 PREPARATION

- A. Fixed Resilient Subflooring - Gymnasium:
 - 1. Place vapor retarder over subfloor surface, lapping edges and ends minimum 6 inches and tape seal.
 - 2. Place pre-assembled subfloor panels parallel to sleepers, spacing end joints a minimum of 1/4". Capture exposed side edges of subfloor panels with adjacent sleepers.
 - 3. Align each adjacent row of subfloor panels to form generally continuous 45-degree end joints throughout the subfloor assembly.
 - 4. Provide 1-1/2" expansion voids at perimeter and at all vertical obstructions. Install solid blocking under bleachers in the stacked position, at doorways, and below portable goals.
- B. Prepare substrate to receive wood flooring in accordance with manufacturer's and MFMA instructions.
- C. Broom clean substrate.

3.3 INSTALLATION

- A. Wood Flooring:
 - 1. Install in accordance with manufacturer's and MFMA instructions; blind nail to wood sub-floor.
 - 2. Lay flooring parallel to length of room areas; verify alignment as Work progresses.
 - 3. Arrange flooring with end matched grain properly driven up and proper spacing provided for humidity conditions in region; consult manufacturer's representative.
 - 4. Terminate flooring at centerline of door openings where adjacent floor finish is dissimilar.
 - 5. Provide minimum 1-1/2 inch expansion space at fixed walls and other vertical interruptions; 1 inch expansion space at floor inserts.
- B. Ventilating Base: Install base at floor perimeter to cover expansion space; anchor to wall with manufacturer's screws and anchors.
- C. Polyurethane Finishing:
 - 1. Mask off adjacent surfaces before beginning sanding.
 - 2. Sanding:
 - a. Take precautions to contain dust.
 - b. Remove dust by vacuum.
 - c. Sand according to MFMA accepted methods, making your final cut with 80-100 grit paper; screen with 120 grit disc and vacuum thoroughly.
 - d. Tack the floor with clean terry cloth towels dampened with cleaning solvent until there is no dust on the towels.

- e. Tack the floor a final time with a cleaning cloth.
- 3. Finishing - Gymnasiums: Two coats sealer and two finish coats.
 - a. Apply first sealer coat, allow 24 hours to dry and cure, then buff lightly with steel wool to remove irregularities; vacuum clean and wipe with damp cloth before applying succeeding coat.
 - b. Apply second sealer coat; allow to dry.
 - c. Lightly buff between coats with steel wool and vacuum clean before applying succeeding coat.
- 4. Game Lines:
 - a. Apply colored games lines 2 inches wide and logo to layout indicated on Drawings.
 - b. Use current rules of association having jurisdiction.
 - c. Lay out in chalk or crayon and obtain approval by the Architect and the Owner before proceeding.
 - d. Paint game lines in colors as selected, accurately with clean, sharp edges, using thinned coat and followed by full coat of floor enamel.
 - e. Main court lines to run continuously.
 - f. Burnish each line coat smooth and tack.
- 5. Apply two coats of finish.

3.4 CLEANING

- A. Clean and polish floor surfaces in accordance with manufacturer's instructions.

3.5 PROTECTION OF INSTALLED CONSTRUCTION

- A. Prohibit traffic on floor finish for 48 hours after installation.
- B. After 48 hours, protect areas of installed flooring subject to construction traffic with sheets of hardboard on kraft paper (taped joints).

END OF SECTION

SECTION 09 65 00 - RESILIENT FLOORING**PART 1 GENERAL****1.1 SECTION INCLUDES**

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

1.2 RELATED REQUIREMENTS

- A. Section 01 61 16 - Volatile Organic Compound (VOC) Content Restrictions.

1.3 REFERENCE STANDARDS

- A. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
- B. ASTM F1066 - Standard Specification for Vinyl Composition Floor Tile.
- C. ASTM F1861 - Standard Specification for Resilient Wall Base.
- D. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; National Fire Protection Association.

1.4 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.
- C. Selection Samples: Submit manufacturer's complete set of color samples for Architect's initial selection.
- D. Verification Samples: Submit two samples, 12 x 12 inch in size illustrating color and pattern for each resilient flooring product specified.
- E. Certification: Submit written certification by manufacturer declaring products do not contain asbestos.
- F. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.
- G. LEED Report: Accurately document the use of recycled materials, as required by Section 01 35 14, Section 01 35 15, Section 01 35 16 and appropriate forms.
- H. LEED Submittals: Provide documentation of VOC content in g/L for adhesives and sealers; comply with VOC limits of Section 01 61 16.
- I. LEED Submittals: Product data for Credit IEQ 4.3: For resilient flooring, base, and associated accessories, documentation including printed statement of compliance with the Resilient Floor Covering Institute's (RFCI) FloorScore Program.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store all materials off of the floor in an acclimatized, weather-tight space.
- B. All materials for all phases to be purchased from same dye lot. Contractor to store materials as needed for later phases.

1.6 FIELD CONDITIONS

- A. Maintain temperature in storage area between 55 degrees F and 90 degrees F.
- B. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

PART 2 PRODUCTS

2.1 TILE FLOORING

- A. Vinyl Composition Tile: Homogeneous, with color extending throughout thickness, and:
 - 1. Minimum Requirements: Comply with ASTM F1066, of Class corresponding to type specified.
 - 2. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648 or NFPA 253.
 - 3. Size: 12 x 12 inch.
 - 4. Thickness: 0.125 inch.
 - 5. Pattern: Marbleized.
 - 6. Colors and Pattern: As selected by Architect from manufacturer's full range of colors for tile of class, wearing surface, thickness, size and pattern specified.
 - a. A maximum of 12 colors will be selected for tile.
 - b. Patterns of full size units to be provided by Architect.
 - c. Patterns requiring cutting to be expected at Corridors and Cafetorium. 20% of the tile installed in these areas will require radius cuts. Up to 4 different VCT colors to be selected for these areas.
 - 7. Standard VCT Products: Subject to compliance with requirements, provide one of the following:
 - a. Armstrong; Standard Excelon Imperial Texture, Multicolor.
 - b. Azrock; Standard VCT.
 - c. Tarkett; Expressions.
 - 8. Slip-Resistant Vinyl Composition Tile: Subject to compliance with requirements, provide one of the following:
 - a. Armstrong; Safety Zone.
 - b. Azrock; Cortina SR.
- B. Resilient Flooring, base, and accessories: Comply with RFCI FloorScore Program.

2.2 RESILIENT BASE

- A. Resilient Base: ASTM F1861, Type TS rubber, vulcanized thermoset; top set Style B, Cove, and as follows:
 - 1. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648 or NFPA 253.
 - 2. Height: 4 inch.
 - 3. Thickness: 0.125 inch thick.
 - 4. Finish: Satin.
 - 5. Length: Roll.
 - 6. Color: Color as selected from manufacturer's standards.
 - 7. Manufacturers:

- a. Burke Flooring: www.burkemercer.com.
- b. Johnsonite, Inc: www.johnsonite.com.
- c. Roppe Corp: www.roppe.com.
- d. Flexco.

2.3 ACCESSORIES

- A. Subfloor Filler: Latex-modified, portland cement based or blended hydraulic cement based formulation; type recommended by adhesive material manufacturer.
- B. Primers, Adhesives, and Seaming Materials: Waterproof; types recommended by flooring manufacturer.
 1. Comply with low-emitting requirements specified in Section 01 61 16.
- C. Moldings, Transition and Edge Strips: Same material as flooring.
- D. Sealer and Wax: Types recommended by flooring manufacturer.
 1. Field-applied Sealer: Comply with low-emitting requirements in Section 01 61 16

PART 3 EXECUTION

3.1 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 sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive resilient flooring.
- C. 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.
- D. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to sub-floor surfaces.
- E. Verify that concrete sub-floor surfaces are ready for resilient flooring installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within the following limits:
 1. Moisture emission rate: Not greater than 3 lb per 1000 sq ft per 24 hours when tested using calcium chloride moisture test kit for 72 hours.
 2. Alkalinity: pH range of 5-9.
- F. Verify that required floor-mounted utilities are in correct location.

3.2 PREPARATION

- A. 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.
- B. Prohibit traffic until filler is cured.
- C. Clean substrate.
- D. Apply primer as required to prevent "bleed-through" or interference with adhesion by substances that cannot be removed.

3.3 INSTALLATION

- A. Starting installation constitutes acceptance of sub-floor conditions.

- B. Install in accordance with manufacturer's instructions.
- C. Spread only enough adhesive to permit installation of materials before initial set.
- D. Fit joints tightly.
- E. Set flooring in place, press with heavy roller to attain full adhesion.
- F. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.
- G. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
- H. Install edge strips at transition between standard VCT and Slip Resistant VCT at ramps.
- I. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

3.4 TILE FLOORING

- A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless manufacturer's instructions say otherwise.
- 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 tile at perimeter.
 - 1. Lay tiles in pattern indicated.
- C. Match tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
 - 1. Lay tiles in pattern of colors and sizes indicated.
- D. Where floor finishes are different on opposite sides of door, terminate flooring under centerline of door.
- E. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated. Before installation of flooring, secure metal strips with stainless steel screws.
- F. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.
- G. Install flooring in recessed floor access covers. Maintain floor pattern.
- H. At movable partitions, install flooring under partitions without interrupting floor pattern.

3.5 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. At exposed ends, use premolded units.
- C. Install base on solid backing. Bond tightly to wall and floor surfaces.
- D. Scribe and fit to door frames and other interruptions.

3.6 CLEANING

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.
- B. Clean in accordance with manufacturer's instructions.

- C. Vinyl Composition Tiles: Apply protective floor polish to horizontal surfaces that are free from soil, visible adhesive, and surface blemishes if recommended in writing by manufacturer.
 - 1. Use commercially available product acceptable to manufacturer.
 - 2. Coordinate selection of floor polish with Owner's maintenance service; first application by Contractor.
 - 3. Vinyl floors to be given two coats of high water-emulsion polish; after each polish coat, buff floors to an even luster with an electric polishing machine; final polish coat application must be completed minimum 48 hours prior to Owner's occupancy.

3.7 PROTECTION

- A. Prohibit traffic on resilient flooring for 48 hours after installation.
- B. Cover products installed on horizontal surfaces with undyed, untreated building paper until Substantial Completion.
- C. Do not move heavy and sharp objects directly over surfaces. Place hardboard or plywood panels over flooring and under objects while they are being moved. Slide or roll objects over panels without moving panels.

END OF SECTION

SECTION 09 65 10 - HYBRID RESILIENT TILE FLOORING**PART 1 — GENERAL****1.1 SUMMARY**

- A. Section Includes
 - 1. Sheet Vinyl Powerbond — VCTT
 - 2. Recycled content
 - 3. Five Year Installation Warranty
 - 4. Life Time Non Pro Rated Manufacturer's Warranty
 - 5. Maintenance Equipment

1.2 SUBMITTALS

- A. Shop Drawings showing the extent of Powerbond, seam direction of Powerbond, and accessories shall be submitted to Architect for approval prior to installation. Check pattern match, if any, for matching during installation and possible waste factors in ordering required amounts. Should also indicate columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in Powerbond . Copy of approved shop drawings to be available on job site during installation.
- B. Powerbond schedule using same room designations indicated on drawings.
- C. Product Data: Provide data on specified products, describing physical and performance characteristics, sizes, patterns, colors available, and method of installation.
- D. Verification Samples: submit samples illustrating color and pattern for each carpet material specified.
- E. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention. Submit Tandus-Centiva, Powerbond Cushion ER3 closed cell vinyl cushion backing installation instructions for tile goods with peel and stick installation adhesive and pattern.
- F. Data: Include maintenance procedures, recommendations for maintenance materials and equipment, and suggested schedule for cleaning.
- G. Manufacturer's Life Time Non Pro Rated Warranty in writing registered with manufacturer.
- H. Five Year Installation Warranty is to be provided in writing by the dealer purchasing and installing Powerbond Cushion RS. The Five Year Installation warranty is to be provided by dealer and the installation company to include Powerbond products being installed and related materials (base) for a period of Five years. The first installation inspection will take place immediately after completion of the installation and again in six months. A written report from Tandus Centiva is to be provided to the School's project manager indicating the condition of all seaming and confirming that installation instructions have been followed. After the first two initial installation inspections have taken place (the first year) with written reports to the school's project manager, yearly inspections will take place by Tandus Centiva for the remaining four years of the installation warranty period with annual written report provided to the School's project manager re report the condition of the Powerbond flooring and if any repairs are needed.
- I. Verification of product Recycled content Certification and product Certification to NSF 140-2007.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications
 - 1. Company specializing in manufacturing specified Powerbond with minimum 5 years documented experience. Dealer/Installer' must provide a Five Year Written Installation Warranty to owner to cover all installation requirements as request by Manufacturer'. (Including Cove or Powerbond Base.)
 - 2. Manufacturer to provide representative to assist in project start-up and to inspect installation while in process and upon completion. Representative will notify designated contact if any installation instructions are not followed.
 - 3. Single Source Responsibility: Obtain each type of Powerbond thorn one source and by a single manufacturer.
- B. Installer Qualifications
 - 1. Flooring contractor must be certified by the Powerbond manufacturer prior to bid. Five Year (5) installation warranty provided by dealer /sub-contractor for flooring installation to owner/end user/public school board.
 - 2. Flooring contractor to be a specialty contractor normally engaged in this type of world and shall have prior 5 year experience in the installation of these types of materials,
 - 3. Flooring contractor will be responsible for proper product installation, including, ph. , Etc. floor testing and preparation, as specified by the Powerbond manufacturer. These results will be provided to the owner for review.
 - 4. Flooring contractor to provide Owner a written Five Year installation warranty that guarantees the completed installation to be free from defects in materials and workmanship for a period of five years after job completion.

1.4 DELIVERY, STORAGE, & HANDLING

- A. Deliver materials to the site in manufacturer's original packaging listing manufacturer's name, product name, identification number, and related information.
- B. Store in a dry location, between 60 degrees F and 80 degrees F and a relative humidity below 65%. Protect from damage and soiling.
- C. Make stored materials available for inspection by the Owner's representative,
- D. Store materials in area of installation for minimum period of 48 hours prior to installation.

1.5 PROJECT CONDITIONS

- A. Sub-floor preparation is to include all required work to prepare the existing floor for installation of the product as specified in this document and Manufacturer's installation instructions. This includes the purchase of an application of Floor Primer C36-E (new installation) or 56E Primer for renovation projects.
- B. All material used in sub-floor preparation and repair shall be recommended by the manufacturer and shall be chemically and physically compatible with the carpet system being bid, Architect shall verify concrete curing agent for compatibility. (Kuester, Seal Flex or Parabond).
- C. Maintain minimum 65 degrees F ambient temperature and 65% Relative Humidity for 72 hours prior to, during and 48 hours after installation.
- D. Do not install Powerbond until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete, and ambient temperature and

humidity conditions are and will be continuously maintained at values near those indicated for final occupancy.

1.6 EXTRA MATERIALS

- A. Provide additional 40 square yards of Powerbond specified product for “attic stock” to owner in full tiles.

1.7 POWERBOND WARRANTY

- A. Warranty to be sole source responsibility of the Manufacturer. Second source warranties and warranties that involve parties other than the carpet manufacturer is unacceptable.
- B. If the product fails to perform as warranted when properly installed and maintained the affected area will be repaired or replaced at the discretion of the Manufacturer.
- C. Chair Pads are not required for carpet warranty coverage but recommended for optimum textural performance. Absent the use of chair pads, a more intensive maintenance will be required for areas in direct contact with chair caster traffic and some degree of appearance change is to be expected.
- D. Warranty shall not exclude Powerbond product installed on stair's provided it is properly installed and maintained.
- E. Warranty shall be for a specifically defined non-prorated period 25 years min and the lifetime of the product installed within this school. More intensive maintenance will be required for product installed on stairs and some degree of appearance change is to be expected.
- F. The non-prorated life time warranty shall specifically warrant against:
 - 1. Excessive Surface Wear: More than 15% loss of pile fiber weight
 - 2. Excessive Static Electricity: More than 3.0 UV per AATCC 134
 - 3. Resiliency Loss of the Backing: More than 10% loss of backing resiliency
 - 4. Delamination
 - 5. Edge Ravel
 - 6. Zippering
- G. Tuft Bind warranty in lieu of edge ravel and zippering is not acceptable.
- H. Provide certification and warranty that product is fully recyclable through manufacturer's or aligned partner's currently operational recycling program. Include information regarding the following:
 - 1. The recycling process itself (i.e. separation of components, chopping, melting, pelletizing, etc.)
 - 2. Portions of the product that will be recycled back into itself
 - a. name/type of resulting product
 - b. end-use of resulting product
 - c. total product recycled content based on total product weight whether resulting product is recyclable (fully or partially) or non-recyclable
 - 3. Portions of the product that will be down-cycled
 - a. name/type of resulting product
 - b. end-use of resulting product
 - c. total product recycled content based on total product weight
 - d. whether resulting product is recyclable (fully or partially) or non-recyclable

4. Portions of the product that will be land filled and/or incinerated. (NOTE: “Incineration” includes waste-to-energy conversion, extraction of embodied energy; using heat from incineration as a fuel source.)

PART 2 — PRODUCTS

2.1 RECYCLED CONTENT

- A. Product must contain a minimum of 7% recycled content by weight. This percentage is calculated by dividing the weight of recycled content in one square yard of finished carpet by the total weight of one square yard of finished carpet, and multiplying by 100. $[(\text{Recycle Content Weight}) / (\text{Total Product Weight}) \times 100]$.
- B. Product must contain 7% post-consumer recycled content by weight from recycled post-consumer carpet. This ensures that the carpet is diverted from landfills for the production of the product and that virgin resource use in the product is reduced.
- C. Recycled content must be certified by a neutral, independent, third party organization such as Scientific Certification Systems. Product must carry product label certifying overall recycled content (including post-industrial and post-consumer content). Report percentage of post-industrial and post-consumer recycled content as a percentage of total product weight.

2.2 PRODUCT RECYCLABILITY

- A. A. Product must fully comply with the US FTC “Guides for the Use of Environmental Marketing claims” (CFR Title 16 part 260) with respect to advertising, labeling, product inserts, catalogs and sales presentations of all its Mooring products submitted and sold.
- B. B The recyclability of product installed must be the same as that claimed by manufacturer and required by project requirements.

2.3 RECYCLING PROGRAM

- A. Manufacturer must have a collection and recovery system for product and a fully established, currently operational recycling program at time of bid per FTC guides Section 260.7 (d).
 1. Manufacturer must be able to reclaim and recycle 100% of installed vinyl backed carpet back into a flooring product at time of bid. Little material as installed must be 100% recycled.
 2. Manufacturer must have written guarantee that 100% of the recovered vinyl backed carpet will be recycled and that no portion of the product will be land filled or incinerated (including waste-to-energy).

2.4 NSF 140 CERTIFICATION

- A. Product must be certified at the Gold level to ANSI standard NSF 140, the Sustainable Carpet Assessment Standard (SCAS). Product certification must be conducted by an independent, third party organization such as Scientific Certification Systems. Provide documentation. ..

2.5 CUSHION CHARACTERISTICS

- A. Primary Backing: Synthetic Non-Woven
- B. Secondary Backing: Powerbond Closed Cell Cushion
 1. Cushion Density (ASTM D-1667): Min. 18.5 lbs/cu ft
 2. Compression Set (ASTM D-1667): Max 10%

3. Compression Force Deflection (ASTM D-1667): Minimum 7 lbs/sq inch @ 25%; Maximum 25 lbs/sq inch at 25%.
 4. Cushion type: Closed Cell Cushion
 5. Cushion thickness: .156 inch thick
 6. Product Size: 24 inch square tiles.
 7. Moisture Barrier-. Impermeable to moisture and airflow. Moisture Penetration 6y Impact @ 10 psi: No penetration of backing after 10,000 impacts. Provide independent test results. The British Spill Test is NOT an acceptable measurement for moisture barrier.
 8. Seam Method: Chemical weld; molecularly bound slams to be impermeable to moisture and air flow Seam Integrity: Moisture Penetration by Impact at SEAMS @ 10 psi; No penetration after 10,000 impacts.
 9. R-Value: ASTM C177: 0.84 Hr-ft²-F/Btu or higher
 10. Acoustic Requirements: Noise Reduction Coefficient (NRC) .22 minimum
 11. Indoor Air Quality: Meet or exceed CRI Green Label Plus for Indoor Air Quality and the Collaborative for High Performance Schools (CHPs) indoor Air Quality tests
 12. Product must not contain pesticides (US EPA Registered Antimicrobials). Installation adhesives are exempt from this section.
- C. Product to be installed with a mill-applied releasable “dry” adhesive system to securely attach product to sub-floor in compliance with ADA guidelines, Section 4.5.3. Free-lay stretch-in or wet adhesive installations NOT allowed.
- D. Product to provide asbestos enclosure properties.
- E. Enclosure means an airtight, impermeable, permanent barrier around ACBM (Asbestos Containing Building Material) to prevent the release of asbestos fibers into the air.
- F. Product provides radon reduction barrier

2.6 PERFORMANCE CHARACTERISTICS

- A. Test Reports for the following performance assurance testing to be submitted upon request. Submitted results shall represent average results for production goods of the referenced style.
- B. Requirements listed below must be met by all products.
1. Flooring Radiant Panel
 - a. ASTM E-648 / NFPA 253: Class 1 (CRF: 0.45 watts/sq cm or greater)
 2. Federal Flammability
 - a. CPSC FF 1-70: Passes
 3. Smoke Density
 - a. ASTM E-662 / NFPA 258: < 450 Flaming Mode
 4. Electrostatic Propensity
 - a. AATCC 134 (Step & Scuff): 3.0 UV or less
 5. Static Coefficient of Friction
 - a. ASTM C-1028: Passes ADA Guidelines for Accessible Routes (Minimum 0.60)
 6. Delamination of Secondary Backing of Pile Floor Coverings ASTM D-3936:
NO DELAMINATION
 7. Lightfastness
 - a. AATCC 16E: > 4 @ 60 hours yard dyed/4 @ 100 hours solution dyed
 8. Vetterman Drum
 - a. ASTM D-5417: Minimum 3 @ 22,000 cycles
 9. Moisture Barrier

- a. Moisture Penetration by Impact @ 10 psi: No Penetration of backing and seam after 10,000 impacts. The British Spill test is not an acceptable measurement of moisture barrier.
- 10. TARR — Severe Traffic: 3.5 Minimum
- 11. Air Flow Barrier
 - a. Air Permeability of Textile Fabrics.’ No Air Flow (0.0fk/min) through backing and seam
- 12. Seam Integrity
 - a. Seam to remain intact after 50, 000 cycles per Phillips Chair Test

2.7 MANUFACTURING SPECIFICATIONS

- A. Manufactured by Tandus Centiva
- B. Powerbond Products approved by owner are: Explorer Powerbond Cushion ER3
 - 1. Properties:
 - a. Construction: Patterned Loop
 - b. Tile Size: 24 x 24 inches.
 - c. Gauge: 1/13
 - d. Stitch Per Inch: 8.2
 - e. Tuft Density: 104.96 tuft per sq/inch
 - f. Pile Height Average: 0.117 inch
 - g. Pile Thickness: 0.087 inch
 - h. Density Factor (UM44D): 7448 oz/cu yd
 - i. Fiber System: Dynex Solution Nylon with Static Control & Ensure Soil/Stain Protection
 - j. Dye Method: 100% Solution Dyed

2.8 ACCESSORIES

- A. Materials supplied by the Manufacturer for priming, welding the seams, cleaning the seam etc.
- B. Adhesives: Powerbond Floor products to be supplied with a pre-cured, mill-applied dry adhesive system. Wet Set adhesive not allowed. (2.02E).
- C. Completed Powerbond installation is to be smooth and free of bubbles, puckers, and other defects.

2.9 PROTECTION & CLEANING

- A. Remove seam sealer from floor and wall surfaces without damage.
- B. All rubbish, wrappings, debris, trimmings, etc. to be removed from site and disposed of properly.
- C. Clean and vacuum Powerbond surfaces using a beater brush/bar commercial vacuum.
- D. After each area of Powerbond is installed, the dealer is to protect the Powerbond installation from soiling and damage by other trades by covering installed carpet with waft paper — no plastic covering approved. Protective covering to be maintained by the dealer against tears rips, etc. during the course of the project and the paper to be removed and the Powerbond vacuumed by the dealer for the final inspection.

2.10 MAINTENANCE EQUIPMENT

- A. Flooring Contractor and or general constructor will schedule an in house maintenance demonstration to be given by the Powerbond manufacturer within 30 days after installation or first phase of projects with end user and school.
- B. Maintenance Package, Standard System is to be purchased as part of their purchase with the Powerbond Flooring. Maintenance Package standard system will be included in their bid to general contractor with no markup from Invoice and purchased by the flooring contractor from Tandus Centiva delivered to the school for maintenance in service.

END OF SECTION

SECTION 09 68 00 - CARPETING**PART 1 GENERAL****1.1 SUMMARY**

- A. A. Section Includes
 - 1. Walk off mats.

1.2 SUBMITTALS

- A. Shop Drawings showing the extent of carpet, seam direction of carpet, and accessories shall be submitted to Architect for approval prior to installation. Check pattern match, if any, for matching during installation and possible waste factors in ordering required amounts. Should also indicate columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet. Copy of approved shop drawings to be available on job site during installation.
- B. Carpet schedule using same room designations indicated on drawings.
- C. Product Data: Provide data on specified products, describing physical and performance characteristics, sizes, patterns, colors available, and method of installation.
- D. LEED Submittal: Documentation of pre-consumer and post-consumer recycled content.
- E. LEED Submittals: Manufacturer's product data for carpeting in compliance with Section 01 61 16; provide documentation of VOC content in g/L for adhesives.
- F. Selection Samples: Submit manufacturer's complete set of color samples for Architect's initial color selection.
- G. Verification Samples: Submit two samples illustrating closed cell vinyl cushion backing, type 6,6 nylon and overall construction methods.
- H. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention. Submit C&A closed cell vinyl cushion backing installation instructions for six-foot roll goods with peel and stick installation adhesive when available or a wet installation method using low VOC, CRI approved adhesive and seaming diagram.
- I. Maintenance Data: Include maintenance procedures, recommendations for maintenance materials and equipment, and suggested schedule for cleaning. In house maintenance demonstration to be given by carpet manufacturer within 30 days after installation with end user. One case of Syon 5, one GLS Machine and one Roamer to be provided for maintenance demonstration by manufacturer and to become property of end user.
- J. Manufacturer's Carpet Warranty in writing registered with carpet manufacturer.
- K. Certification and description of reclamation and recycling process per section 1.07 of this document.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications
 - 1. Company specializing in manufacturing specified carpet with minimum 5 years documented experience.
 - 2. Manufacturer to provide representative to assist in project start-up and to inspect installation while in process and upon completion. Representative will notify designated contact if any installation instructions are not followed.

3. Single Source Responsibility: Obtain each type of carpet from one source and by a single manufacturer.
- B. Installer Qualifications
1. Flooring contractor must be certified by the carpet manufacturer prior to bid.
 2. Flooring contractor to be a specialty contractor normally engaged in this type of work and shall have prior experience in the installation of these types of materials.
 3. Flooring contractor will be responsible for proper product installation, including floor testing and preparation, as specified by the carpet manufacturer.
 4. Flooring contractor to provide Owner a written installation warranty that guarantees the completed installation to be free from defects in materials and workmanship for a period of five years after job completion.
- C. Carpet System Emissions: Comply with low-emitting requirements in Section 01 61 16.

1.4 DELIVERY, STORAGE, & HANDLING

- A. Deliver materials to the site in manufacturer's original packaging listing manufacturer's name, product name, identification number, and related information.
- B. Store in a dry location, between 60 degrees F and 80 degrees F and a relative humidity below 65%. Protect from damage and soiling. Stack carpet rolls horizontally on a flat surface, stacked no higher than two rolls.
- C. Make stored materials available for inspection by the Owner's representative.
- D. Store materials in area of installation for minimum period of 48 hours prior to installation.

1.5 PROJECT CONDITIONS

- A. Sub-floor preparation is to include all required work to prepare the existing floor for installation of the product as specified in this document and Manufacturer's installation instructions. This includes the purchase of and application of Floor Primer C36-E (new installation).
- B. The maximum amount of moisture evacuation from the floor is 3.0 pounds per 1,000 square feet in 24 hours. The acceptable pH level of the substrate is between 7.0 and 9.0. Flooring contractor is responsible for floor testing.
- C. All material used in sub-floor preparation and repair shall be recommended by the carpet manufacturer and shall be chemically and physically compatible with the carpet system being bid. Architect to verify concrete curing agent for compatibility. (Kuester, Seal Flex or Parabond)
- D. Maintain minimum 65 degrees F ambient temperature and 65% Relative Humidity for 72 hours prior to, during, and 48 hours after installation.
- E. Do not install carpet until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete, and ambient temperature and humidity conditions are and will be continuously maintained at values near those indicated for final occupancy.

1.6 EXTRA MATERIALS

- A. Provide additional 6 foot by 12-foot material of each type, color, and pattern furnished; product to be rolled and bound. Coordinate storage location with owner.

- B. Deliver all unused carpet and large scraps to Owner for “attic stock.” Dispose of scraps less than 2 square foot in area or less than 8” in width.
- C. Delivery one case of Syon 5, one GLS Machine and one Roamer directly to facility with Maintenance In Service.

1.7 CARPET WARRANTY

- A. Warranty to be sole source responsibility of the Manufacturer. Second source warranties and warranties that involve parties other than the carpet manufacturer is unacceptable.
- B. If the product fails to perform as warranted when properly installed and maintained the affected area will be repaired or replaced at the discretion of the Manufacturer.
- C. Chair Pads are not required for carpet warranty coverage.
- D. Warranty shall not exclude carpet product installed on stairs provided it is properly installed and maintained.
- E. Warranty shall be for a specifically defined non-prorated period of twenty five years. “Lifetime” warranties are NOT acceptable.
- F. The non-prorated twenty-five year warranty to be registered with the manufacturer and shall cover against and specifically define the following:
 - 1. Excessive Surface Wear: More than 15% loss of pile fiber weight.
 - 2. Excessive Static Electricity: More than 3.0 kV per AATCC 134.
 - 3. Resiliency Loss of the Backing: More than 10% loss of backing resiliency.
 - 4. Delamination.
 - 5. Edge Ravel.
 - 6. Zippering.
- G. Tuft Bind warranty in lieu of edge ravel and zippering is not acceptable.
- H. Five Year Installation Warranty to be provided in writing by the dealer purchasing and installing Powerbond.
 - 1. Flooring contractor will be responsible for proper product installation, including moisture, ph , etc. Floor testing and preparation, as specified by the carpet manufacturer. These results will be provided to the owner for review.
 - 2. Flooring contractor to provide Owner a written Five Year installation warranty that guarantees the completed installation to be free from defects in materials and workmanship for a period of five years after substantial completion.
- I. Provide certification and warranty that product is fully or partially recyclable through manufacturer's or aligned partner's currently operational recycling program. Include information regarding the following:
 - 1. The recycling process(es) itself (i.e. separation of components, chopping, melting, pelletizing, etc.)
 - 2. Portions of the product that will be recycled back into itself:
 - a. name/type of resulting product
 - b. end-use of resulting product
 - c. total product recycled content based on total product weight
 - d. whether resulting product is recyclable (fully or partially) or non-recyclable
 - 3. Portions of the product that will be down-cycled:
 - a. name/type of resulting product
 - b. end-use of resulting product

- c. total product recycled content based on total product weight
- d. whether resulting product is recyclable (fully or partially) or non-recyclable
4. Portions of the product that will be landfilled and/or incinerated. (NOTE: "Incineration" includes waste-to-energy conversion, extraction of embodied energy; using heat from incineration as a fuel source.)

PART 2 PRODUCTS

2.1 WALK OFF MATS

- A. Manufactured by Tandus Flooring
 1. Abrasive Action II (Color: TBD)
 - a. Construction: Patterned Loop
 - b. Gauge: 1/12 Gauge
 - c. Stitch Rate: 8.0/ inch
 - d. Pile Height Average: 0.187 inch
 - e. Fiber System: 100% TDX ® SD BCF Nylon 6,6 with Static Control & Ensure
 - f. Dye Method: 100% Solution Dyed
 - g. Face Weight: 24.0 oz/sq yd +/- 5%

2.2 MAINTENANCE EQUIPMENT

- A. Flooring contractor shall provide In house maintenance demonstration to be given by the Powerbond manufacturer and or R E Whittaker Company within 30 days of project completion with end user and Facilities Management Division, Custodial Services Department. This equipment, one Whittaker Smart Care 20" Machine, Two roamers and chemistry will be purchased through the flooring contractor and delivered to this school for the In House Maintenance Demonstration. This equipment will remain the property of Howard County Public Schools.

2.3 ACCESSORIES

- A. Materials recommended by Manufacturer for patching, priming, chemically welding the seams, etc.
- B. Adhesives: Products to be supplied with a pre-cured, mill-applied or other "dry" adhesive system (2.02E) when available. Otherwise, adhesive should be full spread, extremely low VOC in compliance with CRI Indoor Air Quality Adhesive Testing Program requirements, compatible with materials being adhered, as recommended by the Manufacturer.
- C. Base, Carpet Edge, and Transition Strips: As specified in applicable sections.

PART 3 EXECUTION

3.1 EXAMINATION / PREPARATION

- A. A. Prepare sub-floor to comply with criteria established in Manufacturer's installation instructions. Use only preparation materials that are acceptable to the Manufacturer. (Use Floor Primer C-36E or 46 E Floor Primer as recommended by C & A.)
 1. Remove all deleterious substances from substrate(s) that would interfere with or be harmful to the installation. (i.e. floor wax)
 2. Remove sub-floor ridges and bumps. Fill cracks, joints, holes, and other defects.
- B. Verify that sub-floor is smooth and flat within specified tolerances and ready to receive carpet.

- C. Verify that substrate surface is dust-free and free of substances that would impair bonding of product to the floor.
- D. Verify that concrete surfaces are ready for installation by conducting moisture and pH testing. Results must be within limits recommended by Manufacturer.
- E. There will be no exceptions to the provisions stated in the Manufacturer's installation instructions.

3.2 INSTALLATION - GENERAL

- A. Install product in accordance with Manufacturer's installation instructions.
- B. Verify carpet match before cutting to ensure minimal variation between dye lots.
- C. Layout carpet and locate seams in accordance with shop drawings.
 - 1. Locate seams in area of least traffic, out of areas of pivoting traffic, and parallel to main traffic. Minimize cross seams.
 - 2. Do not locate seams perpendicular through door openings.
 - 3. Align run of pile in same direction as anticipated traffic and in same direction on adjacent pieces.
 - 4. Locate change of color or pattern between rooms under door centerline.
 - 5. Provide monolithic color, pattern, and texture match within any one area.
- D. Install carpet tight and flat on sub-floor, well fastened at edges, with a uniform appearance.
- E. Double-cut carpet seams with accurate pattern match. Make cuts true, and unfrayed.
- F. Chemically weld all seams with manufacturer's recommended seam sealer as stated in installation instructions. Make sure the seam is fully sealed.
- G. Roll with appropriate roller for complete contact of carpet with mill-applied adhesive to sub-floor.
- H. Trim carpet neatly at walls and around interruptions.
- I. Completed carpet is to be smooth and free of bubbles, puckers, and other defects.

3.3 PROTECTION & CLEANING

- A. Remove excess adhesive and/or seam sealer from floor and wall surfaces without damage.
- B. All rubbish, wrappings, debris, trimmings, etc. to be removed from site and disposed of properly.
- C. Clean and vacuum carpet surfaces using a beater brush/bar commercial vacuum.
- D. After each area of carpet is installed, protect from soiling and damage by other trades by covering with Kraft paper or approved equal by end user.

END OF SECTION

SECTION 09 84 00 - ACOUSTIC ROOM COMPONENTS**PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. Fabric-covered fiberglass core panels and mounting accessories, (Type AP-1, AP-3, and AP-4).
- B. Co-Polymer Acoustic Wall Panels, (Type AP-2).

1.2 RELATED REQUIREMENTS**1.3 REFERENCE STANDARDS**

- A. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- C. ASTM E795 - Standard Practices for Mounting Test Specimens During Sound Absorption Tests.

1.4 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's printed data sheets for products specified.
- C. Shop Drawings: Fabrication and installation details, panel layout, and fabric orientation.
- D. Selection Samples: Manufacturer's color charts for fabric covering, indicating full range of fabrics, colors, and patterns available .
- E. Verification Samples: Fabricated samples of each type of panel specified; 12 x 12 in, showing construction, edge details, and fabric covering.

1.5 QUALITY ASSURANCE

- A. Warranty Period for Cementitious Wood Fiberboard Wall Panels: Lifetime.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect acoustical panels from moisture during shipment, storage, and handling. Deliver in factory-wrapped bundles; do not open bundles until panels are needed for installation.
- B. Store panels flat, in dry, well-ventilated space; do not stand panels on end.
- C. Protect panel edges from damage.
- D. Store, handle, protect and install absorptive materials, including fabrics materials, in accordance with the Construction IAQ Management Plan required by Division 1 Specifications.

PART 2 PRODUCTS**2.1 FABRIC-COVERED PANELS (Type AP-1, AP-3 and AP-4)**

- A. Manufacturers:
 - 1. Kinetics Noise Control.
 - 2. AVL Systems.
 - 3. Conwed Designscape an Owens Corning Company.
 - 4. Panel Solutions, Inc.

5. Sound Concepts Acoustical Products.
 6. Wall Technology, Inc.
 7. Armstrong World Industries, Inc.
- B. Basis-of-Design: Kinetics Noise Control; High-Impact Hardside Panels.
- C. Panels: Prefinished, factory assembled fabric-covered panels.
1. Surface Burning Characteristics: Flame spread index of 25 or less and smoke developed index of 450 or less, when tested in accordance with ASTM E84.
 2. Comply with low-emitting requirements in Section 01 61 16.
- D. Fiberglass Core Panels:
1. 1/8-inch- thick layer of compressed molded glass-fiber board with a minimum nominal density of 16 to 18 lb/cu. ft. laminated to face of core.
 2. Core Density: 6 to 7 lb/cu ft.
 3. Noise Reduction Coefficient (NRC): Not less than 0.90 for 1-inch panel, when tested in accordance with ASTM C423 for Type A mounting, per ASTM E 795.
 4. Panel Thickness: 3 inch at Type AP-1, 2 inches at Type AP-3 and Type AP-4.
 5. Corners: Square.
 6. Mounting: Back mounting.
- E. Fabric Covering: Seamless fabric facing material, for stretched covering of core material.
1. Manufacturer: Maharam, www.maharam.com.
 2. Color: As selected from full color line of Metric, Messenger, Medium, Parallell, and Crisp (unbacked).
 3. Fiber Content: 100 percent woven polyester.
 4. Applied Treatments: Stain resistance.
- 2.2 CO-POLYMER ACOUSTICAL WALL PANELS (Type AP-2)
- A. Basis-of-Design: Kinetics Noise Control, SportsBoard Conform co-polymer Panels; www.kineticsnoise.com.
- B. Co-polymer Panels:
1. Thickness: 2 1/16 inches.
 2. Size: As indicated on the drawings.
 3. Core: 2 inches thick, 6 - 7 pcf density fiberglass.
 4. Edge Detail: Square.
 5. Formed Copolymer Facing and Edges: 1/16 inch thick copolymer perforated with 3/32 inch holes on 5/32 inch staggered centers. Copolymer is a single sheet heat formed to cover all panel edges.
 - a. Color: As selected by Architect from panel manufacturer's full range colors.
 6. Install with minimum 1/8 inch reveal at the perimeter to allow for expansion and contraction of copolymer due to temperature changes.
 7. Sound Absorption (ASTM C423): Noise Reduction Coefficient as follows:
 - a. 2 1/16 inches Panel 1.00, minimum.
- 2.3 FABRICATION
- A. General: Fabricate panels to sizes and configurations indicated, with fabric facing installed without sagging, wrinkles, blisters, or visible seams.
- B. Resin harden perimeter edges and areas of core for attachment of mounting brackets.

- C. Tolerances: Fabricate to finished tolerance of plus or minus 1/16 in for thickness, overall length and width, and squareness from corner to corner.

2.4 ACCESSORIES

- A. Back-Mounting Accessories: Manufacturer's standard accessories for concealed support, designed to allow panel removal, and as follows:
 - 1. Two-part clip and base-support bracket system; brackets designed to support full weight of panels and clips designed for lateral support, with one part mechanically attached to back of panel and the other attached to substrate.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install acoustical panels in locations indicated, following installation recommendations of panel manufacturer. Align panels accurately, with edges plumb and top edges level. Scribe to fit accurately at adjoining work and penetrations.
- B. Install panels to construction tolerances of plus or minus 1/16 in for the following:
 - 1. Plumb and level.
 - 2. Flatness.

3.2 CLEANING

- A. Clean fabric facing upon completion of installation from dust and other foreign materials, following manufacturer's instructions.
- B. Remove surplus materials, trimmed portions of panels, and debris resulting from installation.

3.3 PROTECTION

- A. Provide protection of installed acoustical panels until completion of the work.
- B. Replace panels that cannot be cleaned and repaired to satisfaction of the Architect.

END OF SECTION

SECTION 09 91 13 - EXTERIOR PAINTING**PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. This Section includes surface preparation and the application of paint systems on the following exterior substrates:
 - 1. Concrete masonry units (CMU).
 - 2. Steel.
 - 3. Galvanized metal.
 - 4. Exterior portland cement (EIFS).

1.2 RELATED REQUIREMENTS

- A. Section 01 30 00 - Administrative Requirements: Submittal procedures, project meetings, progress schedules and documentation, reports, coordination.

1.3 DEFINITIONS

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

1.4 REFERENCE STANDARDS

- A. ASTM D 3359 - Standard Test Methods for Measuring Adhesion by Tape.
- B. SSPC (PM1) - Good Painting Practice: SSPC Painting Manual, Vol. 1; Society for Protective Coatings.

1.5 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: For each type of product indicated..
- C. Samples for Initial Selection: For each type of topcoat product indicated.
- D. Samples for Verification: For each type of paint system and each color and gloss of topcoat indicated.
 - 1. Submit Samples on rigid backing, 8 inches square.
 - 2. Step coats on Samples to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.
- E. 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.

- F. Maintenance Materials: Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
 - 1. Quantity: Furnish an additional 5 percent, but not less than 2 gal. of each material and color applied.

1.6 QUALITY ASSURANCE

- A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.

1.7 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. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F, and a maximum 90 deg F.
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.8 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Benjamin Moore & Co.
- B. Glidden Professional.
- C. PPG Industries.
- D. Sherwin-Williams Company.

2.2 PAINT, GENERAL

- A. Material Compatibility:
 - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- B. Colors:
 - 1. As selected by Architect from manufacturer's full range.
 - 2. Dark tints may be used on metal frames that may require more coats than that indicated on paint schedule for proper coverage; apply as many coats as necessary for complete hide.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Masonry (Clay and CMU): 12 percent.
 - 2. Plaster: 12 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
 - 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

- A. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. Use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
 - 2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- B. 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.
- C. Seal surfaces that might cause bleed through or staining of topcoat.
- D. Concrete and Unit Masonry Surfaces to be Painted: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.
- E. Corroded Steel and Iron Surfaces to be Painted: Prepare using at least SSPC-PC 2 (hand tool cleaning) or SSPC-SP 3 (power tool cleaning) followed by SSPC-SP 1 (solvent cleaning).
- F. Concrete Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- G. Delete paragraph below if primers are shop applied and will not be removed in the field.
- H. Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.

- I. 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 paints.
- J. Passivated Galvanized Steel: Clean with a water-based industrial strength cleaner, and/or “Brush Blast” in accordance with SSPC-SP7. After the surface has been prepared, apply recommended primer to a small area. Allow primer to cure for 7 days, and test adhesion using the “cross-hatch adhesion tape test” method in accordance with ASTM D 3359. If the adhesion of the primer is positive, proceed with a recommended coating system for galvanized metal.
- K. Plaster Substrates: Do not begin paint application until plaster is fully cured and dry.

3.3 APPLICATION

- A. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
 - 1. The number of coats and film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
 - 2. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
 - 3. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion.
- B. Apply paints according to manufacturer's written instructions.
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Architect will select from standard colors and finishes available.
 - a. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, covers, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
 - 3. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
 - 4. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 - 5. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
- C. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.

- D. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- E. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.
- F. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- G. 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.
- H. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels; materials and products having factory-applied primers are not considered prefinished.
 - 1. Prefinished items include the following factory-finished components:
 - a. Finished mechanical and electrical equipment.
 - b. Light fixtures.
 - 2. Finished metal surfaces include the following:
 - a. Anodized aluminum.
 - b. Stainless steel.
 - c. Chromium plate.
 - d. Copper and copper alloys.
 - e. Bronze and brass.
 - 3. Operating parts include moving parts of operating equipment and the following:
 - a. Valve operators.
 - 4. Labels: Do not paint over UL, FMG, or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.
 - 5. Non-metallic roofing and flashing.
 - 6. Brick, architectural concrete or cast stone.
 - 7. Exterior insulation and finish system (EIFS).
 - 8. Stucco.
 - 9. Glass.

3.4 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project 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.

3.5 EXTERIOR PAINTING SCHEDULE

A. CMU Substrates:

1. High-Build Elastomeric Waterborne Latex System - Smooth:
 - a. Prime Coat: As recommended in writing by topcoat manufacturer.
 - 1) MOORE'S Acrylic Masonry Sealer 066; Benjamin Moore & Co
 - 2) Concrete Coatings Block Filler Interior/Exterior Primer 3010-1200; Glidden Professional.
 - 3) PERMA-CRETE LTC 4-100 Concrete Block & Masonry Surface/Filler; PPG Industries.
 - 4) S-W Loxon Block Surfacers, A24W200; Sherwin-Williams Company (The).
 - b. Intermediate Coat: As recommended in writing by topcoat manufacturer.
 - 1) MOORLASTIC 100% Acrylic Elastomeric Waterproof Coating - Low Lustre 055; Benjamin Moore & Co.
 - 2) Decra-Flex 300 Exterior Elastomeric Coating Smooth 2260 Series; Glidden Professional.
 - 3) PERMA-CRETE PITT-FLEX 4-110 series Elastomeric Coating; PPG Industries.
 - 4) Conflex XL High Build Elastomeric Coating, A5 Series; Sherwin-Williams Company (The).
 - c. Topcoat:
 - 1) MOORLASTIC 100% Acrylic Elastomeric Waterproof Coating - Low Lustre 055; Benjamin Moore & Co.
 - 2) Decra-Flex 300 Exterior Elastomeric Coating Smooth 2260 Series; Glidden Professional.
 - 3) PERMA-CRETE PITT-FLEX 4-110 series Elastomeric Coating; PPG Industries.
 - 4) Conflex XL High Build Elastomeric Coating, A5 Series; Sherwin-Williams Company (The).

B. Steel Substrates:

1. Waterborne High-Performance System:
 - a. Prime Coat: Alkyd anticorrosive metal primer.
 - 1) Super Spec HP Universal Alkyd Metal Primer P07; Benjamin Moore & Co.
 - 2) Devflex 4020PF Direct to Metal Flat Primer & Finish; Glidden Professional.
 - 3) Pitt-Tech Plus 90-912 Interior/Exterior DTM Industrial Primer; PPG Industries.
 - 4) ProCryl Universal Metal Primer B66W300; Sherwin-Williams Company (The).
 - b. Intermediate Coat: Exterior enamel matching topcoat
 - 1) Super Spec HP D.T.M. Acrylic Semi-Gloss P29; Benjamin Moore & Co.
 - 2) Devflex 4216HP Waterborne Acrylic Semi-Gloss Enamel 4216L Series; Glidden Professional.
 - 3) Pitt-Tech Plus 90-1210 Interior/Exterior Semi Gloss DTM WB Industrial Enamel; PPG Industries.
 - 4) DTM Acrylic Coating B66-100; Sherwin-Williams Company (The).
 - c. Topcoat: Exterior enamel (semigloss).
 - 1) Super Spec HP D.T.M. Acrylic Semi-Gloss P29; Benjamin Moore & Co.
 - 2) Devflex 4216HP Waterborne Acrylic Semi-Gloss Enamel 4216L Series; Glidden Professional.

- 3) Pitt-Tech Plus 90-1210 Interior/Exterior Semi Gloss DTM WB Industrial Enamel; PPG Industries.
- 4) DTM Acrylic Coating B66-100; Sherwin-Williams Company (The).

C. Galvanized-Metal Substrates:

1. Latex Over Water-Based Primer System:

- a. Prime Coat: Waterborne galvanized-metal primer.
 - 1) SUPER SPEC HP Acrylic Metal Primer P04(52 g/l); Benjamin Moore & Co.
 - 2) Devflex 4020PF Direct to Metal Flat Primer & Finish; Glidden Professional.
 - 3) Pitt-Tech Plus 90-912 Interior/Exterior DTM Industrial Primer; PPG Industries.
 - 4) DTM Acrylic Primer/Finish B66W1; Sherwin-Williams Company (The).
- b. Intermediate Coat: Exterior latex matching topcoat.
 - 1) MOORGLO Acrylic Semi-Gloss House Paint N096 (149 g/l); Benjamin Moore & Co.
 - 2) Devflex 4216HP Waterborne Acrylic Semi-Gloss Enamel 4216L Series; Glidden Professional.
 - 3) Pitt-Tech Plus 90-1210 Interior/Exterior Semi Gloss DTM WB Industrial Enamel; PPG Industries.
 - 4) DTM Acrylic Gloss Coating B66W100 Series; Sherwin-Williams Company (The).
- c. Topcoat: Exterior latex.
 - 1) MOORGLO Acrylic Semi-Gloss House Paint N096 (149 g/l); Benjamin Moore & Co.
 - 2) Devflex 4216HP Waterborne Acrylic Semi-Gloss Enamel 4216L Series; Glidden Professional.
 - 3) Pitt-Tech Plus 90-1210 Interior/Exterior Semi Gloss DTM WB Industrial Enamel; PPG Industries.
 - 4) DTM Acrylic Gloss Coating B66W100 Series; Sherwin-Williams Company (The).

D. EIFS Substrates:

1. Latex Over Alkali-Resistant Primer System:

- a. Prime Coat: Alkali-resistant primer.
 - 1) MOORE'S Acrylic Masonry Sealer 066; Benjamin Moore & Co.
 - 2) Hydrosealer Primer Sealer 6001-1200; Glidden Professional.
 - 3) PERMA-CRETE 4-603 Interior/Exterior Alkali Resistant Primer; PPG Industries.
 - 4) Loxon Masonry Primer A24-300; Sherwin-Williams Company (The).
- b. Intermediate Coat: Exterior latex matching topcoat.
 - 1) Super Spec 100 % Acrylic Semi-Gloss House Paint 170; Benjamin Moore & Co.
 - 2) Fortis 350 Exterior Semi-Gloss Paint 2406V Series; Glidden Professional.
 - 3) SPEEDHIDE 6-2045 series Exterior Satin 100% Acrylic Latex-; PPG Industries.
 - 4) A-100 Exterior Latex Satin A82; Sherwin-Williams Company (The).
- c. Topcoat: Exterior latex (semigloss).
 - 1) Super Spec 100 % Acrylic Semi-Gloss House Paint 170; Benjamin Moore & Co.
 - 2) Fortis 350 Exterior Semi-Gloss Paint 2406V Series; Glidden Professional.

- 3) SPEEDHIDE 6-2045 series Exterior Satin 100% Acrylic Latex; PPG Industries.
- 4) A-100 Exterior Latex Satin A82; Sherwin-Williams Company (The).

END OF SECTION

SECTION 09 91 23 - INTERIOR PAINTING**PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. This Section includes surface preparation and the application of paint systems on the following interior substrates:
 - 1. Concrete masonry unites (CMU).
 - 2. Steel.
 - 3. Galvanized metal.
 - 4. Wood.
 - 5. Gypsum board.
 - 6. Wood fiber acoustical panels.
 - 7. Cotton or canvas insulation coverings.
 - 8. Exposed PVC piping.

1.2 RELATED REQUIREMENTS

- A. Section 01 30 00 - Administrative Requirements: Submittal procedures, project meetings, progress schedules and documentation, reports, coordination.

1.3 DEFINITIONS

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

1.4 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency.
- B. ASTM D 3359 - Standard Test Methods for Mearsuring Adhesion by Tape.
- C. SSPC (PM1) - Good Painting Practice: SSPC Painting Manual, Vol. 1; Society for Protective Coatings.

1.5 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data for each type of product submitted.
- C. Samples for Initial Selection: Submit each type of topcoat product indicated.
- D. Samples for Verification: Submit each type of paint system and each color and gloss of topcoat indicated.
 - 1. Submit Samples on rigid backing, minimum 8 inches square.
 - 2. Step coats on Samples to show each coat required for system.
 - 3. Label each coat of each Sample.

4. Label each Sample for location and application area.
- E. Product List: Submit 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.
- F. Maintenance Materials: Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
 1. Quantity: Furnish an additional 5 percent, but not less than 2 gal. of each material and color applied.
- G. LEED Submittals: Manufacturer's product data indicating VOC content in g/L for primers, paints and coating applied within the building waterproofing envelope.

1.6 QUALITY ASSURANCE

- A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.

1.7 MOCK-UP

- A. Benchmark Samples (Mock-ups): Provide benchmark finish sample (all coats) for each coating type and substrate.
 1. Architect will select several rooms or surfaces to represent surfaces and conditions, for application of each paint system type and substrate; colors will be provided for Benchmark Samples.
 - a. Wall Surfaces: Complete minimum 100 square feet.
 - b. Small Areas and Items: Apply systems to items designated by the Architect.
 2. Complete Benchmark Samples per the requirements of this Section.
 - a. Provide required sheen, color and texture for each surface.
 - b. Architect-accepted Benchmark Samples to establish level of quality for remainder of Work.
 3. Architect to provide final color approvals from Benchmark Samples and intermediate coat wall colors; refer to subsection 3.3 of this Section.
 4. Benchmark samples to be prepared by individuals performing the remaining Work for this Project.

1.8 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. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F and a maximum 90 deg F.
 1. Maintain containers in clean condition, free of foreign materials and residue.
 2. Remove rags and waste from storage areas daily.

1.9 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Benjamin Moore & Co.
- B. Glidden Professional.
- C. PPG Industries.
- D. Sherwin-Williams Company.

2.2 PAINT, GENERAL

- A. Material Compatibility:
 - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- B. Chemical Components of Field-Applied Interior Paints and Coatings: Provide products that comply with the following limits for VOC content, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and the following chemical restrictions; these requirements do not apply to primers or finishes that are applied in a fabrication or finishing shop:
 - 1. Flat Paints: VOC content of not more than 50 g/L.
 - 2. Nonflat Paints and Paint Primers: VOC content of not more than 150 g/L.
- C. Colors:
 - 1. As selected by Architect from manufacturer's full range.
 - 2. Different colors may be used in the same room.
 - 3. Colors of frames may be different than doors.
 - 4. Colors for ceilings and trim may be different from walls, and walls may be more than one color or striped.
 - 5. Dark tints may be used on metal frames that may require more coats than that indicated on paint schedule for proper coverage; apply as many coats as necessary for complete hide.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Wood: 15 percent.
 - 2. Gypsum Board: 12 percent.

- C. Verify suitability of substrates, including surface conditions [and compatibility with existing finishes and primers].
- D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
 - 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

- A. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. Use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
 - 2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- B. 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.
- C. Seal surfaces that might cause bleed through or staining of topcoat.
- D. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.
- E. Insulated Coverings to be Painted: Remove dirt, grease, and oil from canvas and cotton.
- F. Concrete Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- G. Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.
- H. 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 paints.
- I. Passivated Galvanized Steel: Clean with a water-based industrial strength cleaner, and/or "Brush Blast" in accordance with SSPC-SP7. After the surface has been prepared, apply recommended primer to a small area. Allow primer to cure for 7 days, and test adhesion using the "cross-hatch adhesion tape test" method in accordance with ASTM D 3359. If the adhesion of the primer is positive, proceed with a recommended coating system for galvanized metal.
- J. Wood Substrates:
 - 1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
 - 2. Sand surfaces that will be exposed to view, and dust off.
 - 3. Prime edges, ends, faces, undersides, and backsides of wood.
 - 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

- K. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.
- L. Cotton or Canvas Insulation Covering Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

3.3 COLOR COORDINATION

- A. Tint intermediate coats for wall surfaces to match color sample selections.
- B. Architect will visit the Project within 7 days after notification, to review primed walls for final color coordination.
- C. Allow 3 week days in schedule for Architect to change final wall colors between intermediate coat and remaining coat(s).
- D. Allow time to order final paint colors; do not order final paint colors until obtaining final color approvals.

3.4 APPLICATION

- A. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
 - 1. The number of coats and film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
 - 2. Wall Surfaces: Receive final color approvals following Architect's review of Intermediate Coats, before proceeding.
 - 3. Omit primer over metal surfaces that have been shop primed and touchup painted.
 - 4. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
 - 5. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion.
- B. Apply paints according to manufacturer's written instructions.
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Architect will select from standard colors and finishes available.
 - a. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, convactor covers, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.

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. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 5. Finish doors on tops, bottoms, and side edges the same as faces.
- C. Block Fillers:
1. Apply two coats of block filler to concrete masonry block at a rate to ensure complete coverage with pores filled.
 2. Perform a squeegee operation on second coat to fill all crevices and produce a smooth surface; do not remove filler material from surface with the squeegee operation.
- D. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.
1. Wall Surfaces: Tint Prime Coat a lighter shade to facilitate identification; tint Prime Coat to match color of finish coat, but provide sufficient difference in shade to distinguish Prime Coat from Intermediate Coat used for final color selections.
 2. Other Surfaces: Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- E. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.
- F. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- G. 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.
- H. Painting Mechanical and Electrical Work: Paint items exposed in equipment rooms and occupied spaces including, but not limited to, the following:
1. Mechanical Work:
 - a. Uninsulated metal piping.
 - b. Uninsulated plastic piping.
 - c. Pipe hangers and supports.
 - d. Tanks that do not have factory-applied final finishes.
 - e. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
 - f. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
 - g. Mechanical equipment that is indicated to have a factory-primed finish for field painting.
 2. Electrical Work:
 - a. Switchgear.

- b. Panelboards.
 - c. Electrical equipment that is indicated to have a factory-primed finish for field painting.
 - d. Exposed wiremold and conduit in all finished spaces to match color of wall.
- I. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
- 1. Prefinished items include the following factory-finished components:
 - a. Architectural woodwork.
 - b. Acoustical wall panels.
 - c. Metal toilet enclosures.
 - d. Metal lockers.
 - e. Elevator entrance doors and frames.
 - f. Elevator equipment.
 - g. Finished mechanical and electrical equipment.
 - h. Light fixtures.
 - 2. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:
 - a. Foundation spaces.
 - b. Furred areas.
 - c. Ceiling plenums.
 - d. Utility tunnels.
 - e. Pipe spaces.
 - f. Duct shafts.
 - g. Elevator shafts.
 - 3. Finished metal surfaces include the following:
 - a. Anodized aluminum.
 - b. Stainless steel.
 - c. Chromium plate.
 - d. Copper and copper alloys.
 - e. Bronze and brass.
 - 4. Operating parts include moving parts of operating equipment and the following:
 - a. Valve and damper operators.
 - b. Linkages.
 - c. Sensing devices.
 - d. Motor and fan shafts.
 - 5. Labels: Do not paint over UL, FMG, or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.
 - 6. Items indicated to receive other finishes.
 - 7. Items indicated to remain unfinished.
 - 8. Floors, unless specifically so indicated.
 - 9. Ceramic and other tiles.
 - 10. Acoustical materials, unless specifically so indicated.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project 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.

3.6 INTERIOR PAINTING SCHEDULE

A. Concrete Substrates, Nontraffic Surfaces:

- 1. Institutional Low-Odor/VOC Latex System: Eggshell Finish.
 - a. Prime Coat: Institutional low-odor/VOC interior latex matching topcoat.
 - 1) Ultra Spec 500 Interior Latex Primer (N534) ; Benjamin Moore & Co.
 - 2) Ultra-Hide 250 Primer 1402; Glidden Professional.
 - 3) PERMA-CRETE 4-603 Interior/Exterior Alkali Resistant Primer; PPG Industries.
 - 4) S-W ProMar 200 Zero VOC Interior Latex Primer, B28W2600; Sherwin-Williams Company.
 - b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat.
 - 1) Ultra Spec 500 Interior Latex Eggshell Finish (N538); Benjamin Moore & Co.
 - 2) Lifemaster Interior Latex Eggshell 9300; Glidden Professional.
 - 3) SPEEDHIDE 6-421 series High Solids Interior Enamel Eggshell Latex; PPG Industries.
 - 4) S-W ProMar 200 Zero VOC Interior Latex Eg-Shel, B28-2600 Series; Sherwin-Williams Company.
 - c. Topcoat: Institutional low-odor/VOC interior latex (eggshell).
 - 1) Ultra Spec 500 Interior Latex Eggshell Finish (N538); Benjamin Moore & Co.
 - 2) Lifemaster Interior Latex Eggshell 9300; Glidden Professional.
 - 3) SPEEDHIDE 6-421 series High Solids Interior Enamel Eggshell Latex; PPG Industries.
 - 4) S-W ProMar 200 Zero VOC Interior Latex Eg-Shel, B28-2600 Series; Sherwin-Williams Company.

B. Clay-Masonry Substrates:

- 1. Institutional Low-Odor/VOC Latex System:
 - a. Prime Coat: Institutional low-odor/VOC interior latex matching topcoat.
 - 1) Ultra Spec 500 Interior Latex Primer (N534); Benjamin Moore & Co.
 - 2) Ultra-Hide 250 Primer; Glidden Professional.
 - 3) PERMA-CRETE 4-603 Interior/Exterior Alkali Resistant Primer; PPG Industries.
 - 4) ProMar 200 Zero VOC Interior Latex Primer, B28W2600 Series; Sherwin-Williams Company.
 - b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat.
 - 1) Ultra Spec 500 Interior Latex Eggshell Finish (N538); Benjamin Moore & Co.
 - 2) Lifemaster Interior Latex Eggshell 9300; Glidden Professional.
 - 3) SPEEDHIDE 6-421 series High Solids Interior Enamel Eggshell Latex; PPG Industries.

- 4) ProMar 200 Zero VOC Interior Latex Eg-Shel B28-2600; Sherwin-Williams Company.
 - c. Topcoat: Institutional low-odor/VOC interior latex (eggshell).
 - 1) Ultra Spec 500 Interior Latex Eggshell finish (N538); Benjamin Moore & Co.
 - 2) Lifemaster Interior Latex Eggshell 9300; Glidden Professional.
 - 3) SPEEDHIDE 6-421 series High Solids Interior Enamel Eggshell Latex; PPG Industries.
 - 4) ProMar 200 Zero VOC Interior Latex Eg-Shel, B20-2600 Series; Sherwin-Williams Company.
- C. CMU Substrates:
1. Institutional Low-Odor/VOC Latex System:
 - a. Prime Coat: Interior/exterior latex block filler.
 - 1) Latex Block Filler 285; Benjamin Moore & Co.
 - 2) Concrete Coatings Block Filler Interior/Exterior Primer 3010-1200; Glidden Professional.
 - 3) SPEEDHIDE 6-7 Interior/Exterior Masonry Latex Block Filler; PPG Industries.
 - 4) S-W PrepRite Block Filler, B25W25; Sherwin-Williams Company (The).
 - b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat.
 - 1) Ultra Spec 500 Interior Latex Eggshell Finish (N538); Benjamin Moore & Co.
 - 2) Lifemaster Interior Latex Eggshell 9300; Glidden Professional.
 - 3) SPEEDHIDE 6-421 series High Solids Interior Enamel Eggshell Latex; PPG Industries.
 - 4) S-W ProMar 200 Zero VOC Eg-Shel, B20-2600 Series; Sherwin-Williams Company.
 - c. Topcoat: Institutional low-odor/VOC interior latex (eggshell).
 - 1) Ultra Spec 500 Interior Latex Eggshell Finish (538); Benjamin Moore & Co.
 - 2) Lifemaster Interior Latex Eggshell 9300; Glidden Professional.
 - 3) SPEEDHIDE 6-421 series High Solids Interior Enamel Eggshell Latex; PPG Industries.
 - 4) S-W ProMar 200 Zero VOC Eg-Shel, B20-2600; Sherwin-Williams Company.
- D. Spot Prime for Field Connections and Touch Up for Structural Elements:
1. Thoroughly examine structural elements for bare spots and abraded surface; spot prime for full coverage.
 2. Extend spot prime minimum 6 inches beyond edge of field connections.
 3. Waterborne Enamel System:
 - a. Prime Coat:
 - 1) SUPER SPEC HP Acrylic Metal Primer P04; Benjamin Moore & Co.
 - 2) Devflex 4020PF Direct to Metal Primer & Flat Finish; Glidden Professional.
 - 3) Pitt-Tech Plus 90-912 Interior/Exterior DTM Industrial Metal Primer; PPG Industries.
 - 4) Pro Industrial Pro-Cryl® Universal Primer, B66-310 Series; Sherwin-Williams Company.
- E. Steel Substrates:
1. Quick-Drying Enamel System: Shop prime.
 - a. Prime Coat: Quick-drying alkyd metal primer.
 - 1) SUPER SPEC Shop-Coat Alkyd Metal Primer P14; Benjamin Moore & Co.

- 2) Devflex 4020PF Direct to Metal Primer & Flat Finish; Glidden Professional.
 - 3) Pitt-Tech Plus 90-912 Interior/Exterior DTM Industrial Metal Primer; PPG Industries.
 - 4) Kem Bond HS Universal Metal Primer, B50NZ3 Series; Sherwin-Williams.
2. Water-Based Dry-Fall System:
- a. Prime Coat: Waterborne dry fall.
 - 1) Super Spec Sweep-UP Latex Flat (153); Benjamin Moore & Co.
 - 2) Devflex 4020PF Direct to Metal Primer & Flat Finish; Glidden Professional.
 - 3) Pitt-Tech Plus 90-912 Interior/Exterior DTM Industrial Metal Primer; PPG Industries.
 - 4) S-W ProCryl Universal Primer, B66-310 Series; Sherwin-Williams Company.
 - b. Intermediate Coat:
 - 1) Eggshell Finish Not Available; Benjamin Moore & Co.
 - 2) Waterborne Dryfall Eggshell 1482-1200; Glidden Professional.
 - 3) SPEEDHIDE-SUPER TECH WB- 6-724XI (Low Sheen Semi Gloss) or 6-725XI (flat) Interior 100% Acrylic Latex Dry-Fog; PPG Industries.
 - 4) S-W Waterborne Acrylic Dry Fall, Low VOC, B42W82; Sherwin-Williams Company.
 - c. Topcoat: Waterborne dry fall.
 - 1) Eggshell Finish Not Available; Benjamin Moore & Co.
 - 2) Waterborne Dryfall Eggshell 1482-1200; Glidden Professional.
 - 3) SPEEDHIDE-SUPER TECH WB- 6-724XI (Low Sheen Semi Gloss) or 6-725XI (flat) Interior 100% Acrylic Latex Dry-Fog; PPG Industries.
 - 4) S-W Waterborne Acrylic Dry Fall, Low VOC, B42W82; Sherwin-Williams Company.
3. Institutional Low-Odor/VOC Latex System (Field Primed): Eggshell finish.
- a. Prime Coat - Field Applied: (shop prime with Quick-Drying Enamel System)
 - 1) Super Spec Acrylic Metal Primer (P04); Benjamin Moore & Co.
 - 2) Pitt-Tech Plus 90-912 Interior/Exterior DTM Industrial Metal Primer; PPG Industries.
 - 3) S-W ProCryl Universal Primer, B66-310 Series; Sherwin-Williams Company.
 - b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat.
 - 1) Ultra Spec 500 Interior Latex Eggshell Finish (N538); Benjamin Moore & Co.
 - 2) SPEEDHIDE 6-421 series High Solids Interior Enamel Eggshell Latex; PPG Industries.
 - 3) S-W ProMar 200 Zero VOC Interior Latex Eg-Shel B20-2600 Series; Sherwin-Williams Company.
 - c. Topcoat: Institutional low-odor/VOC interior latex (eggshell).
 - 1) Ultra Spec 500 Interior Latex Eggshell Finish (N538); Benjamin Moore & Co.
 - 2) SPEEDHIDE 6-421 series High Solids Interior Enamel Eggshell Latex; PPG Industries.
 - 3) S-W ProMar 200 Zero VOC Interior Latex Eg-Shel B20-2600 Series; Sherwin-Williams Company.
4. Waterborne High-Performance Gloss Enamel System: Handrails and railing systems; and items indicated to be gloss finish.
- a. Prime Coat - Field Applied: (shop prime with Quick-Drying Enamel System).

- 1) Pitt-Tech Plus 90-912 Interior/Exterior DTM Industrial Metal Primer; PPG Industries.
 - 2) DTM Wash Primer (Galvanized) or WB Tile-Clad Primer (Steel); Sherwin-Williams Company.
 - b. Intermediate Coat: Interior latex matching topcoat.
 - 1) Pitt-Tech Plus 90-1310 series Interior/Exterior High Gloss DTM Industrial Enamel; PPG Industries.
 - 2) S-W Waterbased Acrolon 100 Urethane, B65W720 Series; Sherwin-Williams Company.
 - c. Topcoat: Interior latex (eggshell).
 - 1) Pitt-Tech Plus 90-1310 series Interior/Exterior High Gloss DTM Industrial Enamel; PPG Industries.
 - 2) S-W Waterbased Acrolon 100 Urethane, B65W720 Series; Sherwin-Williams Company.
- F. Galvanized-Metal Substrates:
1. Water-Based Dry-Fall System:
 - a. Prime Coat: Waterborne dry fall.
 - 1) Super Spec Sweep-Up Latex Flat (153); Benjamin Moore & Co.
 - 2) Waterborne Dryfall Eggshell 1482-1200; Glidden Professional.
 - 3) SPEEDHIDE-SUPER TECH WB- 6-724XI (Low Sheen Semi Gloss) or 6-725XI (flat) Interior 100% Acrylic Latex Dry-Fog; PPG Industries.
 - 4) S-W Waterborne Acrylic Dry Fall, Low VOC B42W82; Sherwin-Williams Company.
 - b. Topcoat: Waterborne dry fall.
 - 1) Eggshell Finish Not Available; Benjamin Moore & Co.
 - 2) Waterborne Dryfall Eggshell 1482-1200; Glidden Professional.
 - 3) SPEEDHIDE-SUPER TECH WB- 6-724XI (Low Sheen Semi Gloss) or 6-725XI (flat) Interior 100% Acrylic Latex Dry-Fog; PPG Industries.
 - 4) S-W Waterborne Acrylic Dry Fall Low VOC, B42W82; Sherwin-Williams Company.
 2. Quick-Drying Enamel System: Shop prime.
 - a. Prime Coat: Quick-drying alkyd metal primer.
 - 1) SUPER SPEC HP Universal Metal Primer P07; Benjamin Moore & Co.
 - 2) Devflex 4020PF Direct to Metal Primer & Flat Finish; Glidden Professional.
 - 3) Pitt-Tech Plus 90-912 Interior/Exterior DTM Industrial Metal Primer; PPG Industries.
 - 4) Kem Bond HS Universal Primer B50NZ3 Series; Sherwin-Williams Company.
 3. Institutional Low-Odor/VOC Latex System Over Waterborne Primer System: Semigloss finish.
 - a. Prime Coat - Field Applied: (shop prime with Quick-Drying Enamel System)
 - 1) SUPER SPEC HP Acrylic Metal Primer P04; Benjamin Moore & Co.
 - 2) Devflex 4020PF Direct to Metal Primer & Flat Finish; Glidden Professional.
 - 3) Pitt-Tech Plus 90-912 Interior/Exterior DTM Industrial Metal Primer; PPG Industries.
 - 4) S-W ProCryl Universal Primer, B66-310 Series; Sherwin-Williams Company.
 - b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat.
 - 1) Ultra Spec 500 Interior Semi-gloss Finish (N539); Benjamin Moore & Co.

- 2) Lifemaster Interior Semi-Gloss 9200; Glidden Professional.
- 3) SPEEDHIDE 6-500 series Interior Semi-Gloss Acrylic Latex; PPG Industries.
- 4) S-W ProMar 200 Zero VOC Semi-gloss, B31-2600 Series; Sherwin-Williams Company.
- c. Topcoat: Institutional low-odor/VOC interior latex (semigloss).
 - 1) Ultra Spec 500 Interior Semi-Gloss Finish (N539); Benjamin Moore & Co.
 - 2) Lifemaster Interior Semi-Gloss 9200; Glidden Professional.
 - 3) SPEEDHIDE 6-500 series Interior Semi-Gloss Acrylic Latex; PPG Industries.
 - 4) S-W ProMar 200 Zero VOC Semi-Gloss, B31-2600 Series; Sherwin-Williams Company.
4. Waterborne High-Performance Gloss Enamel System: Provide for interior railing systems and exposed steel stair risers.
 - a. Prime Coat - Field Applied: (shop prime with Quick-Drying Enamel System).
 - 1) SUPER SPEC HP Acrylic Metal Primer P04; Benjamin Moore & Co.
 - 2) Devflex 4020PF Direct to Metal Primer & Flat Finish; Glidden Professional.
 - 3) Pitt-Tech Plus 90-912 Interior/Exterior DTM Industrial Metal Primer; PPG Industries.
 - 4) DTM Wash Primer (Galvanized) or WB Tile-Clad Primer (Steel); Duron, Inc.
 - b. Intermediate Coat: Interior urethane matching topcoat.
 - 1) SUPER SPEC HP Waterborne Urethane Gloss Finish P73; Benjamin Moore & Co.
 - 2) Devflex 4216HP Waterborne Acrylic Semi-Gloss Enamel 4216L Series; Glidden Professional.
 - 3) Pitt-Tech Plus 90-1310 series Interior/Exterior High Gloss DTM Industrial Enamel; PPG Industries.
 - 4) S-W Waterbased Acrolon 100 Urethane, B65W720 Series; Sherwin-Williams Company (The).
 - c. Topcoat: Interior latex (gloss).
 - 1) SUPER SPEC HP Waterborne Urethane Gloss Finish P73; Benjamin Moore & Co.
 - 2) Devflex 4216HP Waterborne Acrylic Semi-Gloss Enamel 4216L Series; Glidden Professional.
 - 3) Pitt-Tech Plus 90-1310 series Interior/Exterior High Gloss DTM Industrial Enamel; PPG Industries.
 - 4) S-W Waterbased Acrolon 100 Urethane, B65W720 Series; Sherwin-Williams Company (The).
- G. Dimensional and Dressed Lumber Substrates:
 1. Institutional Low-Odor/VOC Latex System: Semigloss finish.
 - a. Prime Coat: Interior latex-based wood primer.
 - 1) Ultra Spec 500 Latex Primer (N534); Benjamin Moore & Co.
 - 2) Gripper Interior/Exterior Primer-Sealer 3210-1200; Glidden Professional.
 - 3) SEAL Grip 17-921 Interior/Exterior 100% Acrylic Universal Primer/Sealer; PPG Industries.
 - 4) S-W PrepRite® ProBlock® Latex Primer, B51 Series; Sherwin-Williams Company.
 - b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat.
 - 1) Ultra Spec 500 Interior Semi-Gloss Finish (N539); Benjamin Moore & Co.

- 2) Lifemaster Interior Semi-Gloss 9200; Glidden Professional.
 - 3) SPEEDHIDE 6-500 series Interior Semi-Gloss Acrylic Latex; PPG Industries.
 - 4) S-W ProMar 200 Zero VOC Semi-Gloss, B31-2600 Series; Sherwin-Williams Company.
- c. Topcoat: Institutional low-odor/VOC interior latex (semigloss).
- 1) Ultra Spec 500 Interior Semi-Gloss Finish (N539); Benjamin Moore & Co.
 - 2) Lifemaster Interior Semi-Gloss 9200; Glidden Professional.
 - 3) SPEEDHIDE 6-500 series Interior Semi-Gloss Acrylic Latex; PPG Industries.
 - 4) S-W ProMar 200 Zero VOC Semi-Gloss, B31-2600 Series; Sherwin-Williams Company.
- H. Wood Panel Substrates:
1. Institutional Low-Odor/VOC Latex System: Semigloss finish.
 - a. Prime Coat: Interior latex-based wood primer.
 - 1) Ultra Spec 500 Interior Primer (N534); Benjamin Moore & Co.
 - 2) Gripper Interior/Exterior Primer-Sealer 3210-1200; Glidden Professional.
 - 3) SEAL Grip 17-921 Interior/Exterior 100% Acrylic Universal Primer/Sealer; PPG Industries.
 - 4) ProBlock® Latex Primer, B51 Series; Sherwin-Williams Company.
 - b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat.
 - 1) Ultra Spec 500 Interior Semi-Gloss Finish (N539); Benjamin Moore & Co.
 - 2) Lifemaster Interior Semi-Gloss 9200; Glidden Professional.
 - 3) SPEEDHIDE 6-500 Series Interior Semi-Gloss Acrylic Latex; PPG Industries.
 - 4) ProMar 200 Zero VOC Int. Latex S/G B31-2600; Sherwin-Williams Company.
 - c. Topcoat: Institutional low-odor/VOC interior latex.
 - 1) Ultra Spec 500 Interior Semi-Gloss Finish (N539); Benjamin Moore & Co.
 - 2) Lifemaster Interior Semi-Gloss 9200; Glidden Professional.
 - 3) SPEEDHIDE 6-500 series Interior Semi-Gloss Acrylic Latex; PPG Industries.
 - 4) ProMar 200 Zero VOC Int. Latex S/G B31-2600; Sherwin-Williams Company.
- I. Gypsum Board Substrates:
1. Institutional Low-Odor/VOC Latex System: Eggshell finish.
 - a. Prime Coat: Interior latex primer/sealer.
 - 1) Ultra Spec 500 Interior Primer (N534); Benjamin Moore & Co.
 - 2) High Hide Interior Primer Sealer 1000-1000; Glidden Professional.
 - 3) SPEEDHIDE 6-2 Interior Latex Sealer Quick-Drying; PPG Industries.
 - 4) S-W ProMar 200 Zero VOC Interior Latex Primer, B28W2600; Sherwin-Williams Company.
 - b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat.
 - 1) Ultra Spec 500 Interior Eggshell Finish (N538); Benjamin Moore & Co.
 - 2) Lifemaster Interior Eggshell 9300; Glidden Professional.
 - 3) SPEEDHIDE 6-421 series High Solids Interior Enamel Eggshell Latex; PPG Industries.
 - 4) S-W ProMar 200 Zero VOC Eg-Shel, B20-2600 Series; Sherwin-Williams Company.
 - c. Topcoat: Institutional low-odor/VOC interior latex (eggshell).
 - 1) Ultra Spec 500 Interior Eggshell Finish (N538); Benjamin Moore & Co.
 - 2) Lifemaster Interior Eggshell 9300; Glidden Professional.

- 3) SPEEDHIDE 6-421 series High Solids Interior Enamel Eggshell Latex; PPG Industries.
- 4) S-W ProMar 200 Zero VOC Eg-Shel B20-2600; Sherwin-Williams Company.
2. Institutional Low-Odor/VOC Latex System: Flat finish; ceilings.
 - a. Prime Coat: Interior latex primer/sealer.
 - 1) Ultra Spec 500 Interior Primer (N534); Benjamin Moore & Co.
 - 2) High Hide Interior Primer Sealer 1000-1000; Glidden Professional.
 - 3) SPEEDHIDE 6-2 Interior Latex Sealer Quick-Drying; PPG Industries.
 - 4) S-W ProMar 200 Zero VOC Interior Latex Primer, B28SW2600; Sherwin-Williams Company.
 - b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat.
 - 1) Ultra Spec 500 Interior Flat Finish (N536); Benjamin Moore & Co.
 - 2) Lifemaster Interior Flat 9100; Glidden Professional.
 - 3) SPEEDHIDE 6-70 series Interior Latex Flat; PPG Industries.
 - 4) S-W ProMar 200 Zero VOC Flat, B30-2600; Sherwin-Williams Company.
 - c. Topcoat: Institutional low-odor/VOC interior latex (flat).
 - 1) Eco Spec WB Interior Latex Flat, 373; Benjamin Moore & Co.
 - 2) Ultra-Hide 250 Flat Latex Paint 1200N Series; Glidden Professional.
 - 3) SPEEDHIDE 6-70 series Interior Latex Flat; PPG Industries.
 - 4) S-W ProGreen 200 Flat, B30-600 Series; Sherwin-Williams Company.
- J. Wood Fiber Acoustical Panels:
 1. Institutional Low-Odor/VOC Latex System: Eggshell finish.
 - a. Prime Coat: Existing panels are painted.
 - b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat.
 - 1) Ultra Spec 500 Interior Primer (N534); Benjamin Moore & Co.
 - 2) Lifemaster Interior Latex Eggshell 9300; Glidden Professional.
 - 3) SPEEDHIDE 6-421 series High Solids Interior Enamel Eggshell Latex; PPG Industries.
 - 4) S-W ProMar 200 Zero VOC Eg-Shel, B20-2600; Sherwin-Williams Company.
 - c. Topcoat: Institutional low-odor/VOC interior latex (eggshell).
 - 1) Ultra Spec 500 Interior Eggshell Finish (N538); Benjamin Moore & Co.
 - 2) Lifemaster Interior Latex Eggshell 9300; Glidden Professional.
 - 3) SPEEDHIDE 6-421 series High Solids Interior Enamel Eggshell Latex; PPG Industries.
 - 4) S-W ProMar 200 Zero VOC Eg-Shel, B20-2600; Sherwin-Williams Company.
- K. Cotton or Canvas Insulation-Covering Substrates: Including pipe and duct coverings.
 1. Institutional Low-Odor/VOC Latex System:
 - a. Prime Coat: Interior latex primer/sealer.
 - 1) SUPER SPEC Latex Enamel Undercoater & Primer Sealer 253; Benjamin Moore & Co.
 - 2) SPEEDHIDE 6-2 Interior Latex Sealer Quick-Drying; PPG Industries.
 - 3) ProMar 200 Zero VOC Interior Latex Primer B28W2600; Sherwin-Williams Company.
 - b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat.
 - 1) Ultra Spec 500 Interior Eggshell Finish (N538); Benjamin Moore & Co.

- 2) SPEEDHIDE 6-421 series High Solids Interior Enamel Eggshell Latex; PPG Industries.
- 3) ProMar 200 Zero VOC Eg-Shel, B20-2600; Sherwin-Williams Company.
- c. Topcoat: Institutional low-odor/VOC interior latex (eggshell).
 - 1) Ultra Spec 500 Interior Eggshell Finish (N538); Benjamin Moore & Co.
 - 2) SPEEDHIDE 6-421 series High Solids Interior Enamel Eggshell Latex; PPG Industries.
 - 3) ProMar 200 Zero VOC Eg-Shel, B20-2600; Sherwin-Williams Company.
- L. Exposed PVC Piping:
 1. Institutional Low-Odor/VOC Latex System over bond coat:
 - a. Bond Coat:
 - 1) STIX Waterborne Bonding Primer SXA-110; Insl-X (Benjamin Moore & Co.)
 - 2) Gripper Interior/Exterior Primer-Sealer 3210-1200; Glidden Professional.
 - 3) SEAL Grip 17-921 Interior/Exterior 100% Acrylic Universal Primer/Sealer; PPG Industries.
 - 4) Adhesion Bonding Primer, B51W50; Sherwin-Williams Company.
 - b. Intermediate Coat: Interior latex matching topcoat.
 - 1) Ultra Spec 500 Interior Eggshell Finish (N538); Benjamin Moore & Co.
 - 2) Lifemaster Interior Latex Eggshell 9300; Glidden Professional.
 - 3) SPEEDHIDE 6-421 series High Solids Interior Enamel Eggshell Latex; PPG Industries.
 - 4) ProMar 200 Zero VOC Eg-Shel, B20-2600 Series; Sherwin-Williams Company.
 - c. Topcoat: Interior latex (eggshell).
 - 1) Ultra Spec 500 Interior Eggshell Finish (N538); Benjamin Moore & Co.
 - 2) Lifemaster Interior Latex Eggshell 9300; Glidden Professional.
 - 3) SPEEDHIDE 6-421 series High Solids Interior Enamel Eggshell Latex; PPG Industries.
 - 4) ProMar 200 Zero VOC Eg-Shel, B20-2600 Series; Sherwin-Williams Company.
- M. Hardboard Floor Surface - Stage Surfacing:
 1. Institutional Low-Odor/VOC low sheen floor finish:
 - a. First Coat:
 - 1) Devflex 4212; Glidden Professional.
 - 2) Armorseal Tread-Plex B90 Series or H&C Solid Color Acrylic Deck Coating (Black); Sherwin-Williams Company.
 - b. Top Coat:
 - 1) Devflex 4212; Glidden Professional.
 - 2) Armorseal Tread-Plex B90 Series or H&C Solid Color Acrylic Deck Coating (Black); Sherwin-Williams Company.

3.7 INTERIOR PAINTING SCHEDULE - EXISTING AREAS

- A. Wherever alterations and changes occur as a result of Work under the Contract in any room of existing building, except as specifically indicated on Drawings, paint affected ceiling and wall areas as specified under the Standard Painting Applications listed in this Section; the wall or ceiling in which the alterations occur will be painted from natural break to natural break.
- B. Generally, paint color in altered areas will match the adjoining surfaces as closely as possible.

- C. Remove and clean existing tectum panels in the gymnasium, refinish with system specified in this section.
- D. All doors and frames within "Limits of Contract" will be painted on both sides as required by the applicable Master Specifications; new Work, all required coats.
- E. When painting existing surfaces, Contractor bears the responsibility of assuring compatibility of new paint materials with existing.

END OF SECTION

SECTION 09 93 00 - STAINING AND TRANSPARENT FINISHING**PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. This Section includes surface preparation and the application of wood finishes on the following substrates:
 - 1. Interior Substrates:
 - a. Dressed lumber (finish carpentry).
 - b. Exposed wood panel products.

1.2 RELATED REQUIREMENTS

- A. Section 01 30 00 - Administrative Requirements: Submittal procedures, project meetings, progress schedules and documentation, reports, coordination.

1.3 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: For each type of product indicated.
- C. Samples for Initial Selection: For each type of product indicated
- D. Samples for Verification: For each type of finish system and in each color and gloss of finish indicated.
 - 1. Submit Samples on representative samples of actual wood substrates, 8 inches square.
 - 2. Label each Sample for location and application area.
- E. Product List: For each product indicated, include the following:
 - 1. Cross-reference to finish system and locations of application areas. Use same designations indicated on Drawings and in schedules.
- F. LEED Submittals: For Credit EQ 4.2, manufacturers' product data for field-applied finishes, including printed statement of VOC content in g/L.
- G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
 - a. Quantity: Furnish an additional 5 percent, but not less than 1 gal. of each material and color applied.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.5 FIELD CONDITIONS

- A. Apply finishes only when temperature of surfaces to be finished and ambient air temperatures are between 50 and 95 deg F.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Benjamin Moore & Co.
- B. Duron, Inc.
- C. Glidden Professional/Flood Company.
- D. PPG Industries.
- E. Sherwin-Williams Company.

2.2 MATERIALS, GENERAL

- A. Material Compatibility:
 - 1. Provide materials for use within each finish system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a finish system, provide products recommended in writing by manufacturers of topcoat for use in finish system and on substrate indicated.
- B. Stain Colors: Match Architect's samples.
- C. LEED Compliance: Field-applied wood finishes applied to interior elements can not exceed the VOC content limits established in South Coast Air Quality Management District Rule 1113, Architectural Coatings, rules in effect January 1, 2004.
 - 1. Clear Wood Finishes - VOC Limits:
 - a. Varnish 350 g/L.
 - b. Lacquer 550 g/L.
 - 2. Sealers - VOC Limits:
 - a. Sanding Sealers: 275 g/L.
 - b. Other Sealers: 200 g/L.
 - 3. Stains - VOC Limits: 250 g/L.
 - 4. Shellacs - VOC Limits: Clear 730 g/L; pigmented 550 g/L.
- D. Volatile Organic Compound (VOC) Content: Comply with Section 01 61 16.

2.3 WOOD FILLERS

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

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
 - 1. Maximum Moisture Content of Wood Substrates: 15 percent when measured with an electronic moisture meter.
 - 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes.
 - 3. Begin finish application only after unsatisfactory conditions have been corrected and surfaces are dry.

4. Beginning application of finish system constitutes Contractor's acceptance of substrate and conditions.

3.2 PREPARATION

- A. Remove plates, machined surfaces, and similar items already in place that are not to be finished. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and finishing.
 1. After completing finishing operations, reinstall items that were removed; use workers skilled in the trades involved. Remove surface-applied protection if any.
- B. Clean and prepare surfaces to be finished according to manufacturer's written instructions for each particular substrate condition and as specified.
 1. Remove surface dirt, oil, or grease by washing with a detergent solution; rinse thoroughly with clean water and allow to dry. Remove grade stamps and pencil marks by sanding lightly. Remove loose wood fibers by brushing.
 2. Remove mildew by scrubbing with a commercial wash formulated for mildew removal and as recommended by stain manufacturer.
 3. Countersink steel nails, if used, and fill with putty tinted to final color to eliminate rust leach stains.
- C. Apply wood filler paste to open-grain woods, to produce smooth, glasslike finish.

3.3 APPLICATION

- A. Apply in accordance with manufacturer's instructions.
 1. Use applicators and techniques suited for finish and substrate indicated.
 2. Finish surfaces behind movable equipment and furniture same as similar exposed surfaces.
- B. Apply finishes to produce surface films without cloudiness, holidays, lap marks, brush marks, runs, ropiness, or other surface imperfections.

3.4 CLEANING

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing finish application, clean spattered surfaces. Remove spattered materials by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from finish application. Correct damage by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced finished wood surfaces.

3.5 INTERIOR WOOD-FINISH-SYSTEM SCHEDULE

- A. Finish Carpentry Substrates:
 1. Polyurethane Varnish Over Stain System:
 - a. Stain Coat: Interior wood stain (semitransparent).
 - 1) Minwax 250 V.O.C. Compliant WoodFinish Interior Penetrating Stain; Duron, Inc.

- 2) OLYMPIC 44500 Premium Interior Oil Based Wood Stain 240 gpl VOC; PPG Industries.
 - 3) Minwax 250 V.O.C. Compliant WoodFinish Interior Penetrating Stain; Sherwin-Williams Company.
 - 4) Wood Pride Professional Finish Water Based Semi-Transparent Wood Finishing Stain 1700V Series; Glidden Professional.
 - b. Two Finish Coats: Interior, waterborne polyurethane (satin).
 - 1) Benwood Stays Clear Acrylic Polyurethane Low Lustre 423; Benjamin Moore & Co.
 - 2) Wood Classic WB Polyurethane, A68 Series; Duron, Inc.
 - 3) OLYMPIC Premium Interior Water Based Polyurethane Clear 42786 Stain / 42784 Gloss; PPG Industries.
 - 4) WoodClassics Waterborne Polyurethane Varnish - Gloss A68V91 (first coat)/Satin A68F90 (second coat); Sherwin-Williams Company.
 - 5) Wood Pride Professional Finishes Water Based Satin Varnish 1802-0000; Glidden Professional.
- B. Exposed Wood Panel-Product Substrates:
1. Polyurethane Varnish Over Stain System:
 - a. Stain Coat: Interior wood stain (semitransparent).
 - 1) Minwax 250 V.O.C. Compliant WoodFinish Interior Penetrating Stain; Duron, Inc.
 - 2) OLYMPIC 44500 Premium Interior Oil Based Wood Stain 240 gpl VOC; PPG Industries.
 - 3) Minwax 250 V.O.C. Compliant WoodFinish Interior Penetrating Stain; Sherwin-Williams Company.
 - 4) Wood Pride Professional Finish Water Based Semi-Transparent Wood Finishing Stain 1700V Series; Glidden Professional.
 - b. Two Finish Coats: Interior, waterborne polyurethane (satin).
 - 1) Benwood Stays Clear Acrylic Polyurethane Low Lustre 423; Benjamin Moore & Co.
 - 2) Wood Classic WB Polyurethane, A68 Series; Duron, Inc.
 - 3) OLYMPIC Premium Interior Water Based Polyurethane Clear 42786 Stain / 42784 Gloss; PPG Industries.
 - 4) WoodClassics Waterborne Polyurethane Varnish - Gloss A68V91 (first coat)/Satin A68F90 (second coat); Sherwin-Williams Company.
 - 5) Wood Pride Professional Finishes Water Based Satin Varnish 1802-0000; Glidden Professional.

END OF SECTION

SECTION 09 96 00 - HIGH-PERFORMANCE COATINGS**PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. This Section includes surface preparation and application of high-performance coating systems on the following substrates:
 - 1. Interior Substrates:
 - a. Concrete masonry units (CMU).
 - b. Gypsum board.
 - 2. Exterior Substrates:
 - a. Exposed steel handrails, guardrails, canopy structure and other rooftop structures.
 - b. Exposed angle lintels and hung plates.

1.2 DEFINITIONS

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

1.3 REFERENCE STANDARDS

- A. SSPC-SP 6/NACE No. 3 - Commercial Blast Cleaning.

1.4 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: For each type of product indicated.
- C. Samples for Initial Selection: For each type of finish-coat product indicated.
- D. Samples for Verification: For each type of coating system and in each color and gloss of finish coat indicated.
 - 1. Submit Samples on rigid backing, minimum 8 inches square.
 - 2. Step coats on Samples to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.
- E. 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.
- F. LEED Submittals: For Credit EQ 4.2, manufacturers' product data for interior coatings, including printed statement VOC content; requirements of coating systems for high humidity areas differ from normal-conditioned spaces.
- G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
 - a. Quantity: Furnish an additional 5 percent, but not less than 1 gal. of each material and color applied.

1.5 QUALITY ASSURANCE

- A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.

1.6 MOCK-UP

- A. Benchmark Samples (Mock-ups): Provide benchmark finish sample (all coats) for each coating type and substrate.
 1. Architect will select several rooms or surfaces to represent surfaces and conditions, for application of each paint system type and substrate; colors will be provided for Benchmark Samples.
 - a. Wall Surfaces: Complete minimum 100 square feet.
 - b. Small Areas and Items: Apply systems to items designated by the Architect.
 2. Complete Benchmark Samples per the requirements of this Section.
 - a. Provide required sheen, color and texture for each surface.
 - b. Architect-accepted Benchmark Samples to establish level of quality for remainder of Work.
 3. Architect to provide final color approvals from Benchmark Samples and intermediate coat wall colors; refer to subsection 3.3 of this Section.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 1. Maintain containers in clean condition, free of foreign materials and residue.
 2. Remove rags and waste from storage areas daily.

1.8 FIELD CONDITIONS

- A. Apply coatings only when temperature of surfaces to be coated and surrounding air temperatures are between 50 and 95 deg F.
- B. Do not apply coatings in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Benjamin Moore & Co.
- B. Duron, Inc.
- C. Glidden Professional.
- D. International Paint LLC distributed by McCormick Paints.
- E. PPG Industries.
- F. Sherwin-Williams Company.

2.2 HIGH-PERFORMANCE COATINGS, GENERAL

- A. Material Compatibility:
 - 1. 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.
 - 2. Provide products of same manufacturer for each coat in a coating system.
- B. Chemical Components of Interior Paints and Coatings: Provide products that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and the following chemical restrictions:
 - 1. Flat Paints and Coatings: VOC content of not more than 50 g/L.
 - 2. Nonflat Paints and Coatings: VOC content of not more than 150 g/L.
 - 3. Anticorrosive & Anti-Rust Coatings: VOC content of not more than 250 g/L.
- C. Volatile Organic Compound (VOC) Content: Comply with Section 01 61 16.
- D. Colors: As selected by Architect from manufacturer's full range.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
 - 1. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - a. Masonry (CMU): 12 percent.
 - b. Gypsum Board: 12 percent.
 - c. Concrete: 12 percent.
 - 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 3. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
 - 4. Coating application indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
- B. Remove 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.

- D. CMU Substrates: Remove 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.
- E. Steel Substrates: Remove rust and loose mill scale.
 - 1. Clean using methods recommended in writing by coating manufacturer.
 - 2. Blast clean according to SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

3.3 COLOR COORDINATION

- A. Tint intermediate coats for wall surfaces to match color sample selections.
- B. Architect will visit the Project within 7 days after notification, to review primed walls for final color coordination.
- C. Allow 3 week days in schedule for Architect to change final wall colors between intermediate coat and remaining coat(s).
- D. Allow time to order final paint colors; do not order final paint colors until obtaining final color approvals.

3.4 APPLICATION

- A. Apply in accordance with manufacturer's instructions.
- B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
 - 1. The number of coats and film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
 - 2. Wall Surfaces: Receive final color approvals following Architect's review of Intermediate Coats, before proceeding.
 - 3. Omit primer over metal surfaces that have been shop primed and touchup painted.
 - 4. If undercoats or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
 - 5. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion.
- C. Apply high-performance coatings according to manufacturer's written instructions.
 - 1. Use applicators and techniques suited for coating and substrate indicated.
 - 2. Paint exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Architect will select from standard colors and finishes available.
 - a. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, convactor covers, covers for finned-tube radiation, and similar

- components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
3. Coat surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, coat surfaces behind permanently fixed equipment or furniture with prime coat only.
 4. Coat back sides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
- D. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.
- E. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.
1. Wall Surfaces: Tint Prime Coat a lighter shade to facilitate identification; tint Prime Coat to match color of finish coat, but provide sufficient difference in shade to distinguish Prime Coat from Intermediate Coat used for final color selections.
 2. Other Surfaces: Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- F. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.
- G. If undercoats or other conditions show through final coat, apply additional coats until cured film has a uniform coating finish, color, and appearance.
- H. Apply coatings to produce surface films without cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Produce sharp glass lines and color breaks.
- I. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.

3.5 CLEANING

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- 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. At completion of construction activities of other trades, touch up and restore damaged or defaced coated surfaces.

3.6 INTERIOR HIGH-PERFORMANCE COATING SCHEDULE

- A. Gypsum Board Substrates:
 1. Water-Based Epoxy Coating System:

-
- a. Prime Coat: Interior latex primer/sealer.
 - 1) Fresh Start All Purpose 100% Acrylic Primer 023; Benjamin Moore & Co.
 - 2) Acrylic Latex Drywall Primer Sealer DU004124; Duron, Inc.
 - 3) Glidden Professional 1000 High-Hide Interior Primer, Glidden Professional.
 - 4) Sealzit II Primer-Sealer-Stain Blocker 06443; McCormick Paints.
 - 5) SPEEDHIDE 6-2 Interior Latex Sealer Quick-Drying; PPG Industries.
 - 6) ProGreen 200 Interior Latex Primer, B28W600 Series; Sherwin-Williams Company.
 - b. Intermediate Coat: Water-based epoxy.
 - 1) Super Spec HP Acrylic Epoxy Coating P43; Benjamin Moore & Co.
 - 2) Pro Industrial Water Based Catalyzed Epoxy Enamel B70W211; Duron, Inc.
 - 3) TRU-GLAZE-WB™ 4426 Waterborne Epoxy Semi-Gloss Coating; Glidden Professional.
 - 4) InterH2O 735; International Paint LLC; distributed through McCormick Paints.
 - 5) Pitt Glaze WB 16-551 series Water Based Epoxy; PPG Industries.
 - 6) Water Based Catalyzed Epoxy Enamel B70; Sherwin-Williams Company.
 - c. Topcoat: Water-based epoxy.
 - 1) Super Spec HP Acrylic Epoxy Coating P43; Benjamin Moore & Co.
 - 2) Pro Industrial Water Based Catalyzed Epoxy Enamel B70W211; Duron, Inc.
 - 3) TRU-GLAZE-WB™ 4426 Waterborne Epoxy Semi-Gloss Coating; Glidden Professional.
 - 4) InterH2O 735; International Paint LLC; distributed through McCormick Paints.
 - 5) Pitt Glaze WB 16-551 series Water Based Epoxy; PPG Industries.
 - 6) Water Based Catalyzed Epoxy Enamel B70; Sherwin-Williams Company.
- B. CMU Substrates:
- 1. Epoxy Coating System:
 - a. Prime Coat: Epoxy block filler.
 - 1) Super Spec Waterborne Latex Block Filler 160; Benjamin Moore & Co.
 - 2) Dura Clad 700 Cementitious Block Filler (high moisture areas), or DuraCrete High Performance Acrylic Block Filler, DU0016110; Duron, Inc.
 - 3) TRU-GLAZE-WB™ 4015 High Performance Waterborne Epoxy Block Filler; Glidden Professional.
 - 4) Pitt Glaze WB 16-90 Epoxy Block Filler; PPG Industries.
 - 5) Kem Cati-Coat HS Epoxy Filler/Sealer, B24W400/V400 S (high moisture areas), or S-W Loxon Block Surfacer, A24W200; Sherwin-Williams Company.
 - b. Intermediate Coat:
 - 1) Super Spec HP Acrylic Epoxy Semi-Gloss Catalyzed P43; Benjamin Moore & Co.
 - 2) Water Based Catalyzed Epoxy Enamel B70; Duron, Inc.
 - 3) TRU-GLAZE-WB™ 4426 Waterborne Epoxy Semi-Gloss Coating; Glidden Professional.
 - 4) Pitt Glaze WB 16-551 series Water Based Epoxy; PPG Industries.
 - 5) Water Based Catalyzed Epoxy Enamel B70; Sherwin-Williams Company.
 - c. Topcoat: Epoxy, cold-cured, gloss.
 - 1) Super Spec HP Acrylic Epoxy Semi-Gloss Catalyzed P43; Benjamin Moore & Co.
 - 2) Water Based Catalyzed Epoxy Enamel B70; Duron, Inc..

- 3) TRU-GLAZE-WB™ 4426 Waterborne Epoxy Semi-Gloss Coating; Glidden Professional.
- 4) Pitt Glaze WB 16-551 series Water Based Epoxy; PPG Industries.
- 5) Water Based Catalyzed Epoxy Enamel B70; Sherwin-Williams Company.

3.7 EXTERIOR HIGH-PERFORMANCE COATING SCHEDULE

A. Exposed Structural Handrails, Guardrails, Canopy Steel, Angle Lintels and Hung Plate Substrates:

1. Basis-of-Design Polysiloxane Coating System:
 - a. Prime Coat: Two component, high solids, metallic rich epoxy primer.
 - b. Intermediate Coat: High-build epoxy marine coating, low gloss.
 - c. Topcoat: Two component, high solids Polysiloxane coating Interfine 878 by International Paint LLC.
2. Polysiloxane System PPG Industries:
 - a. Prime Coat: PPG AQUAPON 97-670 series Organic Zinc Rich Primer.
 - b. Prime Coat: PPG Pittguard 97-946 series All-Weather DTR Epoxy Mastic.
 - c. Topcoat: PPG Amercoat PSX 1001 Series Single pack acrylic polysiloxane.
3. Other Available Products:
 - a. Glidden Professional (Devco Coatings) - Steel:
 - 1) Prime Coat: CATHA-COAT® 302H Reinforced Inorganic Zinc Primer.
 - 2) Intermediate Coat: BAR-RUST® 231 Multi-Purpose Epoxy.
 - 3) Topcoat: DEVTHANE® 379UVA Aliphatic Acrylic Urethane Gloss Enamel.
 - b. Glidden Professional (Devco Coatings) - Galvanized Steel:
 - 1) Prime Coat: DEVRAN® 205 Universal Epoxy.
 - 2) Intermediate Coat: DEVTHANE® 379UVA Aliphatic Acrylic Urethane Gloss Enamel.
 - 3) Topcoat: DEVTHANE® 379UVA Aliphatic Acrylic Urethane Gloss Enamel.
 - c. Sherwin-Williams Company - Steel:
 - 1) Prime Coat: S-W Zinc Clad IV Epoxy Primer B69 A8 Series.
 - 2) Intermediate Coat: S-W Acrolon 218HS B65W00611 Aliphatic Urethane Gloss Enamel.
 - 3) Topcoat: S-W Acrolon 218HS B65W00611 Aliphatic Urethane Gloss Enamel.
 - d. Sherwin-Williams Company - Galvanized Steel:
 - 1) Prime Coat: S-W Recoatable Epoxy Primer B67A5 Series or, for high abrasion areas: DTM Wash Primer.
 - 2) Intermediate Coat: S-W Acrolon 218HS B65W00611 Aliphatic Urethane Gloss Enamel.
 - 3) Topcoat: S-W Acrolon 218HS B65W00611 Aliphatic Urethane Gloss Enamel.
 - e. PPG Industries, Inc.:
 - 1) Prime Coat: PPG Pittguard 97-946 series All-Weather DTR Epoxy Mastic.
 - 2) Intermediate Coat: PPG Pitthane Ultra 95-812 series Acrylic Aliphatic Urethane.
 - 3) Topcoat: PPG Pitthane Ultra 95-812 series Acrylic Aliphatic Urethane.
 - f. PPG Industries, Inc.:
 - 1) Prime Coat: PPG AQUAPON 97-670 series Organic Zinc Rich Primer.
 - 2) Intermediate Coat: PPG Pitthane Ultra 95-812 series Acrylic Aliphatic Urethane.

- 3) Topcoat: PPG Pitthane Ultra 95-812 series Acrylic Aliphatic Urethane.
- B. Do not allow excessive time to elapse following application of epoxy type coatings, as determined by the manufacturer; document manufacturer's recommendation for the Architect's information.

END OF SECTION